

400 Central Park West

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New York, NY 10024



Site Contact

Kevin May
Project Engineer
Aegis Energy Services Inc.
55 Jackson St, Holyoke MA, 01040
413-536-1156
Kmay@aegisenergyservices.com

Overview

CDH was on site 3/13/2017 to install a datalogger, terminate sensor wiring, install temperature sensor, setup communications, and verify installed metering. Data collection begins.

Outstanding Issues

- Gas use was double the expected value during verification corresponding to an electrical efficiency of approximately 13%.
- Aegis replaced the gas meter 5/22/2017.

M&V Instrumentation Installation

CDH provided the data logger and enclosure, supplemental temperature sensor, dump radiator current sensor, and necessary wire pulls. Aegis provided and installed the power, gas, and Btu meters. Aegis installed the CDH enclosure, supplied 120V power, and provided communications. The cogen system, including all HX's, metering, and the CDH panel are located in the basement boiler room. The following table shows the data points measured by the M&V system.

Monitored Data Points

Logger Channel	Data Point	Description	Eng Units	Instrument / Transducer	Output
MB-005	WB	Total Facility Power	kWh	Veris E51	Modbus RS-485
MB-002	WT	Gross Generator Power Output	kWh	Veris H-8035-300	Modbus RS-485
MB-001	WP	Parasitic Loads	kWh	Veris H-8035-100	Modbus RS-485
-	WG	Net Power Output	kWh	-	Calculated
IN-1	FG	Cogen Gas Consumption	cf	Romet RM2000	Pulse
MB-004	FHW	Recovered Heat Loop Flow	gpm	Badger Series 380	Modbus RS-485
MB-004	THW1	Recovered Heat Loop - Supply Temp.	°F	Badger Series 380	Modbus RS-485
MB-004	THW2	Recovered Heat Loop - Temp. After HX1 (DHW)	°F	Badger Series 380	Modbus RS-485
IN-2	THW3	Dump Radiator Loop - Return Temp.	°F	Veris 10k Type II Thermistor (insertion)	Resistance
IN-3	IVFD	Dump Radiator Current	Amps	Veris H921	4 - 20 mA
-	QR	Rejected Heat Recovery	Mbtu/h	-	Calculated
MB-004	QU	Total Useful Heat Recovery	Mbtu/h	-	Calculated

IP Information

DDNS:	http://400cpw.ddns.net:4081/index.cgi
Internal IP:	10.0.20.141
Netmask:	255.255.255.0
Gateway:	10.0.20.1
DNS #1:	8.8.8.8
DNS #2:	8.8.4.4
MAC Address:	00:1E:C6:00:27:FA

Procedure

- Power data was verified by comparing the generator engine controller displayed power to the Veris H8035 power measurement displayed on the Obvius data logger.
- Hot water loop flow was verified by comparing the Badger 380 flow reading on the Obvius to measurements taken using a portable Portaflow ultrasonic flowmeter.
- Temperatures were verified by comparing Obvius readings (Badger 380 and supplied insertion temperature sensor) to the readings on temperature gauges built into the system.

Verification Data - March 13, 2017

Generator Power:

	Obvius (kW)	Cogen Display (kW)
WT	48.6	50
	48.5	50

Avg: 48.55 50

Recovered Heat Loop Flow:

	Obvius (gpm)	Portaflow Meter (gpm)
FHW	27.5	27.2
	27.5	27.3

Avg: 27.5 27.3

Portaflow Ultrasonic Flow Meter Configuration	
Sensor Spacing	1.164 in
OD	2.125 in
Thickness	0.070 in
2 in Type L Copper	

System Temperatures:

	Obvius (°F)	Gauge (°F)
THW1	102.0	101.0
	102.0	101.0
	148.0	150.0

Avg: 125 125.5

THW2	101.0	100.0
	101.0	102.0
	154.0	154.0

Avg: 127.5 128

THW3	102.0	103.0
	102.0	101.0
	126.0	128.0

Avg: 114 114.5

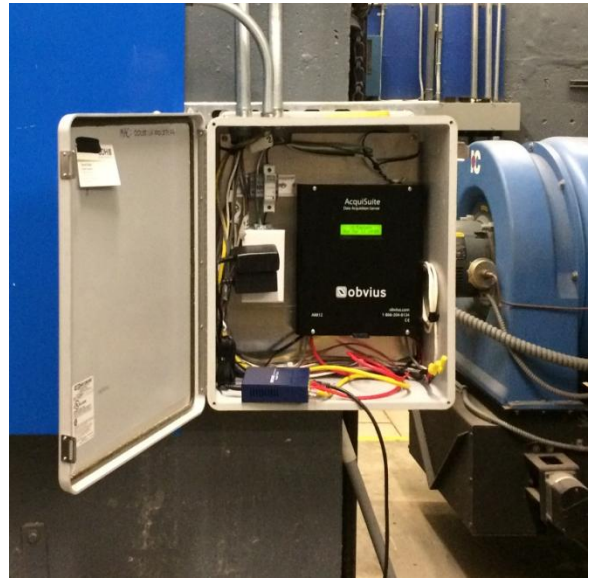
Gas Use and Electrical Efficiency:

Gas use was double the expected value during onsite verification. Calculated efficiencies were consequently half the expected achievable rating at 13%.

Site Photos



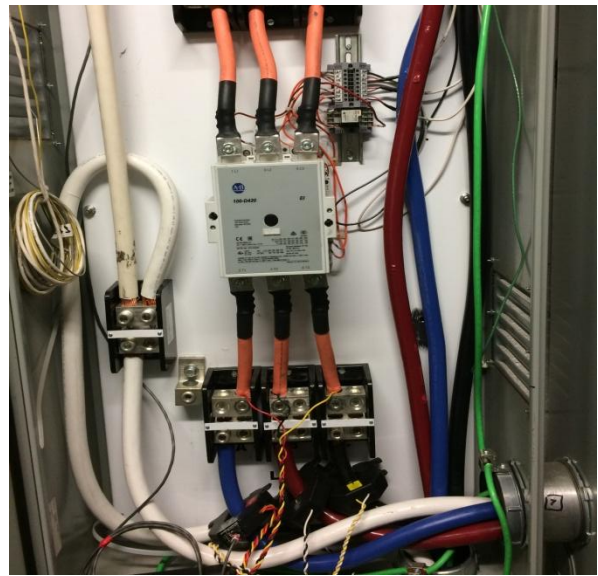
Aegen PowerVerter 100 kW cogen unit located in the boiler room.



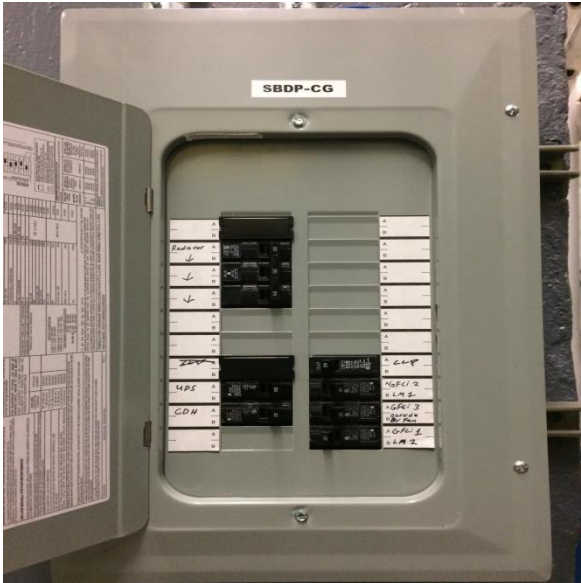
CDH panel containing data logger and CDH network switch located in the boiler room.



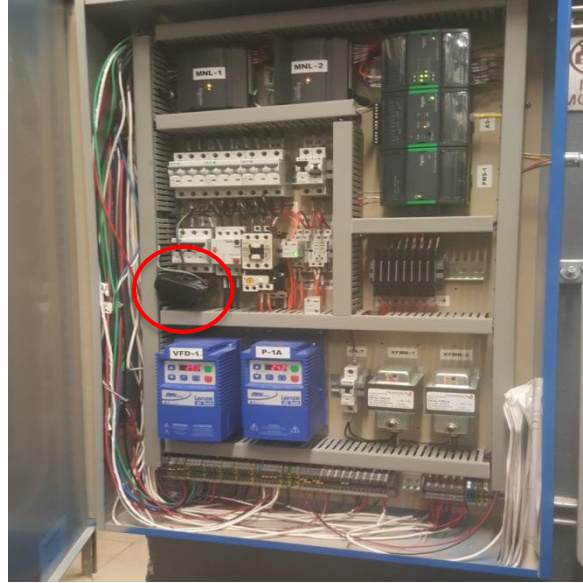
Romet RM2000 gas meter (FG) located on cogen unit skid.



Gross generator power meter (WT) located in the inverter contractor panel in the electric room above the boiler room.



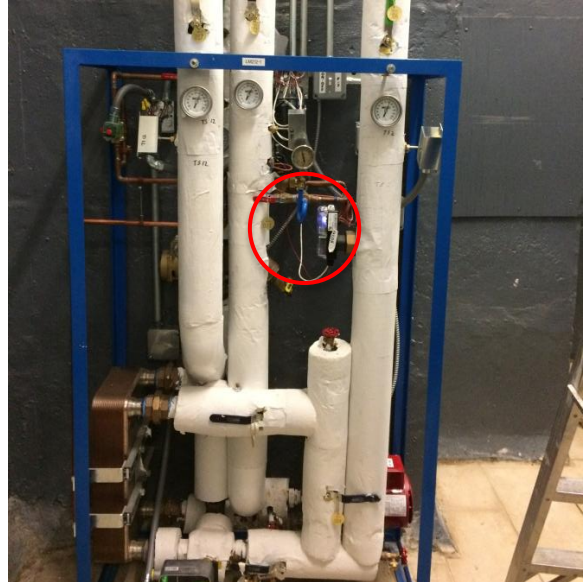
Parasitic loads (WP) fed from SBDP-CG distribution panel. Meter installed in SBDP-A located in the electric room.



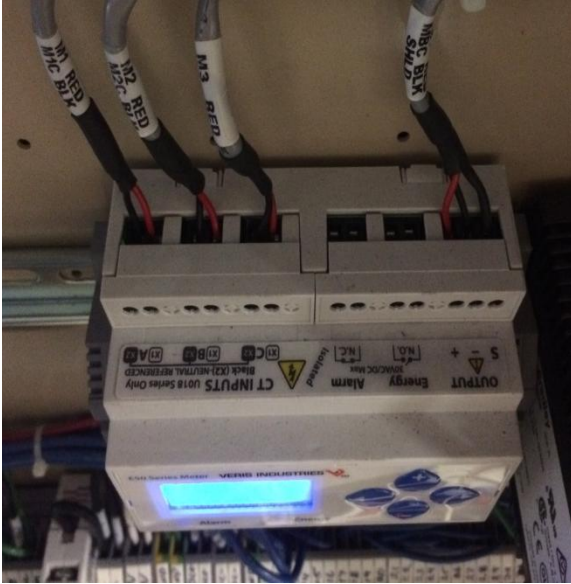
Veris H921 dump radiator fan current sensor (IVFD) located in Aeigis cogen control panel.



Veris 10K Type II Thermistor (THW3) on Dump Radiator skid after HX2 located in boiler room.



Badger 380 BTU meter on DHW skid across useful HX1 (THW1, THW2, FHW) located in the boiler room.



Veris E51 total facility power meter (WB) in Beckwith panel in the electric room above the boiler room