

# Tower West – Database Notes

Table 1 Database Notes

<b>Data Collection</b>	<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.
<b>Site Information</b>	<u>Cogeneration Units:</u> <u>Nameplate Capacity:</u> <u>Heat Recovery Medium:</u> <u>Heat Recovery Uses:</u> <u>Excess Heat:</u>	Two (2) Tecogen InVerde 100 kW Units 100 kW Hot Water Space Heating Rejected to atmosphere using dump radiator
<b>DG/CHP Generator Electrical Output</b>	<u>Engineering Units:</u> <u>Energy Measurement (net/gross):</u> <u>Measurement Type:</u>	kWh Net generator power Gross power readings from InVerde engine controller and parasitic loads measured with Wattnode WMB power meter.
<b>DG/CHP Generator Electrical Output Demand</b>	<u>Engineering Units:</u> <u>Measurement Type:</u>	kW Calculated from generator electrical output; max kW / int * # intervals
<b>DG/CHP Generator Fuel Input</b>	<u>Engineering Units:</u> <u>Measurement type:</u>	CF No pulse output yet (6/2/16)
<b>Other Fuel Input</b>	<u>Engineering Units:</u> <u>Heat Measurement Type:</u>	- -
<b>Utility Energy Import</b>	<u>Engineering Units:</u> <u>Measurement Type:</u>	kWh Measured by Beckwith and data provided from InVerde engine controller.
<b>Utility Energy Import Demand</b>	<u>Engineering Units:</u> <u>Measurement Type:</u>	kW Calculated from utility energy import; max kW / int * # intervals

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<b>DG/CHP Useful Heat Recovery</b>	<u>Engineering Units:</u> <u>Measurement Type:</u>	<u>MBtu/hr</u> Calculated using 1-minute flow and temperature measurements from BTU meter.
<b>DG/CHP Rejected Heat Recovery</b>	<u>Engineering Units:</u> <u>Heat Measurement Type:</u>	MBtu/hr Calculated using 1-minute flow and temperature data from combination of BTU meter and CDH installed temperature sensor.
<b>Generator Status</b>	<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.
<b>Ambient Temperature</b>	<u>Engineering Units:</u> <u>Measurement Type:</u>	Deg. F Weather Underground airport code NYC.

**Table 2 Event Timeline**

<b>Date</b>	<b>Event</b>

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### *Range Checks*

**Table 3. Range Checks**

<b>Data Point</b>	<b>Units</b>	<b>Hourly Data Calculation Method</b>	<b>Database Lower Range</b>	<b>Database Upper Range</b>	<b>Notes</b>
DG/CHP Generator Output (WG_d)	kWh/int	Sum	-1	4	
DG/CHP Generator Output Demand (WG_KW_d)	kW	Max	-60	240	$WG\_KW\_d = WG\_d * \# \text{ Intervals}$
DG/CHP Generator Gas Use (FG_d)	Cfh/int	Sum	0	3000	
Total Facility Purchased Energy (WT_d)	kWh/int	-	0	600	
Total Facility Purchased Demand (WT_KW_d)	kW	-	0	600	
Other Facility Gas Use (FT_d)	cf/int	-	-	-	
Useful Heat Recovery (QHR_d)	MBtu	-	0	2500	
Unused Heat Recovery (QD_d)	MBtu	-	0	2500	
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 *tower\_west.csv*

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## *Relational Checks*

**Table 4. Relational Checks**

<b>Evaluated Point</b>	<b>Criteria</b>	<b>Result</b>

Notes:

1. This table contains values from *relational\_checks.pro*