

Union College – Database Notes

Table 1 Database Notes

Data Collection	<u>Data Logger:</u> <u>Data Collection Interval:</u> <u>Collection Method:</u>	No dedicated data logger. Rovisys data system collects information from remote PLCs 15-minute Nightly, automated, FTP from Rovisys to CDH
Site Information	<u>Cogeneration Units:</u> <u>Nameplate Capacity:</u> <u>Heat Recovery Medium:</u> <u>Heat Recovery Uses:</u> <u>Excess Heat:</u>	Kawasaki GPB 17D combustion turbine 1800 kW Steam High pressure steam Rejected from the heat recovery steam generator stack
DG/CHP Generator Electrical Output	<u>Engineering Units:</u> <u>Energy Measurement (net/gross):</u> <u>Measurement Type:</u> <u>Generator Power Measurements:</u> <u>Parasitic Power Measurements:</u>	kW Net Average kW/interval One for the gas turbine generator Two (one for each parasitic panel)
DG/CHP Generator Electrical Output Demand	<u>Engineering Units:</u> <u>Measurement Type:</u>	kWh Average power measurements, based on peak 15-min power
DG/CHP Generator Fuel Input	<u>Engineering Units:</u> <u>Measurement type:</u>	lbm/hr 2x mass flow meters (gas to turbine, and gas to duct burner)
DG/CHP Useful Heat Recovery	<u>Engineering Units:</u> <u>Heat Measurement Type:</u>	MBtu (calculated value) Net steam calculated using three steam meters (gross - HPDA - LPDA). Heat content calculated using fixed steam and feedwater enthalpy based on observed measurements over time (TFW, PS).

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DG/CHP Unused Heat Recovery	<u>Engineering Units:</u> <u>Heat Measurement Type:</u>	Not collected
DG/CHP Status/Runtime	<u>Engineering Units:</u> <u>Measurement Type:</u>	0 – 1, System On/System Off
Facility Purchased Energy	<u>Engineering Units:</u> <u>Measurement Type:</u>	kW Average kW/interval
Facility Purchased Demand	<u>Engineering Units:</u> <u>Measurement Type:</u>	kWh Average power measurements, based on peak 15-min power.
Other Facility Gas Use	<u>Engineering Units:</u> <u>Measurement Type:</u>	Not collected

Table 2 Event Timeline

Date	Event
August 2, 2016	Data collection begins.
September 1, 2016	Turbine operation begins.
October 6, 2016	HRSG steam production begins.
March 22, 2022	Site historian error resulted in repeating data from 2/22/22 to 3/21/22. Data marked invalid for this period.

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Table 3 Data Points Tag Name and CDH Point Name

Dwg.	Dwg. Label	CDH Point	Description	Units	Instrument / Transducer
E0-101		WT	Gross Generator Output	kWh	Schweitzer SEL 734
E0-101		WT KW		kW	
E1-103	DMMF-2	WP1		kWh	Schweitzer SEL 734
E1-103	DMMF-2	WP KW1		kW	
E1-103	DMMF-3	WP2	Parasitic Loads - MCC3 - Gas Compressor	kWh	Schweitzer SEL 734
E1-103	DMMF-3	WP KW2		kW	
E1-103	DMMF-4	WP3	Parasitic Loads - MCC4 - Chiller / Cooling Tower	kWh	Schweitzer SEL 734
E1-103	DMMF-4	WP KW3		kW	
E0-101		WB	Total Facility Load	kWh	Schweitzer SEL 735
E0-101		WB KW		kW	
-	-	WG	Net Generator Output	kWh	Calculated
-	-	WG KW		kW	
M0-111	FT-3023	FGT	Gas to Turbine - Temp & Pressure	cf	Foxboro IMV30-T22BE01F
M0-117	FIT-522	FGDB	Gas to Duct Burner - Temp & Pressure	cf	Rosemount 3051SFC
-	-	FG	Total Gas Input (Turbine + Duct Burner)		Calculated
M0-122	DP-100	SV	Exhaust Bypas Conrol Valve Status	%	-
M0-118	TE-140	TCR	Condensate Return Temperature	°F	ABB 266HSH
M0-112	FIT-2	FFW	HRSG Feedwater Flow	lb/hr	Rosemount 3051CD2A
M0-114	PIT-114	PFW	HRSG Feedwater Pressure	psig	ABB 266HSH
M0-112	FIT-1	FS	Steam Flow - From HRSG	lb/hr	Rosemount 3051SMV
M0-112	PI-1	PS	Steam Pressure	psig	Rosemount 3051SMV
M0-112	TI-1	TS	Steam Temperature	°F	Rosemount 3051SMV
M0-112	FE-101	FSDAHP	Steam Flow (90 psig) - To Deaerator	lb/hr	ABB SwirlMaster FSS450
M0-112	FE-102	FSDALP	Steam Flow (35 psig) - To Deaerator		ABB SwirlMaster FSS450
M0-119	FE-145	FSCH	Steam Flow - To Chiller	lb/hr	Niagara Meter XIXX
M0-119	FE-149	FCHW	Chilled Water Loop Flow	gpm	Onicon F1210
M0-119	TE-150	TCHWS	Chilled Water Loop - Supply Temp	°F	-
M0-119	TE-148	TCHWR	Chilled Water Loop - Return Temp	°F	-

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Range Checks

Table 4. Range Checks

Data Point	Units	Hourly Data Calculation Method	Database Lower Range	Database Upper Range	Notes
DG/CHP Generator Output (WG_d)	kWh/int	Sum	-500	2000	Database range accounts for parasitic loads
DG/CHP Generator Output Demand (WG_KW_d)	kW	Max	-500	2000	Database range accounts for parasitic loads
DG/CHP Generator Gas Use (FG_d)	cf/int	Sum	0	80000	
Total Facility Purchased Energy (WT_d)	kWh/int	-	0	5000	
Total Facility Purchased Demand (WT_KW_d)	kW	-	0	5000	
Other Facility Gas Use (FT_d)	cf/int	-	-	-	Not collected
Useful Heat Recovery (QHR_d)	MBtu/int	-	0	20000	Calculated value
Unused Heat Recovery (QD_d)	MBtu/int	-	-	-	Not collected
Status/Runtime of DG/CHP Generator (SG_d)	hr	-	0	1	0 – 1, System On/System Off
Ambient Temperature (TAO)	°F	Avg	-30	130	WUG Airport Code - ALB

Notes:

1. This table contains values from *albanymed.csv*

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Relational Checks

Table 5. Relational Checks

Evaluated Point	Criteria	Result

Notes:

1. This table contains values from *relational_checks.pro*