

2 Tudor City – Database Notes

Table 1 Database Notes

Data Collection	<u>Data Logger:</u> <u>Data Collection Interval:</u> <u>Collection Method:</u>	Obvius AcquiSuite A8812 1 – Minute Nightly Obvius Building Manager Online upload to CDH servers.
Site Information	<u>Cogeneration Units:</u> <u>Nameplate Capacity:</u> <u>Heat Recovery Medium:</u> <u>Heat Recovery Uses:</u> <u>Excess Heat:</u>	Two (2) Aegis PowerVerter PV-75 units 150 kW (75 kW each) Hot Water DHW and space heating Rejected to atmosphere using dump radiator
DG/CHP Generator Electrical Output	<u>Engineering Units:</u> <u>Energy Measurement (net/gross):</u> <u>Measurement Type:</u>	kWh Net generator power Calculated using kW measurements from 2x cogen power meters and 1x parasitic power meter (Veris H8035 typ)
DG/CHP Generator Electrical Output Demand	<u>Engineering Units:</u> <u>Measurement Type:</u>	kW Calculated from generator electrical output; max kW / int * # intervals
DG/CHP Generator Fuel Input	<u>Engineering Units:</u> <u>Measurement type:</u>	CF Pulse output from billing gas meter
Other Fuel Input	<u>Engineering Units:</u> <u>Heat Measurement Type:</u>	- -
Utility Energy Import	<u>Engineering Units:</u> <u>Measurement Type:</u>	kWh Calculated as sum of two measured utility services (Veris E50) - modbus reading
Utility Energy Import Demand	<u>Engineering Units:</u> <u>Measurement Type:</u>	kW Calculated from utility energy import; max kW / int * # intervals

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DG/CHP Useful Heat Recovery	<u>Engineering Units:</u> <u>Measurement Type:</u>	<u>MBtu/hr</u> Calculated using 1-minute flow and temperature measurements
DG/CHP Rejected Heat Recovery	<u>Engineering Units:</u> <u>Heat Measurement Type:</u>	MBtu/hr Calculated using 1-minute flow and temperature data.
Generator Status	<u>Engineering Units:</u> <u>Measurement Type:</u>	Hours 0 to 1, system on / system off. Generator output must be above 30 kW to be considered on.
Ambient Temperature	<u>Engineering Units:</u> <u>Measurement Type:</u>	Deg. F Weather Underground airport code NYC.

Table 2 Event Timeline

Date	Event
7/4/20	Gas meter failed – No gas data available.
12/20/2022	Gas data stipulated, from 7/4/20 to present, using measured power and gas prior to gas meter failure. See Appendix – Gas Calc for details.

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Range Checks

Table 3. 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	0	3	
DG/CHP Generator Output Demand (WG_KW_d)	kW	Max	0	180	$WG_KW_d = WG_d * \# \text{ Intervals}$
DG/CHP Generator Gas Use (FG_d)	Cfh/int	Sum	0	70	
Total Facility Purchased Energy (WT_d)	kWh/int	-	0	20	
Total Facility Purchased Demand (WT_KW_d)	kW	-	0	1200	
Other Facility Gas Use (FT_d)	cf/int	-	-	-	
Useful Heat Recovery (QHR_d)	MBtu	-	0	1300	
Unused Heat Recovery (QD_d)	MBtu	-	0	1300	
Status/Runtime of DG/CHP Generator (SG_d)	hr	-	0	1	0-1, System On/System Off
Ambient Temperature (TAO)	°F	Avg	-20	130	WUG Airport Code: NYC

Notes:

1. This table contains values from *2_tudor.csv*

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Relational Checks

Table 4. Relational Checks

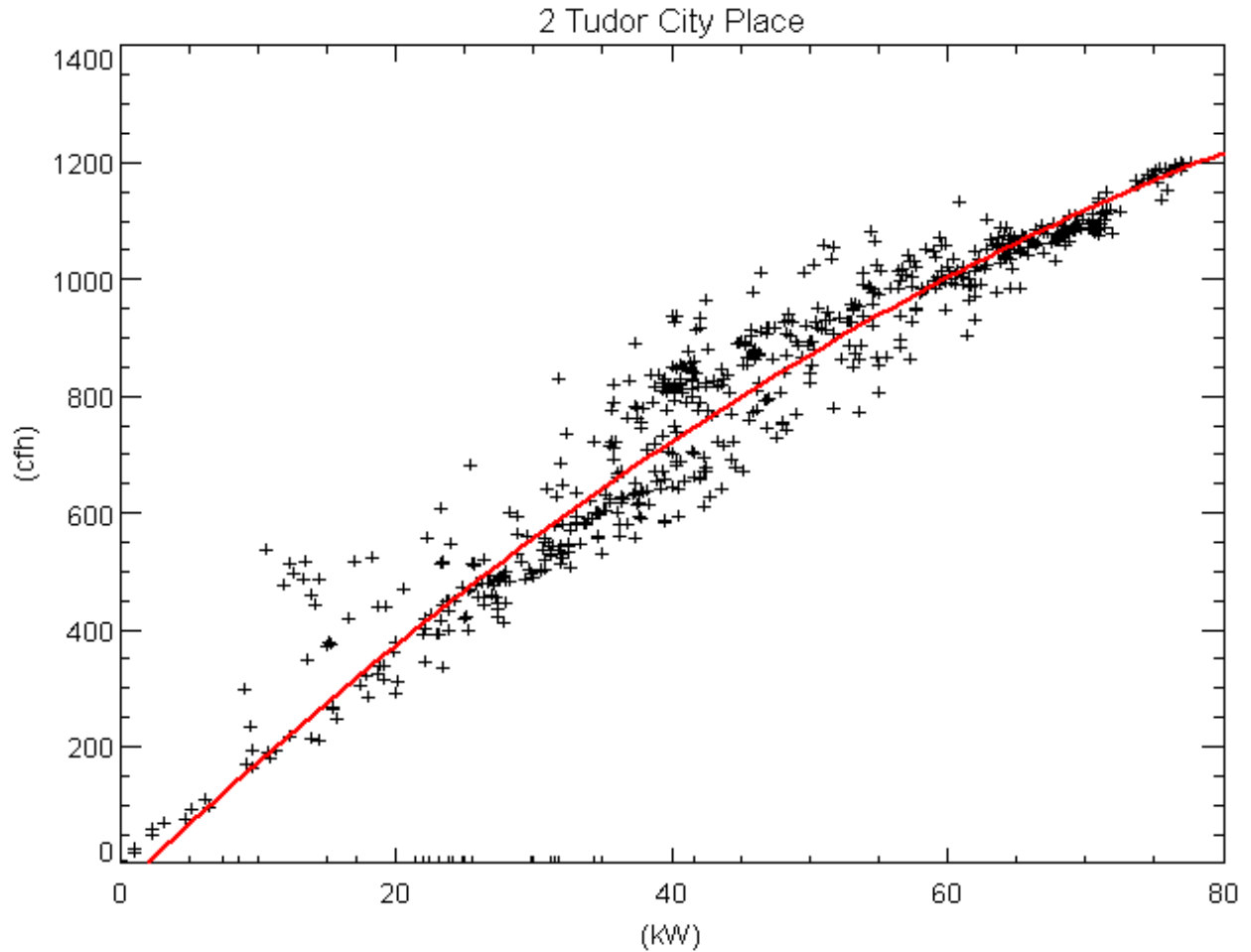
Evaluated Point	Criteria	Result

Notes:

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

TWO TUDOR CITY PLACE – APPENDIX A

Gas data is calculated from power generation by using gas curve developed from the measured power and gas data, prior to the gas meter failure on 7/3/20, for the two Aegen PowerVerter 75 units.



Power generation (WT_KW), gas consumption (FG):

$$FG = -0.08441(WT_KW)^2 + 22.49603(WT_KW) - 42.74570$$