



UNIVERSITY OF SOUTH CAROLINA

AMENDMENT NO. 2 TO SOLICITATION

DATE: October 18, 2016
TO: ALL VENDORS
FROM: Juaquana Brookins, Procurement Officer
SUBJECT: USC-BVB-3042-JB

DESCRIPTION: **Provide HVAC Systems Water Treatment Chemicals & Service for the UCS Columbia Campus & USC School of Medicine**

This Amendment No.2 modifies the Requests for Proposals only in the manner and to the extent as stated herein.

Questions & Answers from Suppliers

Revised Bid Closing Date: October 26, 2016, 2:00 PM EST

Attachment A & B

OFFERORS SHALL ACKNOWLEDGE RECEIPT OF AMENDMENT NO. 2 IN THE SPACE PROVIDED BELOW AND RETURN IT WITH THEIR BID RESPONSE. FAILURE TO DO SO MAY SUBJECT BID TO REJECTION.

Authorized Signature

Name of Offeror

Date

Questions and Answers

1. In the bid specification under:

Section III- Scope Of work Paragraph 3 on page 15 it states:

“System specifications and Operating Conditions provided must be used.....”

Without the operating Data, Steam production data, Chiller operating hours and load, it will be impossible to provide an accurate bid. Bidders don't know if USC ran one or all of the boilers; some, or all of the time, etc. This makes a huge difference in the treatment costs. This would be similar to the gas bill for your car if you drove 1,000 miles or 100,000 miles per year. **See Attachment A.**

There were no operating conditions provided. At minimum Bidders will need, and we ask USC to Provide: **See Attachment A.**

Boilers:

- Annual Steam production totals from each Energy Plant.
- Annual makeup water/ soft water for each Energy Plant
- Percent condensate return, if any, for each energy plant.
- Average hardness in the return condensate for each energy plant.

Cooling:

- Operating hours for each Chiller for 2015 & 2016 at each Energy Plant
- Load estimation for each chiller at each energy plane
- Well water Percentage used for Cooling tower Makeup at each Energy Plant.
- Makeup water totals to Cooling towers, if available, for each Energy Plant
- Do the Chillers at 1600 Hampton have a cooling tower?
 - What are the operating hours per year on these chillers
 - What is the size estimate of the Chilled water loop
- Do the Chillers at USC School of Med have cooling towers?
 - What are the operating hours per year
 - How many Chilled water loops & size estimates.
- Do the chillers at the Remote Library have a cooling tower?
 - What are the operating hours per year.

Chiller Water:

- Makeup water totals for the chilled water loop at each Energy Plant

2. Section III, p 17 Reagent Capabilities, Test Equipment and Supplies

“All analytical test instrumentation..... will be supplied by the vendor”

There are currently, digital colorimeters, DR890, and titration Burettes.

- Can the vendor substitute simple visual comparators and drop test kits for the lab equipment? **No.**

- Will test equipment, reagents, supplies be supplied and stocked at Each Energy facility, meaning, 4 sets of all test equipment and supplies? **Yes.**

3. Section III, p 17 Service Costs

“The monthly service cost shall include all required equipment...Chemical Controllers, Chemical pumps...”

The current controllers and pumps are Digital automated controllers; the chemical metering pumps are digital speed control.

Can analog controllers and analog/ manual speed pumps be used as replacements? **No, replacements will not be accepted, the make and model that is in place will need to be maintained.**

4. How, if any, have new building on campus increased boiler and cooling loads since the last bid period?

- i.e. Horizon I, Horizon II, Darla Moore, and others??

All increases are reflected on the yearly long sheets that are included in Attachment A.

5. How have the Boiler and Cooling loads increased, as a percentage, since the last bid period??

15%, 20%, 25% increase?

All increases are reflected on the yearly long sheets that are included in Attachment A.

7. Cooling Systems

Is there any further water data for the cooling a systems?

- a. Water Meter Make up
- b. Water Meter Blowdown
- c. Volumes of Systems

See Attachment A.

8. Steam

Is the a general boiler mass balance available for the steam systems? **No**

- a. Depicting
 - i. Make Up
 - ii. Softener Make Up
 - iii. Steam Generation (Ave lbs./hr)
 - iv. Blowdown
 - v. Condensate Return

9. Admin

As for the General Area, if one can respond within 3-4 hours, is that considered within the limits? **Yes, the response time is within 4 hours.**

10. Who owns the chemical feed equipment? - ie. chemical pumps and controllers? **The University owns the equipment.**
11. Since we were requested not to scroll through controllers, can it be verified that they are all in working conditions? **All controllers are in working conditions.**
12. If discovered that equipment is not in working condition, will the University pay for replacement? **No.**
13. Can it be clarified that who pays for any new equipment? **The contractor pays for the new equipment.**
14. Who owns the chemical feed tanks? **The University owns the chemical feed tanks.**
15. Who provides the salt for softeners? **The University will provide the salt for softener through a separate contract that is in place.**
16. If the location does not have corrosion coupon holders (med school), will University pay for parts needed? **No.** Will University install? **No.**
17. Can full size delivery trucks adequately access West and South energy Plants? **A short body truck will be required.**
18. Please list the total number and names of the closed loops treated at the USC School of Medicine. **See Attachment B**
19. What is billing breakdown for your current water treatment vendor: whole contract, annual, and current monthly? **This information is not currently available.**
20. What percent condensate return is at each energy plant? **See Attachment A.**

SOUTH

	Chiller #1A		Chiller #1B		Chiller #2		Chiller #3A		Chiller #3B		KWH		KWH		KWH	
	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	480 V	4160 V	4160 V	4160 V	4160 V	Total KWH	Total KWH
July	551	670	670	386	279	279	279	0	279	Broke	584,000	1,756,300	2,340,300			
Aug	299	733	733	742	66	66	66	0	66	282,830	745,820	139,160	1,167,810			
Sept	295	615	615	644	9	9	9	9	9	315,206	651,180	46,770	1,013,156			
Oct	369	380	380	129	265	265	265	122	122	197,318	337,000	119,127	653,445			
Nov	108	312	312	147	229	229	229	58	58	190,127	337,000	86,592	613,719			
Dec	0	0	0	538	67	67	67	47	47	219,379	210,000	29,413	458,792			
Jan																
Feb																
Mar																
Apr																
May																
June																
Totals	1,622	2,710	2,710	2,586	915	915	915	515	515	1,204,860	2,865,000	2,177,362	6,247,222			

	Well		CW		CT		City	
	Water	Water	Make-up	Make-up	Make-up	Make-up	Water	Water
July	175,300	7,340	2,347,477	3,863,464				
Aug	163,200	11,740	2,325,964	3,466,232				
Sept	1,225,400	20,440	1,896,980	3,466,232				
Oct	529,000	5,710	1,271,208	3,466,232				
Nov	800	4,730	1,117,240	3,466,242				
Dec	0	4,430	1,279,264	3,466,232				
Jan								
Feb								
Mar								
Apr								
May								
June								
Totals	2,093,700	54,390	10,238,133	21,194,634				

South Energy Boiler Operations

Boiler #1	Operating Hours	Natural Gas	cu ft gas/ lb steam	Fuel Oil	Gallons Make-up	Steam Generated	% Make-Up	Fuel on Hand
July	0	0		0	0.00	0.00		25833
Aug	5	27000	1.96	0	8,400.00	13,809.00		25833
Sept	40	196000	1.34	131	30,000.00	146,797.00		25695
Oct	32	516000	1.21	0	38,500.00	425,062.00	75.58	25695
Nov	720	15952000	1.19	0	1,257,000.00	13,380,643.00	78.39	25695
Dec	741	17067000	1.19	0	1,052,400.00	14,328,126.00	61.29	25695
Jan	745	18072000	1.19	43	1,416,500.00	15,165,009.00	77.95	25652
Feb	672	17583000	1.20	0	1,298,700.00	14,679,245.00	73.83	25652
Mar	742	18089000	1.19	0	1,115,202.00	15,147,478.00	61.44	25652
Apr	19	464000	1.19	0	45,300	389,500.00	97.05	25746
May	0	0	0.00	0	0.00	0.00	0.00	25746
June	65	817000	1.21	1	79,200.00	673,770.00	98.09	25746
Totals	3781 Hrs	88783000		175	6,341,202.00 Gals	74,349,439.00		

South Energy Boiler Operations

Boiler #1	Operating Hours	Natural Gas	cu ft gas/ lb steam	Fuel Oil	Gallons Make-up	Steam Generated	% Make-Up	Fuel on Hand
July	744	14360000	1.20	0	1,409,209.00	11,759,852.00	78.00	28083
Aug	742	14047000	0.80	0	1,089,514.00	17,593,186.00	52.00	28109
Sept	720	13423000	1.20	0	929,700.00	11,491,837.00	68.00	28109
Oct	696	14043000	1.30	0	858,400.00	10,645,364.00	67.00	28081
Nov	720	17553000	1.20	148	1,122,500	14,212,640	66.00	27933
Dec	741	17602000	1.20	0	1,062,200	14,561,711	61	27872
Jan								
Feb								
Mar								
Apr								
May								
June								
Totals	4363	91028000		148	6,471,523.00	80,264,590.00		

Chiller Operations

South

	Chiller #1A		Chiller #1B		Chiller #2		Chiller #3A		Chiller #3B		KWH		KWH		KWH		
	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	480 V	4160 V	4160 V	4160 V	4160 V	Total KWH	Total KWH	
July	160	141	298	711	712	302,000	236,680	4,732,060	5,270,740								
Aug	0	0	266	743	743	282,360	135,010	5,206,584	5,623,954								
Sept																	
Oct	12	12	0	744	547	177,000	12,000	3,688,968	3,877,968								
Nov	0	0	0	503	458	144,000	4,000	2,977,736	3,125,736								
Dec	0	0	0	743	47	82,000	5,000	2,310,744	2,397,744								
Jan	0	0	0	746	0	48,000	5,000	2,174,488	2,227,488								
Feb	0	0	0	672	130	44,700	4,780	2,591,712	2,641,192								
Mar	0	0	343	601	103	57,300	122,220	2,171,686	2,351,206								
Apr	132	1	584.0	344	131	71,000	306,000	1,165,520	1,542,520								
May	340	0	154	575	618	42,000	138,000	3,679,920	3859920								
June	463	282	11	624	550	42,000	258,000	4,058,630	4,358,630								
Totals	1,107	436	1,656	7,006	4,039	1,292,360	1,226,690	34,758,048	37,277,098								

	Well		CW		CT		City	
	Water	Water	Make-up	Make-up	Make-up	Make-up	Water	Water
July	0	2,480	1,868,802	2,643,432				
Aug	0	1,550	1,758,342	3,438,107				
Sept								
Oct	225,500	4,270	964,745	2,515,599				
Nov	716,800	6,360	479,082	1,294,938				
Dec	698,600	10,920	533,042	1,514,401				
Jan	631,600	13,110	615,726	1,657,044				
Feb	765,300	5,310	725,488	1,350,439				
Mar	724,400	2,662	1,022,038	1,313,114				
Apr	1,436,300	4,071	1,479,737	1,448,801				
May	594,700	3,917	1,739,160	2,665,762				
June	13,300	17,300	2,116,302	2,989,232				
Totals	5,806,500	71,950	13,302,464	22,830,869				

South Energy Boiler Operations

2015

Boiler #1	Operating Hours	Natural Gas	cu ft gas/ lb steam	Fuel Oil	Gallons Make-up	Steam Generated	% Make-Up	Fuel on Hand
July	744	14,360,000	1	0	1,409,209	11,759,852	78.00	28,083
Aug	742	14,047,000	1	0	1,089,514	17,593,186	52.00	28,109
Sept	720	13,423,000	1	0	929,700	11,491,837	68.00	28,109
Oct	696	14,043,000	1	0	858,400	10,645,364	67.00	28,081
Nov	720	17,553,000	1	148	1,122,500	14,212,640	66.00	27,933
Dec	741	17,602,000	1	0	1,062,200	14,561,711	61.00	27,872
Jan	742	13,881,000	1	26,971	789,800	14,908,006	44.00	25,591
Feb	672	9,415,000	1	41,466	780,800	13,383,530	49.00	18,587
Mar	742	12,163,000	1	0	569,400	10,685,727	44.00	27,563
Apr	720	14,833,000	1	0	973,800	12,870,494	63.00	27,621
May	744	15,327,000	1	0	1,244,000	13,074,214	79.00	27,670
June	616	9,459,000	1	0	989,814	8,259,998	88.00	27,529
Totals	8,599	166,106,000		68,585	11,819,137	153,446,559		

2016

Boiler #1	Operating Hours	Natural Gas	cu ft gas/ lb steam	Fuel Oil	Gallons Make-up	Steam Generated	% Make-Up	Fuel on Hand
July	740	10,150,000	1	0	1,168,308	8,815,416	89.00	27,578
Aug	744	8,833,000	1	0	1,168,308	7,713,381	88.00	NA
Sept	720	8,786,000	1	0	801,200	7,685,858	87.00	28,068
Oct	717	9,336,000	1	0	795,700	8,096,150	82.00	28,120
Nov	719	12,254,000	1	155	952,900	10,555,656	75.00	27,855
Dec	744	14,096,000	1	0	1,222,200	12,085,627	84.00	27,299
Jan	721	12,877,000	1	15,192	1,168,200	12,776,098	76.00	20,821
Feb	686	13,488,019	1	11,216	1,322,600	13,488,019	82.00	23,118
Mar	627	13,426,000	1	0	1,201,600	11,478,000	87.00	26,209
Apr	719	15,086,000	1	0	1,356,300	12,886,641	88.00	26,242
May	743	12,457,000	1	0	1,114,400	10,749,535	87.00	26,283
June	720	9,432,000	1	0	818,500	8,166,514	84.00	26,329
Totals	8,600	140,221,019		26,563	13,090,216	124,496,895		

	Gas Meter	Well Water Meter	Soft Water Make-up	C. W. Tank Meter	Plant Water Meter	480.00 Meter	4,160.00 (Old)	4,160.00 (New)
Reading: 9/1/2016	733,665	10,705,000	55,879,400	829,410	7,376,190	6,484,842	6,500	15,340,668
Reading last month	727,054	10,496,500	55,314,800	816,540	6,978,180	6,114,906	6,107	14,896,430
Difference	6,611	208,500	564,600	12,870	398,010	369,936	393	444,238
Meter Constance	1,000	1	1	1	7	1	1,000	1
Consumption	6,611,000	208,500	564,600	12,870	2,977,115	369,936	393,000	444,238

	Chiller#1A	Chiller#1B	Chiller#2	Chiller#3A	Chiller#3B	Secondary Pump A	Secondary Pump B	Secondary Pump C
Hour Meter Readings								
Reading: 9/1/2016	54,590	55,557	63,034	29,107	24,449	3,799	6,064	9,403
Reading last month	53,884	55,557	62,997	28,377	23,718	3,557	5,333	8,671
Difference	706	0	37	730	731	242	731	732

	Boiler
Tower Water Meter	
Reading: 9/1/2016	Integrator
Reading last month	11,210,083
Difference	5,470,406
	5,739,677

	Boiler #1
Tower Water Meter	fuel oil
Reading: 9/1/2016	171,857
Reading last month	171,857
Difference	0

	Boiler	Reading last month	Difference
Totals:			
City Water	2,977,115		
Well Water	208,500		
Plant Water	3,185,615		
Tower Water	2,372,139		
Misc. Water	236,006		
C.W.Feed	12,870		
Chiller #1A	706		
Chiller #1B	0		
Chiller #2	37		
Chiller #3A	730		
Chiller #3B	731		

	Pump A	Pump B	Pump C	Natural Gas	Boiler Water	Fuel used	Hours	Integrator	480 V	4160 V	4160 V	Total KWH	KWH
City Water							Hours						
Well Water							Hours						
Plant Water							Hours						
Tower Water							CF						
Misc. Water							Gallons						
C.W.Feed							Gals.						
Chiller #1A							Hours						
Chiller #1B							Hours						
Chiller #2							Lbs.						
Chiller #3A							KWH						
Chiller #3B							KWH						
Steam Integer Meter tripped 10,000,000 on 8/27							KWH						
Steam System offline for inspection 8/13-8/18							KWH						

687,798	= Gal. Water Required
82	% Make - Up

cu ft/ lb steam	1
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South Energy Boiler Operations

Boiler #1	Operating Hours	Natural Gas	cu ft gas/ lb steam	Fuel Oil	Gallons Make-up	Steam Generated	% Make-Up	Fuel on Hand
July	353	7469000	1.19		641,200.00	6,294,948.00	0.85	
Aug	732	16504000	1.20		1,456,300.00	13,802,578.00	88.05	25881
Sept								
Oct	732	18772000	1.20		1,675,800.00	15,198,922.00	0.92	25869
Nov	576	13471000	1.10	6189	1,227,800	11,999,760	85.38	27994
Dec	738	17156000	1.20	40	698,600	14,385,386	84	27954
Jan	742	13117000	0.80	46736	1,565,200.00	17,282,377.00	76	9863
Feb	672	14451000	1.10	23284	1,284,500.00	13,440,000.00	80.00	19360
Mar	744	17129000	1.20	0	1,185,900.00	14,443,699.00	69.00	27881
Apr	717	15770000	1.40	0	1,203,500	11,000,499.00	91.00	27927
May	435	8574000	1.00	0	644,600.00	9,007,819.00	60.00	27986
June	643	8261000	1.20	0	731,200.00	7,025,803.00	87.00	28047
Totals	7084	150674000		76249	12,314,600.00	133,881,791.00		

SOOTH

	Chiller #1A		Chiller #1B		Chiller #2		Chiller #3A		Chiller #3B		KWH		KWH		KWH		
	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	480 V	4160 V	4160 V	4160 V	4160 V	Total KWH	Total KWH	
July	551	670	386	279	279	0	282,830	315,206	119,127	86,592	29,413	145,712	196,640	44,561	545,925	694,081	841,065
Aug	299	733	742	66	9	265	197,318	337,000	210,000	67,000	6,000	284,000	402,000	32,173	694,081	841,065	1,013,156
Sept	295	615	644	9	229	67	190,127	337,000	210,000	67,000	6,000	284,000	402,000	32,173	694,081	841,065	1,013,156
Oct	369	380	129	265	229	67	190,127	337,000	210,000	67,000	6,000	284,000	402,000	32,173	694,081	841,065	1,013,156
Nov	108	312	147	229	229	67	190,127	337,000	210,000	67,000	6,000	284,000	402,000	32,173	694,081	841,065	1,013,156
Dec	0	0	538	67	438	645	143,389	217,364	259,908	328,798	386,360	618,000	85,304	2,756,019	10,176,640	10,176,640	10,176,640
Jan	1	2	180	438	61	0	143,389	217,364	259,908	328,798	386,360	618,000	85,304	2,756,019	10,176,640	10,176,640	10,176,640
Feb	1	1	7	645	115	45	217,364	259,908	328,798	386,360	618,000	85,304	2,756,019	10,176,640	10,176,640	10,176,640	10,176,640
Mar	26	364	468	115	94	28	259,908	328,798	386,360	618,000	85,304	2,756,019	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640
Apr	57	235	708.0	94	143	113	328,798	386,360	618,000	85,304	2,756,019	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640
May	181	261	744	143	134	167	386,360	618,000	85,304	2,756,019	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640
June	470	622	702	134	134	167	386,360	618,000	85,304	2,756,019	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640
Totals	2,358	4,195	5,395	2,484	929	2,740,621	4,680,000	2,756,019	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640	10,176,640

	Well		CW		CT		City	
	Water	Make-up	Make-up	Make-up	Make-up	Water	Water	Water
July	175,300	7,340	2,347,477	3,863,464	3,863,464	3,863,464	3,863,464	3,863,464
Aug	163,200	11,740	2,325,964	3,466,232	3,466,232	3,466,232	3,466,232	3,466,232
Sept	1,225,400	20,440	1,896,980	1,856,910	1,856,910	1,856,910	1,856,910	1,856,910
Oct	529,000	5,710	1,271,208	1,786,822	1,786,822	1,786,822	1,786,822	1,786,822
Nov	800	4,730	1,117,240	2,117,364	2,117,364	2,117,364	2,117,364	2,117,364
Dec	0	4,430	1,279,264	1,927,222	1,927,222	1,927,222	1,927,222	1,927,222
Jan	18,400	4,610	1,211,341	1,567,135	1,567,135	1,567,135	1,567,135	1,567,135
Feb	0	3,900	1,195,014	1,473,186	1,473,186	1,473,186	1,473,186	1,473,186
Mar	112,100	8,000	1,340,573	1,458,450	1,458,450	1,458,450	1,458,450	1,458,450
Apr	497,100	3,670	1,752,098	1,945,174	1,945,174	1,945,174	1,945,174	1,945,174
May	355,000	3,350	2,014,233	2,805,524	2,805,524	2,805,524	2,805,524	2,805,524
June	297,700	2,960	2,023,675	3,066,351	3,066,351	3,066,351	3,066,351	3,066,351
Totals	3,374,000	80,880	19,775,067	27,333,834	27,333,834	27,333,834	27,333,834	27,333,834

Year 2015

SOOTH

	Chiller #1A		Chiller #1B		Chiller #2		Chiller #3A		Chiller #3B		KWH		KWH		KWH		
	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	480 V	4160 V	4160 V	4160 V	Total KWH	KWH	
July	249	732	732	313	708	313	267	459,312	592,000	160,215	1211527						
Aug	292	731	731	390	459	390	348	392,729	520,450	209,247	1,122,426						
Sept	369	711	711	27	708	27	0	350,078	635,700	10,952	996,730						
Oct	308	403	403	305	68	305	323	200,755	233,960	176,075	610,790						
Nov	333	505	505	197	0	197	252	203,844	243,000	133,042	579,886						
Dec	0	1	1	531	0	531	479	133,761	265,080	6,040	404,881						
Jan	0	0	0	537	0	537	562	138,352	265,541	5,530	409,423						
Feb	1	17	17	520	0	520	585	144,703	12,140	279,387	436,230						
Mar	397	396	396	275	0	275	309	185,233	234,130	154,716	574,079						
Apr	569	697	697	63	0.0	63	116	222,759	361,890	46,851	631,500						
May	299	65	65	726	0	726	418	229,445	141,000	311,039	681,484						
June	702	0	0	589	0	589	638	335,222	318,000	332,903	986,125						
Totals	3,519	4,258	4,258	4,473	1,943	4,473	4,297	2996193	3822891	1,825,997	8645081						

Year 2016

	Well		CW		CT		City	
	Water	Water	Make-up	Water	Make-up	Water	Water	Water
July	1,663,100	2,690	2381163	2474160				
Aug	895,700	5,080	2,060,333	2,748,975				
Sept	619,000	3,240	1,936,043	2,418,284				
Oct	763,300	10,560	1,073,218	1,490,689				
Nov	639,700	5,690	1,022,691	1,809,786				
Dec	298,600	14,990	670,571	1,947,717				
Jan	176,700	4,070	583,816	1,860,052				
Feb	360,900	4,170	686,222	2,025,360				
Mar	364,400	3,580	1,015,132	2,192,313				
Apr	356,400	2,510	1,117,468	2,415,666				
May	366,400	2,740	1,253,650	2,345,429				
June	352,300	2,130	1,882,285	2,746,656				
Totals	6,856,500	61,450	15682592	26475087				

SSAW

	Chiller #1A		Chiller #1B		Chiller #2		Chiller #3A		Chiller #3B		KWH		KWH		KWH		
	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	480 V	4160 V	4160 V	4160 V	4160 V	Total KWH	Total KWH	
July	111	111	743	632	452	358,470	427,320	3,314,532	4,100,322								
Aug	164	285	493	685	678	313,290	345,160	3,890,892	4,549,342								
Sept	181	209	2	719	719	195,600	98,660	4,942,188	5,236,448								
Oct	0	0	0	631	530	121,750	5,210	3,616,712	3,743,672								
Nov	0	0	0	285	470	134,030	4,350	2,336,724	2,475,104								
Dec	0	0	0	23	735	146,480	4,640	2,459,260	2,610,380								
Jan	0	0	0	697	287	145,980	4,550	2,663,188	2,813,718								
Feb	0	0	0	672	33	131,860	4,090	2,179,628	2,315,578								
Mar	40	23	2	102	617	147,110	19,790	2,290,432	2,457,332								
Apr	361	391	47.0	195	334	189,500	233,910	1,633,740	2,057,150								
May	171	181	418	411	197	238,880	273,840	1,839,752	2,352,472								
June	331	354	142	464	464	243,090	300,230	3,370,820	3,914,140								
Totals	1,359	1,554	1,847	5,516	5,516	2,366,040	1,721,750	34,537,868	38,625,658								

	Well		CW		CT		City	
	Water	Water	Make-up	Make-up	Make-up	Make-up	Water	Water
July	159,500	13,600	1,675,030	2,110,082				
Aug	174,000	7,110	1,423,392	1,940,462				
Sept	0	3,840	1,577,953	1,789,814				
Oct	0	4,400	953,470	1,086,620				
Nov	0	8,620	585,591	2,056,028				
Dec	0	2,800	598,678	1,989,680				
Jan	185,000	4,930	598,514	2,277,660				
Feb	0	5,920	488,396	2,079,590				
Mar	0	10,170	596,382	2,303,840				
Apr	0	3,960	1,041,350	1,142,196				
May	1,324,900	4,080	1,368,744	66,497				
June	1,630,100	2,170	1,842,943	316,928				
Totals	3,473,500	71,600	12,750,443	19,159,395				

2013

South Energy Boiler Operations

Boiler #1	Operating Hours	Natural Gas	cu ft gas/ lb steam	Fuel Oil	Gallons Make-up	Steam Generated	% Make-Up	Fuel on Hand
July	353	7469000	1.19		641,200.00	6,294,948.00	0.85	
Aug	732	16504000	1.20		1,456,300.00	13,802,578.00	88.05	25881
Sept								
Oct	732	18772000	1.20		1,675,800.00	15,198,922.00	0.92	25869
Nov	576	13471000	1.10	6189	1,227,800	11,999,760	85.38	27994
Dec	738	17156000	1.20	40	698,600	14,385,386	84	27954
Jan								
Feb								
Mar								
Apr								
May								
June								
Totals	3131	73372000		6229	5,699,700.00	61,681,594.00		

Year: 2013	Boiler 1 Hrs	Boiler 2 Hrs	Boiler 3 Hrs	Total Hrs	Natural Gas C.F.	Fuel Oil gal.	Steam Generated lbs.	Boiler Feedwater gal.	Make-Up%
January	515	99		614	23119000	35	15712952	972000	52%
February	636	55		691	21126000	0	15083350	781600	43%
March	604	160		764	22945000	0	17013008	979600	48%
April	169	647		816	31026000	0	22950008	2010600	73%
May	515	233		748	25555000	0	18368284	1661800	75%
June	720	4		724	21404000	0	14006665	1455100	86%
July	734	17		751	21220000	0	13164555	1344200	85%
August	744	131		875	20987000	0	10326006	1102700	89%
September	690	20		710	18019000	0	10080765	976300	80%
October	744	162		906	23572000	0	13120110	1129700	72%
November	720	179		899	21933000	6332	12622714	770800	51%
December	745	15		760	18679000	14	10705361	237500	18%
Year:2014	Boiler 1 Hrs	Boiler 2 Hrs	Boiler 3 Hrs	Total Hrs	Natural Gas C.F.	Fuel Oil gal.	Steam Generated lbs.	Boiler Feedwater gal.	Make-Up%
January	681	412		1093	18326000	78453	18136567	761600	65%
February	672	207		879	19818000	20197	12385802	200300	13%
March	338	519		857	21574000	0	10283296	124500	10%
April	139	582		721	15717000	0	11663001	145000	10%
May	745	12		757	20640000	39	12084268	928700	64%
June	719	1		720	15931000	0	7872771	548700	58%
July	460	0		460	9902000	0	4819308	599000	103%
August	479	0		479	11411000	0	3735842	634900	141%
September	698	0		698	16152000	0	Meter INOP	559600	?
October	743	0		743	17069000	0	8809302	616000	58%
November	719	0		719	18678000	500	11714308	616000	44%
December	744	585	233	1562	34385000	26	14309041	1670300	97%
Year:2015	Boiler 1 Hrs	Boiler 2 Hrs	Boiler 3 Hrs	Total Hrs	Natural Gas C.F.	Fuel Oil gal.	Steam Generated lbs.	Boiler Feedwater gal.	Make-Up%
January	241	743	627	1611	26226000	18143	4822235	1779900	308%
February	377	630	619	1626	14377000	90015	Meter INOP	1362300	INOP
March	155	575	246	976	16942000	0	Meter INOP	919000	INOP
April	285	555	521	1361	25911000	0	Meter INOP	2452000	INOP
May	288	607	485	1380	18187000	0	Meter INOP	1574000	INOP
June	375	325	447	1147	16933000	0	Meter INOP	1266000	INOP
July	416	342	401	1159	16138000	0	Meter INOP	1544000	INOP
August	430	473	451	1354	18167000	0	Meter INOP	936000	INOP
September	478	388	553	1419	20442000	0	Meter INOP	1170000	INOP
October	172	576	684	1432	24605000	4	Meter INOP	1168000	INOP
November	243	511	695	1449	25933000	236	Meter INOP	1073000	INOP
December	206	366	383	955	16167000	0	Meter INOP	416000	INOP

Year: 2013	Chlr1 Hrs	Chlr2 Hrs	Chlr3 Hrs	Chlr4 Hrs	Total Hrs	480V KWh	4160V KWh	Total KWh	Total Plant Water	Well Water	Chl Water	Tower Water
January	579	191	0	0	770	77400	556800	634200	2797448	1113700	0	1521277
February	364	275	0	0	639	284600	332800	617400	2094920	1017800	0	1137545
March	654	161	0	41	856	2363840	424000	2787840	2608996	1148900	0	1374374
April	542	447	195	55	1239	416200	864000	1280200	4553636	1163700	0	2314980
May	693	719	97	37	1546	492800	1088000	1580800	4901196	1178400	10	2974162
June	720	720	151	87	1678	617500	1420800	2038300	5721044	1081200	433	4031140
July	728	735	497	144	2104	673400	1600000	2273400	5992884	1050100	597	4427740
August	744	739	458	27	1968	624500	1476800	2101300	5257468	1038000	230	3905456
September	691	559	143	5	1398	451100	1059200	1510300	4274552	1002800	100	2965664
October	744	184	120	8	1056	339600	798400	1138000	3636648	1111400	130	2081935
November	465	302	0	41	808	269300	443200	712500	2472696	1068700	0	1370310
December	477	152	0	3	632	219800	326400	546200	1158524	662600	21360	900339
Year: 2014	Chlr1 Hrs	Chlr2 Hrs	Chlr3 Hrs	Chlr4 Hrs	Total Hrs	480V KWh	4160V KWh	Total KWh	Total Plant Water	Well Water	Chl Water	Tower Water
January	231	489	9	72	801	270100	400000	670100	2553208	1041500	21740	1604971
February	0	672	212	46	930	295100	508800	803900	1591584	1024600	582	1563377
March	348	652	189	13	1202	313100	596800	909900	2247324	1171700	468	1865058
April	699	0	398	98	1195	348600	825600	1174200	2690916	1144800	172	2212850
May	697	520	437	63	1717	557400	1177600	1735000	4626708	1151500	1658	3399230
June	719	709	610	251	2289	701800	1555200	2257000	5013520	1094000	8080	4193217
July	743	744	573	453	2513	782700	1731200	2513900	5888368	1107900	540	5033036
August	743	745	570	301	2359	763000	1700800	2463800	5588580	1093100	640	4635977
September	719	479	605	189	1992	689500	1488000	2177500	4933108	1046500	6380	4113300
October	741	257	257	0	1255	529900	937600	1467500	3637096	1073700	19280	2555210
November	720	66	180	71	1037	162100	969600	1406200	3411888	1051200	56600	2298487
December	745	0	379	33	1157	431900	723200	1155100	3828324	1107100	36730	1666999
Year: 2015	Chlr1 Hrs	Chlr2 Hrs	Chlr3 Hrs	Chlr4 Hrs	Total Hrs	480V KWh	4160V KWh	Total KWh	Total Plant Water	Well Water	Chl Water	Tower Water
January	734	5	122	34	895	366100	644800	1010900	3779984	800700	53960	1462128
February	185	531	222	47	985	363000	5056000	868600	3084004	0	33070	1423830
March	691	721	114	18	1544	460300	892800	1353100	4102864	966500	39260	2195110
April	716	720	193	64	1693	605300	1131200	1736500	6015356	119300	33915	3167370
May	744	744	349	282	2119	744200	1438400	2182600	5994756	1172400	35315	4316833
June	719	719	569	530	2537	833100	1935800	2765900	5916056	1093700	38441	5767409
July	743	744	744	302	2533	768900	1865600	2634500	5921456	1099100	26809	5561535
August	742	743	652	206	2343	735900	1750400	2486300	6246732	1078800	37410	5118326
September	719	720	384	84	1907	638600	1436800	2075400	5485168	1041300	82220	4084620
October	737	302	96	1	1136	446900	860800	1307700	3789484	847600	103640	2478651
November	719	186	104	97	1106	412400	769600	1182000	3524308	871900	75080	2180156
December	466	568	120	73	1227	452100	760000	1212100	3133144	1017800	251040	2044933

West Energy Monthly Operating Report

Reading Date: 1/1/16	Natural Gas Meter	Soft Water Makeup Meter	C.W. Tank Water Meter	City Water Meter	Well Water Meter	Front 480V KWh Meter	Side 480V KWh Meter	Back 4160V KWh Meter	Chlr 4 4160V KWh Meter
Reading Last Month	2582623	12518000	9822590	5243800	41304800	145931	9262	4602	3038
Difference	2566456	12102000	9571550	4961000	40287000	141868	9033	4376	3015
Meter Constant	16167	416000	251040	282800	1017800	4063	229	226	23
Consumption	1000	1	1	7.48	1	100	200	3200	1600
	16167000	416000	251040	2115344	1017800	406300	45800	723200	36800
			Total	3133144					
									1212100

Boiler #1	Boiler #2	Boiler #3	Chiller #1	Chiller #2	Chiller #3	Chiller #4	Sec. Pump A	Sec. Pump B	Sec. Pump C
Hour Meter Today	3425	6676	6345	70741	109628	76082	108637	79016	70520
Hour Meter Last Month	3219	6310	5962	70173	109508	76009	107927	78417	70448
Hours Operated	206	366	383	466	120	73	710	599	72
Total Hours Operated		955			1227			1381	

Boiler #1	Boiler #2	Boiler #3	Chiller #1	Chiller #2	Chiller #3	Chiller #4	Sec. Pump A	Sec. Pump B	Sec. Pump C
Monthly Steam Total									
Total Steam generated		0							
Total CF Gas/Total Steam	#DIV/0!	cf/lb							
Total Steam / 8.345 = % Make-up	0								
	#DIV/0!								

Chiller Purge hours	1A	1B	2A	2B	3	4	Misc. Water Usage
	44484	40977	10918	36899	46694	33950	421171

North Energy			
Chiller 1 Hrs.	Chiller 2 Hrs.	City Water 1	City Water 2
Today	50675	45456	13872600
Last Month	50221	45156	13717500
Consumption	454	300	155100
		Total	186000

Fuel Oil Tank #1
Previous Month
Received Past Month
Total Oil Inventory
This Month
Oil Used

Comments:
No metering device installed to accurately measure the boiler systems.

Condensate Return to D/A	Feedwater to Boiler
Today	268795
Previous	255533
Difference	13262
Constant	100
Total	1326200

West Energy Monthly Operating Report

Natural Gas Meter	Soft Water Makeup Meter	C.W. Tank Water Meter	City Water Meter	Well Water Meter	Front 480V KWh Meter	Side 480V KWh Meter	Back 4160V KWh Meter	Chlr 4 4160V KWh Meter
2714619	18242000	10076600	1744200	48319300	178898	1300	6841	3771
2703236	17509000	10064500	1016100	47321000	172745	718	6359	3528
11383	733000	12100	728100	998300	6153	582	482	243
1000	1	1	7.48	1	100	200	3200	1600
11383000	733000	12100	5446188	998300	615300	116400	1542400	388800
Total								2662900

Reading Date: 8/1/16
 Reading Last Month Difference
 Meter Constant
 Consumption

Boiler #1	Boiler #2	Boiler #3	Chiller #1	Chiller #2	Chiller #3	Chiller #4	Sec. Pump A	Sec. Pump B	Sec. Pump C
6925	3206	9284	87805	74937	110921	77613	113673	82464	72455
6748	3005	8924	87062	74193	110506	77110	112929	82460	71831
177	201	360	743	744	415	503	744	4	624
Total Hours Operated						2405	1372		

Boiler #1	Boiler #2	Boiler #3
#DIV/0!	0	cf/lb
0		
#DIV/0!		

Tower Water Meters			
1A	1B	2	3
54514400	6504000	71100100	86506113
53688300	5625200	69503100	85688120
826100	878800	1597000	817993
Total			
5237801			

1A	1B	2A	2B	3	4
802	6.3	10922	36932	49582	34195

Chiller Purge hours

North Energy					
Chiller 1 Hrs.	Chiller 2 Hrs.	City Water 1	City Water 2	Well Water	CT blowdown
55739	49464	5868400	15284400	64084000	36952000
54998	48724	5793400	14866000	63614000	36326200
741	740	75000	418400	470000	625800
Total					
493400					

Fuel Oil Tank #1	Received Past Month	Total Oil Inventory	This Month	Oil Used
18350	0	18410	18410	0

Condensate Return to DA		Feedwater to Boiler
Today	355956	945193
Previous	348131	932956
Difference	7825	12237
Constant	100	100
Total	782500	1223700

Comments:
 No metering device installed to accurately measure the boiler systems.

Misc. Water Usage 461587

West Energy Monthly Operating Report

Natural Gas Meter	Soft Water Makeup Meter	C.W. Tank Water Meter	City Water Meter	Well Water Meter	Front 480V KWh Meter	Side 480V KWh Meter	Back 4160V KWh Meter	Chlr#4 4160V KWh Meter
2729734	19001000	10082500	2467300	49309800	184860	2096	7346	4008
2714619	18242000	10076600	1744200	48319300	178898	1300	6841	3771
15115	759000	5900	723100	990500	5962	796	505	237
1000	1	1	7.48	1	100	200	3200	1600
15115000	759000	5900	5408788	990500	596200	159200	1616000	379200
Total								2750600

Reading Date: 9/1/16
 Reading Last Month Difference
 Meter Constant
 Consumption

Boiler #1	Boiler #2	Boiler #3	Chiller #1	Chiller #2	Chiller #3	Chiller #4	Sec.Pump A	Sec.Pump B	Sec.Pump C
7179	3627	9530	88532	75668	111542	78064	114321	82592	73191
6925	3206	9284	87805	74937	110921	77613	113673	82464	72455
254	421	246	727	731	621	451	648	128	736
Total Hours Operated						2530	1512		

Boiler #1	Boiler #2	Boiler #3	Tower Water Meters				
			1A	1B	2	3	4
Monthly Steam Total			55523100	6974600	72549600	87747760	81299070
Total Steam generated			54514400	6504000	71100100	86506113	80278624
Total CF Gas/Total Steam			1008700	470600	1449500	1241647	1020446
#DIV/0!			Total				5190893
#DIV/0!							

1A	1B	2A	2B	3	4	Misc. Water Usage
812	22	10922	36934	49599	34203	443495

Chiller Purge hours					
Chiller 1 Hrs.	Chiller 2 Hrs.	City Water 1	City Water 2	Well Water	CT blowdown
56482	50206	5940200	15686800	64554800	37540700
55739	49464	5868400	15284400	64084000	36952000
743	742	71800	402400	470800	588700
Total					474200

Chiller 1 Hrs.					
56482	50206	5940200	15686800	64554800	37540700
55739	49464	5868400	15284400	64084000	36952000
743	742	71800	402400	470800	588700
Total					474200

Fuel Oil Tank #1	Comments:	
18410	No metering device installed to accurately measure the boiler systems.	
0		
18217		
18217		
193		

Condensate Return to DA	Feedwater to Boiler
363061	961226
355956	945193
7105	16033
100	100
710500	1603300

Today
 Previous Difference
 Constant
 Total

North Energy

East Energy Plant - 2013 Fiscal Year

	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Yearly Totals
Boiler #1 Hours	228	348	576	344	1	694	146	573	415	541	745	425	5,036
Boiler #2 Hours	520	532	44	401	721	58	365	192	335	181	349	112	3,810
Boiler #3 Hours	442	226	240	454	441	359	719	448	461	283	152	452	4,677
Boiler Hour Totals	1,190	1,106	860	1,199	1,163	1,111	1,230	1,213	1,211	1,005	1,246	989	13,523
Boiler #1 Steam Totals	3,555,000	5,977,000	10,979,000	6,805,000	0	14,470,000	3,235,000	11,623,000	9,004,000	10,575,000	14,045,000	8,766,000	99,034,000
Boiler #2 Steam Totals	9,422,000	8,222,000	578,000	7,297,000	14,503,000	1,066,000	2,393,000	2,844,000	6,579,000	3,995,000	2,343,000	1,684,000	60,926,000
Boiler #3 Steam Totals	1,904,000	1,792,000	2,495,000	2,608,000	2,553,000	1,863,000	13,012,000	4,422,000	3,224,000	1,526,000	578,000	1,605,000	37,582,000
Boiler Steam Totals	14,881,000	15,991,000	14,052,000	16,710,000	17,056,000	17,399,000	18,640,000	18,889,000	18,807,000	16,096,000	16,966,000	12,055,000	197,542,000
Boiler Feed water Totals	1,941,392	2,174,500	1,976,408	2,254,916	2,277,760	2,373,782	2,561,472	2,563,282	2,532,686	2,198,552	2,279,910	32,339,325	57,473,935
Boiler Soft water totals	667,068	815,898	784,667	875,313	812,697	870,653	917,383	1,707,472	1,740,952	1,565,484	1,671,860	1,425,408	13,854,855
Lbs Corrected Steam/8.345	1,243	1,250	1,271	1,276	1,256	1,261	1,259	1,246	1,241	1,251	1,249	1,505	15,309
% Make Up	0.37	0.43	0.47	0.44	0.40	0.42	0.41	0.75	0.77	0.81	0.82	0.99	0.55
Natural Gas Totals	18,498,000	19,992,000	17,860,000	21,322,000	21,416,000	21,932,000	23,465,000	23,539,000	23,344,000	20,129,000	21,148,000	18,146,000	250,791,000
Diesel Fuel totals	0	0	219	67	85	51	87	106	-21	60	112	-304	462
Chiller 1-A Hour Meter	0	0	0	0	0	262	455	428	293	311	744	693	3186
Chiller 1-B Hour Meter	732	744	232	106	58	65	380	286	206	263	389	662	4123
Chiller 2-A Hour Meter	734	734	711	630	579	221	403	73	335	153	1	486	5060
Chiller 2-B Hour Meter	726	734	710	627	555	215	319	53	267	152	2	484	4844
Chiller 3-A Hour Meter	723	725	701	405	123	331	2	172	143	691	723	425	5164
Chiller 3-B Hour Meter	724	725	701	401	123	307	2	175	110	702	722	427	5115
Chiller 4 Hour Meter	107	20	2	39	38	14	27	4	6	6	0	52	315
Chiller Hour Meter Totals	3,746	3,682	3,057	2,208	1,476	1,415	1,588	1,191	1,360	2,278	2,581	3,229	2781
Tower #1 Water Meter	958,600	953,500	307,600	143,200	66,800	183,600	585,000	434,300	375,100	408,100	955,400	1,229,300	6,600,500
Tower #2 Water Meter	1,112,000	1,069,200	1,106,000	988,200	736,500	303,700	437,900	64,300	376,200	196,000	3,300	799,300	7,192,600
Tower #3 Water Meter	1,800,212	1,603,136	1,665,610	913,068	234,506	562,317	7,391	251,228	189,631	1,490,823	1,620,590	1,107,694	11,446,206
Tower #4 Water Meter	222,111	37,155	4,715	69,472	172,173	171,589	249,178	234,907	299,180	25,967	0	87,551	1,573,938
Tower water totals	4,092,923	3,662,991	3,083,925	2,113,940	1,209,979	1,221,206	1,279,469	984,735	1,240,111	2,120,890	2,579,290	3,223,845	26,813,304
Chill water make up	62,789	50,828	49,130	46,313	45,675	56,290	68,309	40,010	39,750	42,417	64,556	13,803	579,873
Sec Chill Water pump #1	482	486	721	737	666	745	744	668	746	295	24	248	6,562
Sec Chill Water pump #1	744	744	720	743	433	1	49	214	329	656	744	419	5,796
Sec Chill Water pump #1	744	741	190	40	143	408	269	0	0	483	744	623	4,385
Sec Chill Water Pump Totals	1,970	1,971	1,631	1,520	1,242	1,154	1,062	882	1,075	1,434	1,512	1,290	16,743
City Water Meter	5,186,182	4,889,063	4,238,700	3,395,355	2,333,820	2,477,535	2,763,420	2,284,297	2,430,173	3,033,960	3,734,430	4,017,615	40,784,550
Well Water Meter	568,700	544,800	854,300	878,200	839,300	762,100	809,700	639,100	733,300	868,000	801,100	871,900	9,170,510
Misc Water Used	363,402	359,436	320,978	359,113	265,469	329,386	498,259	191,180	133,860	162,569	209,324	226,459	3,419,436
Front 480 volt KWH	23,040	198,720	92,160	87,360	116,160	97,920	123,840	104,640	120,960	40,320	23,040	181,440	1,209,600
Back 480 volt KWH	191,040	184,320	136,320	101,280	63,360	70,560	65,280	58,560	61,440	106,560	132,000	145,920	1,316,640
Total 480V KWH Meter	214,080	383,040	228,480	188,640	179,520	168,480	189,120	163,200	182,400	146,880	155,040	327,360	2,526,240
Biomass KW Meter	73,807	36,671	27,862	7,678	7,047	8,354	9,272	9,711	8,825	7,666	12,576	12,509	221,976

East Energy Plant - 2017 Fiscal Year

Monthly Averages

420
318
390
1,127
8,252,833
5,077,167
3,131,833
16,461,833
4,789,499
1,154,571
1.276
0.59
20,899,250
39

265.50
344
422
404
430
427
26.25
2317.58
550,042
599,383
953,851
131,167
2,234,442
48,323

547
483
365
1,395
3,398,713
764,208
284,953

100,800
109,720
210,520
18,498

2014

East Energy Plant - Fiscal Year

	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Yearly Totals
Boiler #1 Hours	0	0	0	0	38	574	631	501	610	418	443	0	3,215
Boiler #2 Hours	0	0	0	0	318	265	293	534	597	328	358	0	2,693
Boiler #3 Hours	0	0	0	0	720	941	605	381	393	422	123	0	3,585
Boiler Hour Totals	0	0	0	0	1,076	1,780	1,529	1,416	1,600	1,168	924	0	9,493
Boiler #1 Steam Totals	0	0	0	0	473,000	6,105,000	10,828,000	11,396,000	11,978,000	7,494,000	7,468,000	0	55,742,000
Boiler #2 Steam Totals	0	0	0	0	0	4,707,000	5,262,000	9,196,000	10,469,000	4,590,000	7,873,000	0	42,097,000
Boiler #3 Steam Totals	0	0	0	0	5,678,000	9,619,000	12,537,000	6,905,000	6,628,000	5,266,000	1,847,000	0	48,480,000
Boiler Steam Totals	0	0	0	0	6,151,000	20,431,000	28,627,000	27,497,000	29,075,000	17,350,000	17,188,000	0	146,319,000
Boiler Feed water Totals	1,044,902	0	0	349	1,134,592	1,383,960	1,899,624	1,868,248	1,981,287	1,259,493	986,790	0	11,559,245
Boiler Soft water totals	764,422	0	0	0	1,319,444	1,903,413	2,659,485	2,628,960	2,831,329	1,785,774	1,394,680	0	15,287,507
Lbs. Corrected Steam/8345	0.000	0.000	0.000	0.000	737,088	1,208	0.789	1,089	1,205	1,293	1,048	0	737,084.632
% Make Up	0.00	0.00	0.00	0.00	?	78.00	78.00	80.00	0.39	0.86	0.68	0	23.7%
Natural Gas Totals	9,642,000	0	0	0	18,993,000	24,674,000	22,598,000	29,951,000	35,029,000	22,441,000	18,014,000	0	181,342,000
Diesel Fuel totals	26	37	-4	-53	409	-121	75,684	19,808	0	1	0	0	95,787
Chiller 1-A Hour Meter	671	591	324	373	0	0	21	1	220	708	743	0	3652
Chiller 1-B Hour Meter	517	407	289	107	0	0	0	0	160	707	743	0	2930
Chiller 2-A Hour Meter	542	349	565	203	216	78	193	127	175	567	716	0	3731
Chiller 2-B Hour Meter	541	347	563	203	201	76	192	121	164	565	697	0	3670
Chiller 3-A Hour Meter	684	695	713	699	614	727	554	655	476	0	0	0	5817
Chiller 3-B Hour Meter	684	695	713	689	679	707	553	655	464	0	0	0	5839
Chiller 4 Hour Meter	4	0	0	0	0	0	0	0	82	42	202	0	330
Chiller Hour Meter Totals	3,643	3,084	3,167	2,274	1,710	1,588	1,513	1,559	1,741	2,589	3,101	0	25,961
Tower #1 Water Meter	1,011,700	1,052,000	639,700	474,100	100	13,600	25,300	13,500	477,900	1,444,900	1,574,300	0	6,727,100
Tower #2 Water Meter	843,300	609,900	670,400	579,100	261,300	98,000	222,600	143,000	216,400	936,600	1,269,800	0	5,850,400
Tower #3 Water Meter	1,632,652	1,703,720	2,152,760	1,567,312	1,090,068	1,084,475	744,542	1,050,239	733,947	168	5,808	0	11,765,691
Tower #4 Water Meter	9,541	48	0	21,838	182,680	139,469	0	7,174	126,850	61,061	389,165	0	937,828
Tower water totals	3,497,193	3,365,668	3,462,860	2,642,350	1,534,148	1,335,544	992,442	1,213,913	1,555,097	2,442,729	3,239,073	0	25,281,017
Chill water make up	14,245	13,280	20,978	15,571	21,673	28,127	13,656	20,399	21,306	8,772	28,953	0	206,963
Sec Chill Water pump #1	719	76	410	687	722	744	1	360	659	30	203	0	4,611
Sec Chill Water pump #1	128	719	737	719	46	0	743	312	54	636	740	0	4,834
Sec Chill Water pump #1	537	719	544	39	415	381	355	308	356	720	743	0	5,117
Sec Chill Water Pump Totals	1,384	1,514	1,691	1,445	1,183	1,125	1,099	980	1,069	1,386	1,686	0	14,561
City Water Meter	3,678,548	2,977,095	2,986,253	1,761,000	2,460,750	3,247,500	3,867,000	3,951,000	4,326,000	3,660,000	4,000,500	0	36,915,646
Well Water Meter	887,600	791,300	993,300	875,300	883,100	0	120,000	0	0	648,800	966,000	0	6,165,400
Misc Water Used	270,388	389,447	495,015	-21,621	458,185	-19,584	299,717	74,968	1,393,006	63,325	255,494	0	3,698,340
Front 480 volt KWH	82,560	62,400	81,600	48,000	99,840	46,080	24,000	20,160	44,160	91,200	146,880	0	746,880
Back 480 volt KWH	163,680	132,960	136,800	101,760	73,920	72,960	72,000	72,000	71,040	79,680	107,040	0	1,083,840
Total 480V KWH Meter	246,240	195,360	218,400	149,760	173,760	119,040	96,000	92,160	115,200	170,880	253,920	0	1,830,720
Biomass KW Meter	16,064	18,663	13,308	16,289	15,526	16,371	22,345	25,370	29,508	23,655	21,387	0	218,481

East Energy Plant - 2014 Fiscal Year

Monthly Averages

292
245
326
791
5,067,455
3,827,000
4,407,273
12,193,250
1,050,840
1,389,773
67,008,603
23.79
16,485,636
8,708

332.00
266
339
334
529
531
30.00
2,164.08
611,555
531,855
1,069,608
85,257
2,106,751
18,815

419
439
465
1,214
3,355,968
560,491
336,213

67,898
98,531
152,560
19,862

East Energy Plant - Fiscal Year

2015

	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Yearly Totals
Boiler #1 Hours	535	219	368	185	591	373	342	569	306	36	0		3,524
Boiler #2 Hours	346	494	124	368	514	214	414	358	737	367	348		4,284
Boiler #3 Hours	147	336	395	694	464	489	594	440	453	433	401		4,845
Boiler Hour Totals	1,028	1,049	887	1,247	1,569	1,076	1,350	1,367	1,496	836	749	0	12,654
Boiler #1 Steam Totals	7,285,000	3,107,000	6,398,000	6,097,000	11,135,000	4,358,000	7,225,000	5,239,000	5,072,000	5,095,000	331,000	11	61,342,011
Boiler #2 Steam Totals	3,500,000	2,356,000	4,198,000	6,214,000	26,361,000	5,176,000	6,302,000	884,000	10,663,000	13,721,000	2,623,000	3,379,000	85,377,000
Boiler #3 Steam Totals	1,560,000	4,147,000	7,439,000	7,093,000	6,865,000	4,967,000	10,658,000	15,000	4,563,000	5,476,000	3,658,000	5,116,000	61,557,000
Boiler Steam Totals	12,345,000	9,610,000	18,035,000	19,404,000	44,361,000	14,501,000	24,185,000	6,138,000	20,298,000	24,292,000	6,612,000	8,495,011	208,276,011
Boiler Feed water Totals	952,742	925,352	1,034,283	979,539	1,917,175	990,187	1,470,622	1,787,222	1,858,583	415,555	469,238	401,701	13,202,199
Boiler Soft water totals	2,427,960	1,369,812	1,196,335	1,836,535	2,997,756	1,593,617	2,164,319	3,030,290	2,830,991	731,859	788,526	666,218	21,634,218
Lbs. Corrected Steam/8,345	1,400	1,770	0,853	1,103	0,77	1,264	0,823	2,900	1,611	0,349	1,383	0,890	15,116
% Make Up	1.60	1.19	0.55	0.79	0.65	0.92	0.75	4.12	1.16	0.25	1.00	0.65	1.14
Natural Gas Totals	17,435,000	17,074,000	15,392,000	21,403,000	34,272,000	18,331,000	19,893,000	17,820	32,690,000	8,477,000	9,143,000	7,558,000	201,685,820
Diesel Fuel totals	0	0	0	0	1,697	0	35,229	98,222	0	0	77	167	135,392
Chiller 1-A Hour Meter	744	736	637	495	307	454	611	451	261	516	709	714	6635
Chiller 1-B Hour Meter	744	736	462	145	149	127	102	121	60	330	617	643	4235
Chiller 2-A Hour Meter	734	733	417	127	0	0	0	1	473	70	203	330	3083
Chiller 2-B Hour Meter	734	732	417	127	0	0	0	1	465	59	196	324	3055
Chiller 3-A Hour Meter	0	97	484	709	402	239	0	75	218	476	709	399	3803
Chiller 3-B Hour Meter	0	0	374	710	412	265	0	96	223	478	409	699	3661
Chiller 4 Hour Meter	343	385	131	0	0	0	0	0	11	14	18	83	985
Chiller Hour Meter Totals	3,299	3,419	2,922	2,313	1,270	1,085	713	745	1,711	1,943	2,861	3192	25,473
Tower #1 Water Meter	2,034,300	1,826,000	1,325,100	758,200	415,500	466,900	662,800	560,200	409,800	914,200	1,484,500	1,193,700	12,051,300
Tower #2 Water Meter	1,385,300	1,369,900	732,100	217,300	0	0	2,400	1,200	788,900	137,900	368,900	560,800	5,564,700
Tower #3 Water Meter	11	207,409	1,245,190	1,766,485	822,736	386,744	22	152,605	366,970	1,081,416	1,052,696	1,799,066	8,881,350
Tower #4 Water Meter	816,544	865,285	247,248	0	99,714	145,155	179,997	201,802	30,905	26,199	43,121	214,997	2,870,957
Tower water totals	4,236,155	4,268,594	3,549,638	2,741,985	1,337,950	998,799	845,219	915,807	1,596,575	2,159,715	2,949,217	3,768,563	29,368,217
Chill water make up		7,651	8,936	15,515	13,886		60,981	301	339	3,870	5,428	37,596	154,502
Sec Chill Water pump #1	509	744	614	744	720	453	20	37	0	0	609	720	5,170
Sec Chill Water pump #1	744	744	624	1	0	3	230	672	742	710	214	382	5,066
Sec Chill Water pump #1	612	336	124	489	10	314	576	111	424	641	154	375	4,166
Sec Chill Water Pump Totals	1,865	1,824	1,362	1,234	730	770	826	820	1,166	1,351	977	1,477	14,402
City Water Meter	4,764,750	4,825,500	3,863,250	3,609,000	3,506,250	2,159,250	2,631,750	2,812,500	3,365,250	2,422,500	2,797,500	4,031,250	40,788,750
Well Water Meter	1,878,400	953,500	923,600	939,100	686,000	488,800	516,600	703,300	936,000	925,200	967,200	937,200	10,854,900
Misc Water Used	-44,761	125,743	25,742	-55,837	-173,042	37,043	66,731	-443,298	-141,355	445,556	21,529	484,573	348,624
Front 480 volt KWH	192,000	194,880	102,720	37,440	57,600	83,520	89,280	90,240	66,240	39,360	56,640	87,360	1,097,280
Back 480 volt KWH	155,520	173,760	155,520	129,120	78,240	204,960	0	0	85,440	94,560	120,960	163,200	1,361,280
Total 480V KWH Meter	347,520	368,640	258,240	166,560	135,840	288,480	89,280	90,240	151,680	133,920	177,600	250,560	2,458,560
Biomass KW Meter	3,429	29,099	25,704	29,046	26,575	31,437	34,965	34,507	29,704	24,920	27,222	26,953	323,551

East Energy Plant - Fiscal Year

Monthly
Averages

320
389
441
1,055
5,111,834
7,114,750
5,129,750
17,356,334
1,100,183
1,802,852
1,260
1.14
16,807,152
11,283

552.92
353
257
255
317
306
82.08
2,122.75
1,004,267
463,725
740,113
239,247
2,447,351
15,450

431
422
347
1,200
3,399,063
904,575
29,052

91,440
113,440
204,880
26,963

USC School of Medicine Water Treatment

Building # 1

- A) Hot Water Loops
 - 1) Attic heating hot water loop
 - 2) Basement heating hot water loop
- B) Chill Water Loop
 - 1) Basement
- C) Cooling Towers
 - 1) 1 & 2 Cooling towers

Building # 2

- A) Hot Water Loop
 - 1) Basement heating hot water loop

Building # 3

- A) Hot Water Loop
 - 1) Basement heating hot water loop
- B) Chill Water Loop
 - 1) Basement chill water loop

Building # 4

- A) Chill Water Loop
 - 1) Basement chill water loop

Building # 101

- A) Chill Water Loop
 - 1) Basement chill water loop

Building Med Park # 15

- A) Chill Water Loop
 - 1) Upstairs Mezzanine chill water loop