Exhibit A

University of Cincinnati
System Description

The attached plant layout labeled as Attachment 1 shows that the University of Cincinnati has two 12.5 MW combustion turbine generators (CTGs) each CTG has a waste heat boiler with natural gas auxiliary burners which produce an additional twenty five percent (25%) of the annual steam production. These waste heat boilers capture the turbine exhaust to produce high pressure steam as shown in red. This steam goes to a common header that is used for two purposes. The steam can be used by a single 24 MW steam turbine generator (STG), and it can also be used to provide steam to our campus distribution system. In order to use the steam on campus the pressure is reduced from 600psi to 125 psi by running through a pressure reduction valve coupled with a de-superheater spray system. This process increases the volume of steam but reduces the total enthalpy for the steam that goes to campus.

The basis of the University's system of tracking its waste heat recovery is state of the art metering. Attachment 2 is a screen shot from UC's plant operating system. The screen shot illustrates how the University measures and records many power production parameters. This screen shot shows the steam output of one of our two waste heat recovery boiler. It is shown as the left pointing arrow in the middle of the screen and reads 43.7 kpph at 750.3 degrees Farenheit when this image was captured. This data is collected in a SQL database for both meters. The steam meters are described in the Meter Specification section of the application. .

All of the above described metered data is summarized daily and then totalized monthly in a spreadsheet shown as attachment 3. The spreadsheet shows how much energy is produced and how much fuel was consumed. These spreadsheets are saved in UC's billing system on a secure server. The data in the SQL database is also stored on a secure server, and all of this information can be retrieved at anytime for auditing.

Since we are a state institution of higher education with an in service date of 6/1/04, all of this generation should be classified as renewable. To convert the steam data into renewable energy credits we will add the two steam meters together and multiply by the enthalpy (BTU content) of the steam and divide by the average efficiency of natural gas fired generators. The enthalpy for 600 PSIG steam superheated to 750 degrees Farenheit can be found in a steam table which is shown as 1,378.57 BTU/lb in attachment 5. This BTU/lb figure is the same regardless of whether the steam is used on campus or in the steam turbine generator. We used Spirax Sarco's online calculator for our steam table. Their website is listed below the attachment. We will then divide these total BTUs by 10,416 which is the average heat rate listed for gas steam turbine generators by the Energy Information Administration (EIA). This value is shown in shown in Attachment 4 and the EIA's website is listed below the attachment.

As an example, we can look at the heat we recovered in August, 2012. As show in attachment 3, we recovered a total of 72,279 klbs of steam. We multiply this number by 1,000 to get pounds and then multiply by 1,378.57 to get total BTUs recovered and then divide by 10,416 to get kWhs which is equal to 9,566,212 kWh or 9,566 RECs. This data will be recorded monthly in GATS.

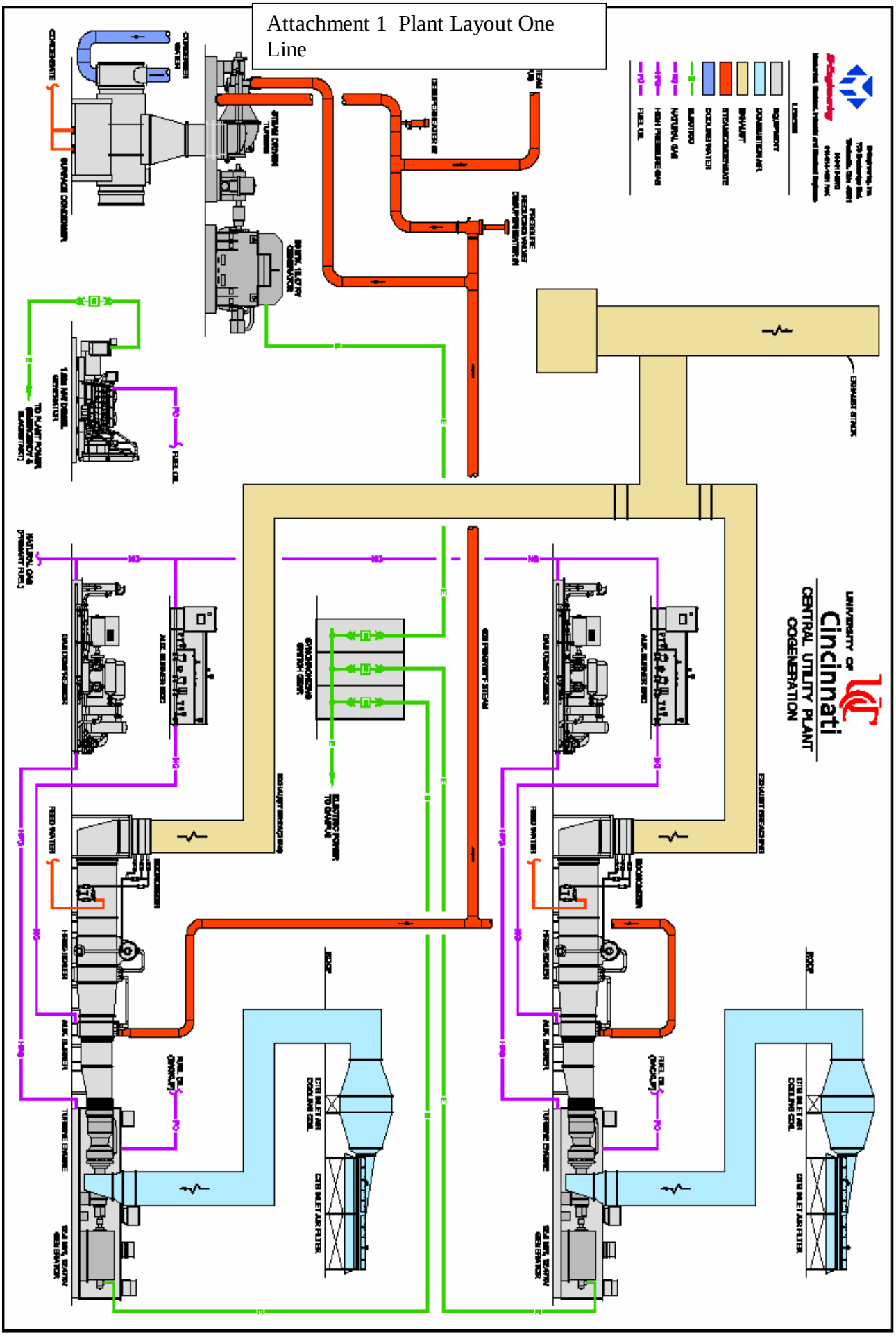
UC Central Utility Plant 6/15/2005

Combustion Turbine Generator #1

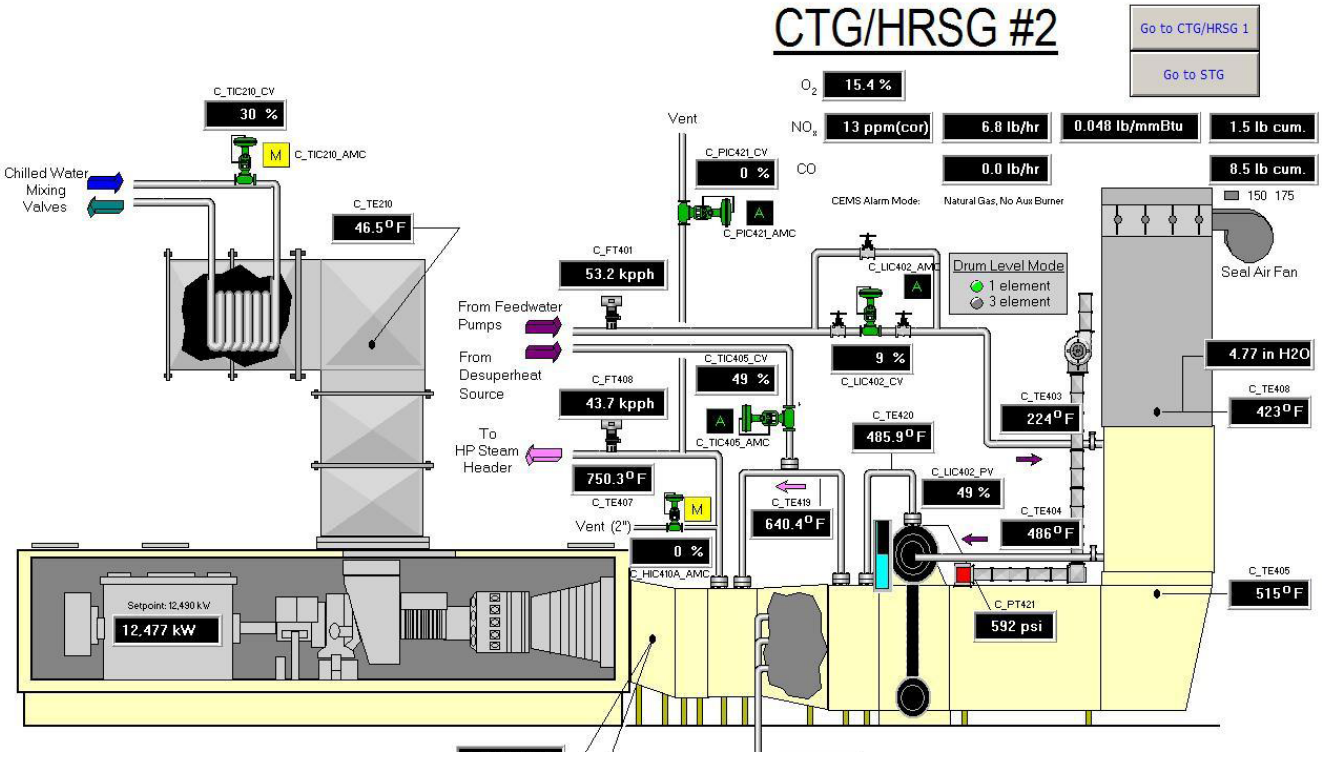
Combustion Turbine Generator # 2

Steam Turbine Generator

Attachment 1 Plant Layout One Line



Attachment 2 Screen Shot



Attachment 3
Plant Billing Reports

Co-Gen-8-12

CO-GENERATION

DATE	STEAM GENERATED (klb)		
	HRSG 1	HRSG 2	TOTAL
1	2233.2	2255.7	4488.9
2	2138.5	2312.2	4450.7
3	2167.6	2252.3	4419.9
4	1039.3	1052.8	2092.1
5	1026.5	1053.0	2079.5
6	1016.2	1055.9	2072.1
7	1033.0	1053.0	2086.0
8	1031.6	1052.9	2084.5
9	1027.6	1049.8	2077.4
10	1026.8	1047.4	2074.2
11	1025.2	1066.8	2092.0
12	1026.4	1060.1	2086.5
13	1033.4	1059.1	2092.5
14	1036.0	1075.9	2111.9
15	1033.1	1073.4	2106.5
16	1053.7	950.4	2004.1
17	1035.3	1045.5	2080.8
18	1019.7	1016.7	2036.4
19	1019.4	1060.0	2079.4
20	1014.7	1099.2	2113.9
21	1024.7	1192.4	2217.1
22	1030.2	1125.3	2155.5
23	1035.2	1084.9	2120.1
24	1043.6	1071.8	2115.4
25	1048.9	1075.6	2124.5
26	1046.7	1075.7	2122.4
27	1034.4	1057.9	2092.3
28	1049.9	1074.3	2124.2
29	1060.1	1091.7	2151.8
30	1066.0	1107.9	2173.9
31	1066.3	1085.9	2152.2
TOT.	35,543	36,736	72,279

Attachment 4
EIA Efficiency Website

‹ SEE ENTIRE ELECTRIC POWER ANNUAL

Electric Power Annual 2010 Data Tables

With Data for 2010 | Release Date: November 09, 2011 | Next Release Date: November 2012

Table 5.4. Average Heat Rates by Prime Mover and Energy Source, 2010
(Btu per Kilowatthour)

Prime Mover	Coal	Petroleum	Natural Gas[1]	Nuclear
Steam Turbine	10,142	10,249	10,416	10,452
Gas Turbine[2]	--	13,386	11,590	--
Internal Combustion	--	10,429	9,917	--
Combined Cycle	W	10,474	7,619	--

[1] Includes a small number of generators for which waste heat is the primary energy source.
[2] Includes binary turbines.
W = Withheld to avoid disclosure of individual company data.
Notes:
•See Glossary reference for definitions.
• Totals may not equal sum of components because of independent rounding.
• Heat rate is reported at full load conditions for electric utilities and independent power producers.
• The average heat rates above are weighted by Net Summer Capacity.
• In 2010, EIA changed the way it treated blank values in its methodology for calculating average heat rates.
Source: U.S. Energy Information Administration, Form EIA-860, "Annual Electric Generator Report."

http://www.eia.gov/electricity/annual/html/table5.4.cfm

Attachment 5
Spirax Sarco Steam Table Data

spirax sarco

International site for Spirax Sarco

Visit your national Spirax Sarco website | Go

Search | Advanced Search | Site Map

Home | About Us | Products & Services | Industries & Applications | Training | Resources | Contact

You are here: Home ▶ Resources ▶ Steam Tables ▶ Superheated Steam Region

Steam Tables

- Sub Saturated Water Region
- Saturated Water Line
- Wet Steam Region
- Dry Saturated Steam Line
- **Superheated Steam Region**

Feature

Training

Training that targets plant improvements and energy/cost savings.

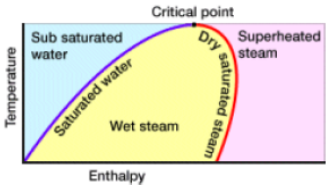
Empower your team

Superheated Steam Region - Steam Table

The superheated steam region depicts steam at a temperature higher than its saturation temperature. Should saturated steam be heated at constant pressure, its temperature will rise, producing superheated steam.

Learn more about steam in our tutorial - What is Steam?.

Set your preferences for these steam tables.



Note: - You cannot use commas (,) as decimal points.
Please use periods (.)
Example: 1.02 not 1,02

Inputs	Pressure and Superheat Temperature	
Output	⊙ Single Value ○ Table	
Pressure	600	psi gauge
Superheat Temperature	750	°F
	Calculate / Reset / Print	
Saturation Temperature	488.921	°F
Degrees Superheat	261.079	°F
Specific Enthalpy of Water (h_f)	474.675	Btu/lb
Specific Enthalpy of Evaporation (h_{fg})	728.821	Btu/lb
Specific Enthalpy of Superheated Steam (h)	1378.57	Btu/lb

http://www.spiraxsarco.com/resources/steam-tables/superheated-steam.asp

Attachment 6
Steam Meter Specification

CONTROL-SOFT ENTERPRISES

EBG FLOW PRODUCTS DIVISION
P.O. BOX 17725, AUSTIN, TEXAS, 78760 U.S.A.
PHONE: 800-426-9156 / FAX: 800-435-6629

FE-Sizer for Windows 95/98/Me/NT/2000/XP/2003 Server - Version 3.0, Release 3.46.5.

Licensed to:

Service Data

Tag:	C2b	Client:	UNIVERSITY OF CINCINNATI
Serv:		Project:	TJM-347988
Line No.:		J.O./P.O. No.:	

Calculation Method & Base Conditions

Sizing Parameter:	FLOWMETER dP	C-Std:	ASME MFC-3M (1989 Edition)
Atm Press, Patm:	14.696 psia	Tap Loc:	UPSTREAM

Meter/Pipe Data

Meter Type:	VENTURI - 15 DEG EXIT	Meter Matl:	304/304L SS
Meter Style:	MACHINED INLET	Tap Style:	D & THROAT d/2 TAPS
Nom Pipe Size:	8.00 in	Matl @ Upstr Tap:	CARBON STEEL
Pipe I.D., D(ref):	7.625 in	Pipe Sched:	80

Sizing Data

Maximum Flow, Wm:	125000.0 lb/h
Normal Flow, Wn:	117000.0 lb/h
Orifice Bore, d (68.0 deg F):	5.5000 in

Fluid Data

Fluid:	SUPERHEATED STEAM
State-Units-Equation-Condition:	VAPOR-MASS-DENSITY-FLOWING
Density (Flowing), Df1:	0.9333 lb/ft3
Pressure (Flowing), Pf1:	620.00 psig
Temperature (Flowing), Tf1:	755.0 deg F
Viscosity, U:	0.02444 cPoise
Specific Heat Ratio (Cp/Cv), k:	1.2755

Calculated Results

Sizing Factor, Sm:	0.605671
Pipe Reynolds Number @ Maximum Flow, RD:	4214636
Pipe Reynolds Number @ Normal Flow, RD:	3944899
Discharge Coefficient, C:	0.995000
Expansion Factor, Y1:	0.995493
Bore Expansion Factor, Fad:	1.006527
Pipe Expansion Factor, FaD:	1.005191
Permanent dP Loss:	12.26 %
Throat Velocity @ Max Flow:	225.49 ft/s
Beta, B (68.0 deg F):	0.72131
Maximum Differential, dPm (ref dP - H2O @ 68.0 deg F):	102.650 in WC
Normal Differential, dPn (ref dP - H2O @ 68.0 deg F):	89.9312 in WC
Orifice Uncertainty, Uo:	1.00 %

Calc Number: FREEBIE
By: John Miller

Sht: ___ of ___ Chk: _____
Rev: 0 Date: 13 Mar 2013