



Operations Monitoring Report

Third Quarter FY13

Prepared by:

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I. Executive Summary

A review of the fiscal year 2013 (FY13) Third Quarter performance and contract obligations between Constellation New Energy (CNE) and the Metropolitan Government of Nashville and Davidson County (Metro) is presented in this report by Thermal Engineering Group, Inc (TEG). The status of the available funds for all active capital construction and repair and improvement projects are also presented. For the fiscal year 2013, CNE has satisfactorily met all of the contract obligations to Metro and has had no contract violations.

For the Third Quarter FY13, the chilled water sales decreased 7.5% over the previous Third Quarter (FY12). The Third Quarter FY13 saw a marked decrease in cooling degree days from the previous Third Quarter. The peak chilled water demand for the current quarter was 9,602 tons, which is 14.8% lower than the previous Third Quarter.

Steam sendout for the current quarter increased by approximately 50.5% over the previous Third Quarter, and the number of heating degree days increased by 40.2%. Likewise, steam sales also increased by approximately 57.3% over the previous Third Quarter. Steam system losses, as a percentage of sendout, decreased, and the total losses also decreased by approximately 8.6% over the previous Third Quarter are noted. The peak steam demand for the current quarter was 124,156 pounds per hour, which represents an approximate 6.3% increase from the previous Third Quarter.

The Energy Generating Facility (EGF) performance continues to surpass the System Performance Guarantee (Guaranteed Maximum Quantity or GMQ) levels. The chilled water plant electric consumption continues to perform considerably lower than the guaranteed levels but was slightly higher than the value from the previous Third Quarter. The steam plant electric consumption increased approximately 35% over the previous Third Quarter. The steam plant fuel efficiency has increased approximately 1.5% from the previous Third Quarter due in part to an increase in the amount of condensate return. The total water consumption for the steam and chilled water plants decreased approximately 4.7% from the previous Third Quarter marked by a 12.3% increase in the EDS make-up for the chilled water system and a 33% increase in the steam plant usage. The overall decrease in EGF water consumption is due to a decrease in chilled water sales and decrease in cooling tower water usage.

Work continued on DES Capital and Repair & Improvement Projects during the Third Quarter of FY13. There were no projects closed during the Third Quarter FY13. The building metering equipment was installed at the Nashville Hyatt (DES-098) during the quarter, but start-up of the steam and chilled water systems are not expected until the Fourth Quarter, at the earliest. Repair and Improvements to the EDS continue as scheduled.

The current fiscal year system operating costs to date are \$13,603,824. This value represents approximately 69.48% of the total budgeted operating cost for FY13. The customer revenues from the sales of steam and chilled water for FY13 (to date) are \$12,383,413 which is approximately 71.73% of the budgeted amount. The difference between the operating costs and

customer revenue is the Metro funding amount (MFA), which represents the shortfall in cash flow for the system. The MFA transferred to date for FY13 is \$1,736,775 (75% of budget). However, the actual MFA required cannot be accurately calculated due to the outstanding invoices.

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II. Energy Distribution Sales and Performance

A. Chilled Water

This section of the report discusses and presents performance information regarding the operation of the EGF for the periods described. Charts and tabular data are also presented to provide a more detailed description of the actual EGF performance.

1. Sales and Sendout

A comparison for the Third Quarter chilled water sales is shown in Figure 1. This data reflects a 7.5% decrease in sales for the current quarter over the same quarter of the previous fiscal year. The quarter also experienced a marked decrease in the number of cooling degree days.

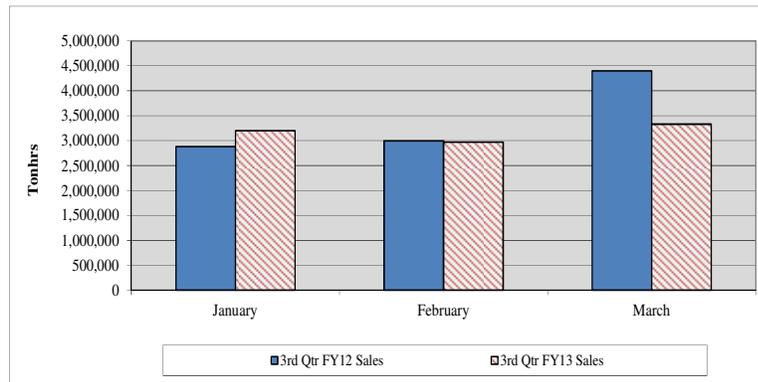


Figure 1. Third Quarter FY13 Sales Comparison

The peak chilled water demand for the current quarter was 9,602 tons. This peak demand is 14.8% lower than in the previous Third Quarter.

Figure 2 shows the chilled water sales, sendout and losses for the previous twelve months. The losses on this figure are defined as the difference in tonhrs per month between the recorded sendout and sales values and represent the total energy loss for chilled water in the EDS. The number of cooling degree days per month are also tracked for comparison.

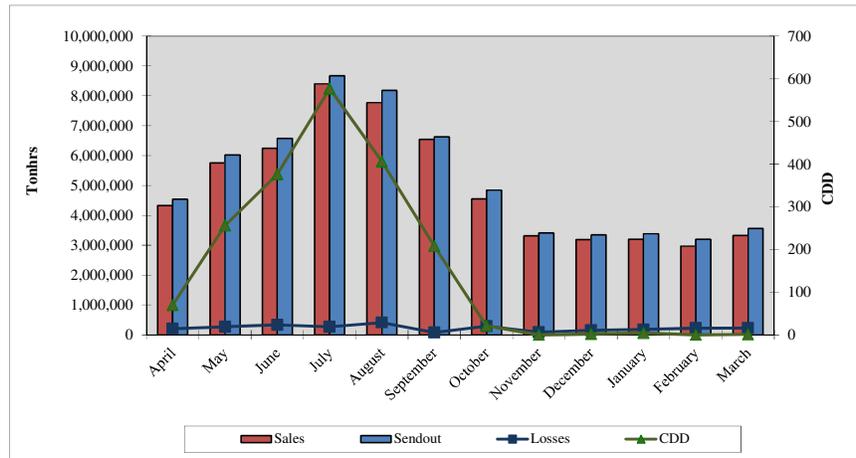


Figure 2. Chilled Water Sales, Sendout, Losses and CDD for the Previous Twelve Months

2. Losses

A comparison of the total, chilled water energy losses in the EDS for the Third Quarter is shown in Figure 3. These losses are the difference in chilled water sendout and sales.

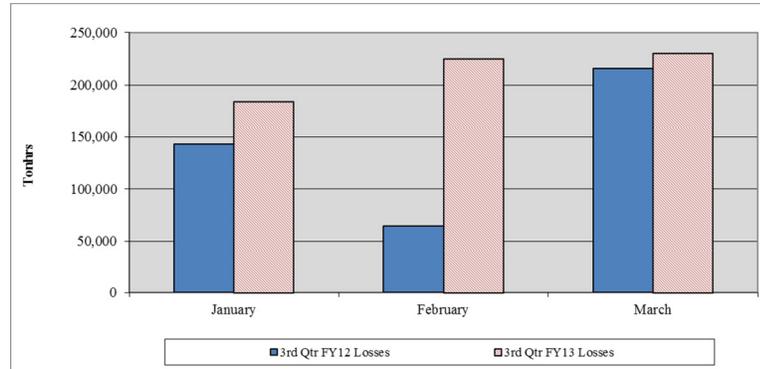


Figure 3. Chilled Water System Loss Comparison for the Third Quarter FY13

The EDS make-up increased by approximately 12.3% over the previous Third Quarter. However, the total EDS water usage represents only a small part of the total EGF water usage for the quarter. The total energy losses have increased by approximately 51.4% over the previous Third Quarter due to the relatively low chilled water sales. The make-up to the cooling towers decreased by approximately 15%. The number of cycles of concentration in the condensing water circuit experienced a 12.5% decrease during the current Third Quarter. The overall city water make-up comparison for the chilled water system is shown in Figure 4.

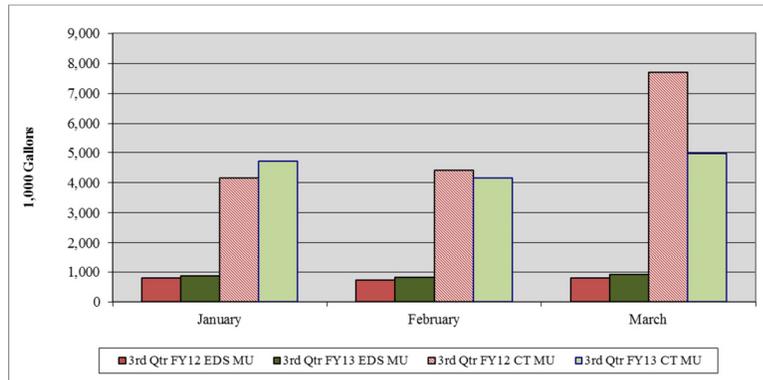


Figure 4. Chilled Water System City Water Usage Comparison

3. Performance

The performance of the chilled water aspect of the EGF is presented by the following two charts, Figures 5 and 6, for the previous twelve months. Under the management of CNE, the System Performance Guarantee levels as described in the ARMA are being achieved quite satisfactorily.

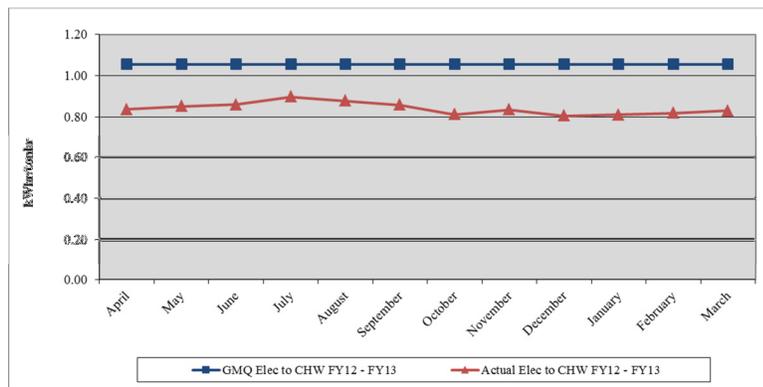


Figure 5. Chiller Plant Electric Performance Guarantee Comparison for the Previous Twelve Months

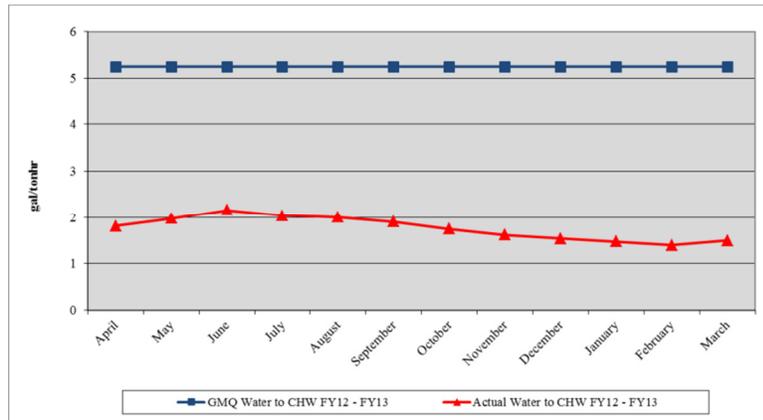


Figure 6. Chiller Plant Water Consumption Performance Guarantee Comparison for the Previous Twelve Months

The chilled water allocation of the electric consumption falls under the GMQ limit of 1.055 kWhr per tonhr for the current quarter, and no excursion is reported for the current fiscal year. The chiller plant electric usage for the current quarter decreased approximately 4.5% over the Third Quarter for FY12. The actual electric conversion factor increased 1.86% in the quarter to 0.821 kWhr per tonhr.

The actual chilled water plant water conversion factor decreased approximately 4.4% over the previous Third Quarter. The total consumption of city water for the chiller plant for the current quarter is approximately 11.6% lower than that for the previous Third Quarter.

B. Steam

1. Sales and Sendout

The steam sendout increased by approximately 50.5% over the previous Third Quarter (FY12), and the sales increased by approximately 57.4%. The steam system losses decreased approximately 39% relative to sendout. The number of heating degree days have increased by 40.2% over the previous Third Quarter. The significant increase in steam sales is attributed to the new service to the Music City Convention Center. A comparison for the Third Quarter steam sales is shown in Figure 7.

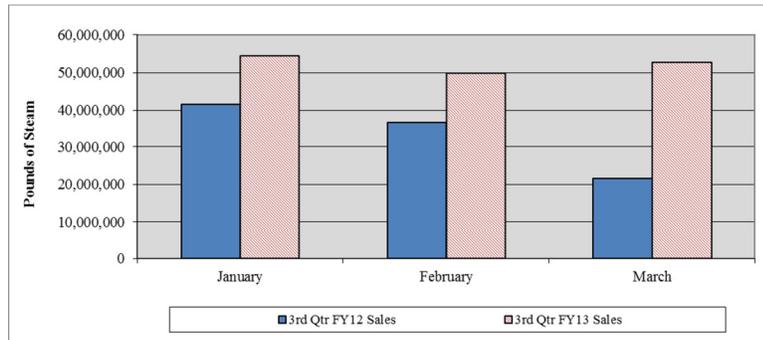


Figure 7. Steam Sales Comparison for the Third Quarter FY13

The peak steam demand for the current quarter is 124,156 pph, which reflects an approximate 6.3% increase in the peak steam production over the previous Third Quarter. This high peak demand is due, in part, to the increase in steam demand at the new Music City Convention Center.

Figure 8 shows the steam sales, sendout and losses for the previous twelve months. The losses on this figure are defined as the difference in pounds per month between the recorded sendout and sales values and represent the total mass loss in the EDS between the EGF and the customer meters.

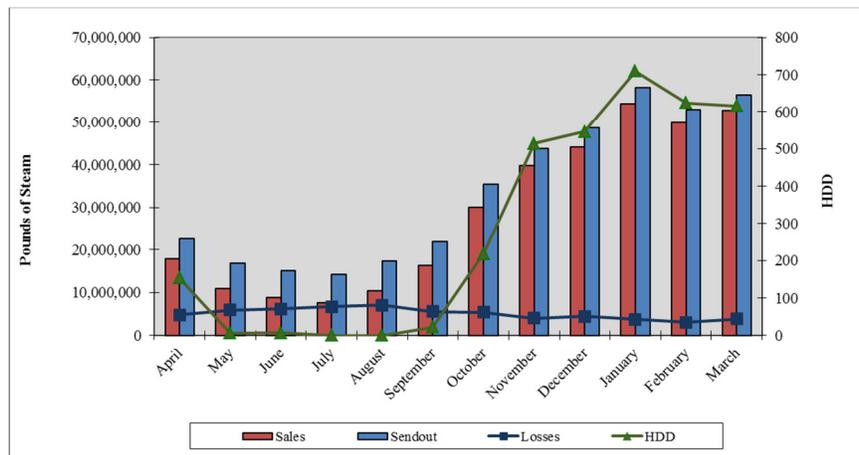


Figure 8. Steam Sales, Sendout, Losses and HDD for the Previous Twelve Months

2. Losses

A comparison of the total steam mass losses in the EDS for the Third Quarter is shown in Figure 9. The mass loss is caused by the heat loss in the EDS between the EGF and the customer meters, resulting in a mass loss at steam traps. Faulty traps, steam leaks or meter error could also be a contributing cause of these losses.

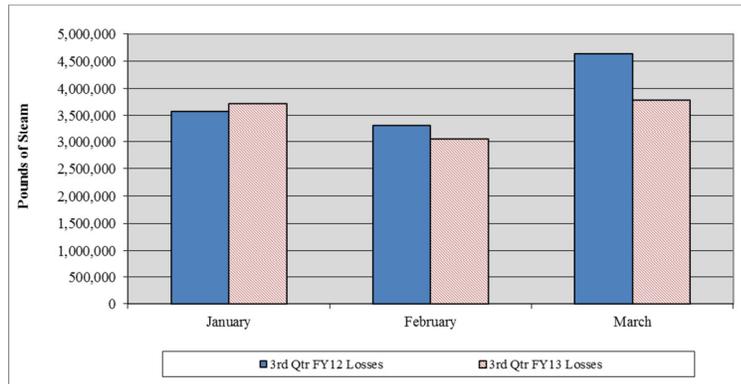


Figure 9. Third Quarter FY13 Steam System Losses

The amount of city water make-up (MU) to the steam system consists of the loss in mass between the EGF and the customers, in the condensate return from the customers to the EGF and losses at the EGF. This data is shown in the comparison of Third Quarter data in Figure 10.

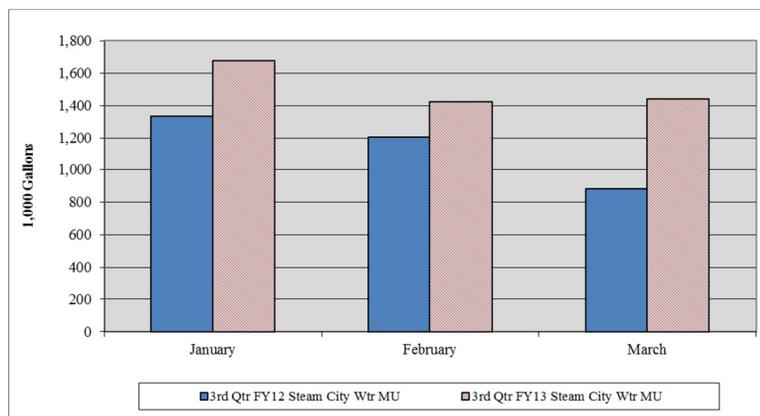


Figure 10. Third Quarter FY13 Steam System City Water Make-up Comparison

3. Performance

The performance of the steam system aspect of the EGF is presented by the following three charts, Figures 11, 12 and 13. Under the management of CNE, the System Performance Guarantee levels as described in the ARMA are being achieved satisfactorily.

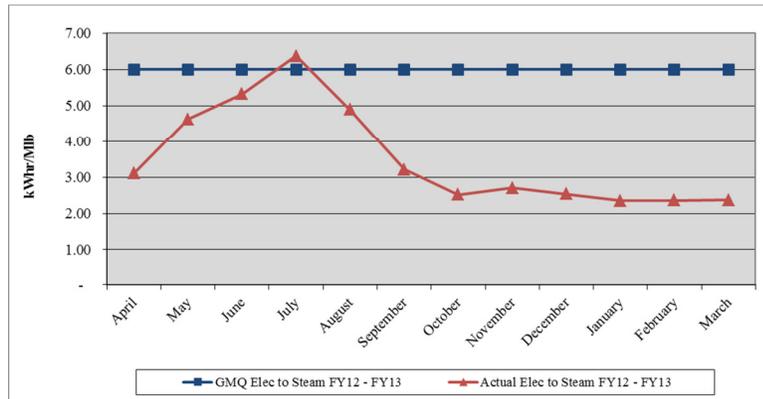


Figure 11. Steam Plant Electric Performance Guarantee for the Previous Twelve Months

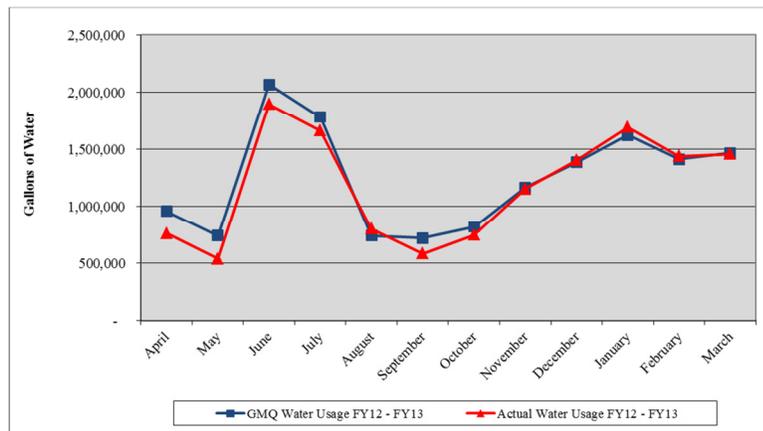


Figure 12. Steam Plant Water Performance Guarantee for the Previous Twelve Months

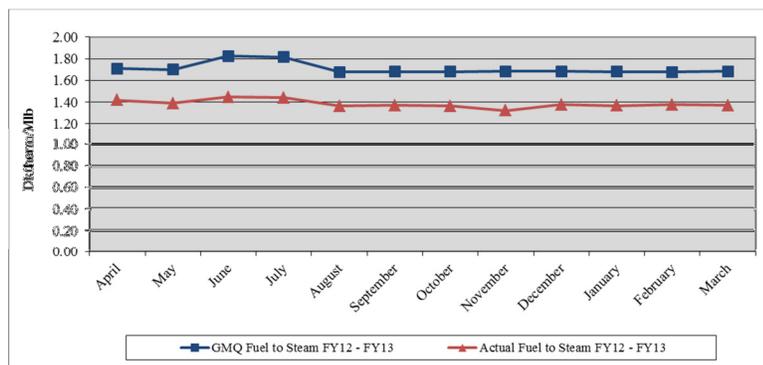


Figure 13. Steam Plant Fuel Performance Guarantee for the Previous Twelve Months

The current quarter experienced a 34.9% increase in the steam plant electric consumption while experiencing a 14.2% decrease in the electric conversion factor (due to an increase in steam sales). The water consumption for the steam

plant increased 32.6% this quarter as compared to the previous Third Quarter. The fuel consumption per unit of steam sales is relatively constant throughout the year and when compared to the historic data. The boiler plant fuel efficiency increased slightly for the current quarter due to an increase in the amount and temperature of the condensate return.

C. Contract Guarantee Performance

The production and sales performance for the EGF and EDS are summarized in Table 1 for the current quarter and the complete fiscal year. Additional parameters, such as cooling tower blow-down and peak demands are listed in this table, as well. Table 2 presents the Third Quarter comparisons of the Guaranteed Maximum Quantities (GMQ) of the criteria commodities (fuel, water and electricity).

Table 1. Third Quarter FY13 Production, Sales and Consumption Summary

Item	Unit	Third Quarter FY13	Third Quarter FY12	*Percent Difference
	days	90	91	-1.10%
Total Electric Use	kWhrs	8,166,165	8,551,134	-4.50%
Chilled Water	kWhrs	7,796,407	8,277,104	-5.81%
Steam	kWhrs	369,758	274,030	34.93%
Total Water Use	kgal	20,960	21,990	-4.68%
Total Chilled Water	kgal	16,420	18,565	-11.55%
EDS Make-up	kgal	2,587	2,304	12.28%
Cooling Towers	kgal	13,833	16,261	-14.93%
Calc CT Evaporation	kgal	11,627	13,945	-16.62%
CT Blowdown	kgal	2,206	2,316	-4.75%
Calc # Cycles		5.27	6.02	-12.46%
Steam	kgal	4,540	3,425	32.55%
Total Fuel Use	mmBTU	229,694	154,893	48.29%
Natural Gas	mmBTU	229,497	154,597	48.45%
Propane	mmBTU	197	296	-33.45%
Condensate Return	kgal	16,639	10,298	61.58%
	lbs	135,707,635	83,989,759	61.58%
Avg Temp	°F	168.0	158.7	5.88%
Sendout				
Chilled Water	tonhrs	10,137,500	10,693,200	-5.20%
Steam	lbs	167,586,000	111,341,000	50.52%
Peak CHW Demand	tons	9,602	11,274	-14.83%
Peak Steam Demand	lb/hr	124,156	116,813	6.29%
CHW LF		48.88%	43.43%	12.55%
Steam LF		62.49%	43.64%	43.19%
Sales				
Chilled Water	tonhrs	9,497,074	10,270,322	-7.53%
Steam	lbs	157,052,250	99,816,478	57.34%
Losses				
Chilled Water	tonhrs	640,426	422,878	51.44%
Steam	lbs	10,533,750	11,524,522	-8.60%
		6.29%	10.35%	-39.27%
Degree Days				
CDD		5	61	-91.80%
HDD		1,949	1,390	40.22%

*positive percent difference values imply an increase from FY12 to FY13

Table 2. Third Quarter FY13 Performance Guarantee Comparison for Steam and Chilled Water

GMQ Calculations	Unit	Third Quarter FY13	Third Quarter FY12
Steam			
GMQ Elec Conversion	kWhr/Mlb	6.00	6.00
Electric Conversion	kWhr/Mlb	2.35	2.75
GMQ Plant Efficiency	Dth/Mlb	1.681	1.703
Plant Efficiency	Dth/Mlb	1.371	1.391
Actual %CR		80.98%	75.43%
Avg CR Temp	°F	168	159
GMQ Water Conversion	gal	4,494,948	3,856,609
Water Conversion	gal	4,585,400	3,459,250
Chilled Water			
GMQ Elec Conversion	kWhr/tonhr	1.055	1.055
Electric Conversion	kWhr/tonhr	0.821	0.806
GMQ Water Conversion	gal/tonhr	5.25	5.25
Water Conversion	gal/tonhr	1.73	1.81

*positive percent difference values imply an increase from FY12 to FY13

D. Operating Costs

The operating costs for the DES include the management fee to CNE, debt service payments on the bonds and engineering and administration costs. The variable costs are dependent on the amounts of steam and chilled water produced and sold to the customers. These latter costs include the utility and chemical treatment costs. The vast majority of the costs incurred for the operation of the DES are passed onto the customers in the form of the demand charges (fixed costs) and energy charges (variable costs). A summary of the total operating costs for the fiscal year to date are shown in Table 3.

The revenues shown reflect the charges to the customers for their respective steam and chilled water service. The difference between the total costs and revenues from the customers is the shortfall that must be paid by Metro. The shortfall exists, in part, due to the remaining capacity at the EGF that was included in the original construction and remains unsold. This capacity is available for potential future customers.

The system operating costs for FY13 to date are \$13,603,824. This value represents approximately 69.5% of the total budgeted operating cost for FY13 and includes expenses to date that have been invoiced but were not paid at the time of this report. Additional invoices that would be charged to the Third Quarter have not been issued or paid at the time of this report. The customer revenues from the sales of steam and chilled

water for FY13 are \$12,383,413 which is approximately 71.7% of the budgeted amount. The MFA transferred to date is \$1,736,775 (75% of budget). However, the actual MFA required cannot be accurately calculated due to the outstanding invoices.

Table 3. DES Expenses and Revenues to Date

Item	FY13 Budget	First Quarter Expenses	Second Quarter Expenses	Third Quarter Expenses	Fourth Quarter Expenses	Total Spending to Date	% of Budget
Operating Management Fee							
FOC: Basic	\$ 4,190,190	\$ 1,045,307.76	\$ 1,045,307.76	\$ 1,045,307.76	\$ -	\$ 3,135,923.28	74.84%
9th Chiller	\$ 39,300	\$ 9,794.76	\$ 9,794.76	\$ 9,794.76	\$ -	\$ 29,384.28	74.77%
C/O 6A	\$ 77,900	\$ 19,337.76	\$ 19,337.76	\$ 19,337.76	\$ -	\$ 58,013.28	74.47%
C/O 6B	\$ 68,200	\$ 16,929.33	\$ 16,929.33	\$ 16,929.33	\$ -	\$ 50,787.99	74.47%
C/O 7	\$ 25,510	\$ 6,377.73	\$ 6,377.73	\$ 6,377.73	\$ -	\$ 19,133.19	75.00%
Pass-thru Charges: Chemical Treatment	\$ 217,600	\$ 25,210.68	\$ 25,232.10	\$ 28,725.14	\$ -	\$ 79,167.92	36.38%
Insurance	\$ 29,400	\$ -	\$ -	\$ -	\$ -	\$ -	0.00%
Marketing: CES Sales Activity	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
Incentive Payments	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
FEA: Steam	\$ -	\$ 13,874.40	\$ 41,592.65	\$ 53,506.64	\$ -	\$ 108,973.69	n.a.
Chilled Water	\$ -	\$ 153,376.00	\$ 80,722.58	\$ 76,051.83	\$ -	\$ 310,150.41	n.a.
Misc: Metro Credit	\$ -	\$ (217,556.62)	\$ (118,721.22)	\$ (91,959.71)	\$ -	\$ (428,237.55)	n.a.
ARFA	\$ -	\$ 15,181.47	\$ 15,181.47	\$ 15,181.47	\$ -	\$ 45,544.41	n.a.
Deferral	\$ -	\$ -	\$ (58,460.93)	\$ (129,558.47)	\$ -	\$ (188,019.40)	n.a.
Subtotal - Man Fee =	\$ 4,648,100	\$ 1,087,833	\$ 1,083,294	\$ 1,049,694	\$ -	\$ 3,220,822	69.29%
Reimbursed Management Fee + Chem Treatment		\$ 1,256,659.24	\$ 1,239,718.68	\$ 759,415.49	\$ -	\$ 3,255,793.41	0.00%
Metro Costs							
Pass-thru Charges: Engineering	\$ 27,800	\$ 2,039.36	\$ 613.70	\$ 1,324.44	\$ -	\$ 3,977.50	14.31%
EDS R&I Transfers	\$ 262,200	\$ 65,550.00	\$ 65,550.00	\$ 65,550.00	\$ 21,850.00	\$ 218,500.00	83.33%
Metro Marketing	\$ 16,000	\$ 292.50	\$ -	\$ -	\$ -	\$ 292.50	1.83%
Project Administration	\$ 32,400	\$ -	\$ -	\$ -	\$ -	\$ -	0.00%
Metro Incremental Cost	\$ 513,000	\$ 124,749.83	\$ 89,224.20	\$ 125,758.78	\$ -	\$ 339,732.81	66.22%
Utility Costs: Water/Sewer	\$ 616,500	\$ 200,346.34	\$ 103,479.18	\$ 78,532.35	\$ -	\$ 382,357.87	62.02%
EDS Water/Sewer	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
EDS Electricity	\$ -	\$ 17,210.28	\$ 15,242.04	\$ 13,427.36	\$ -	\$ 45,879.68	n.a.
Electricity	\$ 5,673,500	\$ 2,176,472.60	\$ 805,473.84	\$ 801,136.40	\$ -	\$ 3,783,082.84	66.68%
Natural Gas Consultant	\$ 95,500	\$ 4,612.50	\$ 2,625.00	\$ 2,033.75	\$ -	\$ 9,271.25	9.71%
Natural Gas Transport	\$ -	\$ 38,620.31	\$ 68,441.69	\$ 84,297.45	\$ -	\$ 191,359.45	n.a.
Natural Gas Fuel	\$ 3,089,600	\$ 242,838.82	\$ 656,411.33	\$ 871,743.75	\$ -	\$ 1,770,993.90	57.32%
Propane	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
Subtotal - Metro Costs =	\$ 10,326,500	\$ 2,872,733	\$ 1,807,061	\$ 2,043,804	\$ 21,850	\$ 6,745,448	65.32%
Subtotal - Operations =	\$ 14,974,600	\$ 3,960,566	\$ 2,890,355	\$ 3,093,499	\$ 21,850	\$ 9,966,269	66.55%
Debt Service							
2002 Bonds	\$ 3,719,778	\$ 917,091.80	\$ 532,916.04	\$ 1,277,916.08	\$ -	\$ 2,727,923.92	73.34%
2005 Bonds	\$ 515,477	\$ 220,116.37	\$ 271,934.58	\$ -	\$ -	\$ 492,050.95	95.46%
2007 Bonds	\$ 221,400	\$ -	\$ 441,300.00	\$ -	\$ -	\$ 441,300.00	199.32%
2008 Bonds	\$ 219,900	\$ -	\$ -	\$ -	\$ -	\$ -	0.00%
2010 Bonds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
Interest Revenue	\$ (71,700)	\$ (10,745.32)	\$ (5,077.50)	\$ (7,897.54)	\$ -	\$ (23,720.36)	33.08%
MIP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
Oper. Reserve Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
Subtotal - Capital =	\$ 4,604,855	\$ 1,126,463	\$ 1,241,073	\$ 1,270,019	\$ -	\$ 3,637,555	78.99%
Total =	\$ 19,579,455	\$ 5,087,029	\$ 4,131,428	\$ 4,363,517	\$ 21,850	\$ 13,603,824	69.48%
Customer Revenues							
Taxes Collected		\$ 89,714.59	\$ 68,916.32	\$ 70,768.52	\$ -	\$ 229,399.43	n.a.
Taxes Paid		\$ 91,566.00	\$ 69,974.00	\$ 47,775.81	\$ -	\$ 209,315.81	n.a.
Penalty Revenues/Credits		\$ (60,689.15)	\$ (83,826.72)	\$ 1,946.96	\$ -	\$ (142,568.91)	n.a.
Energy Revenues Collected		\$ 4,864,842.59	\$ 3,758,032.12	\$ 3,883,023.46	\$ -	\$ 12,505,898.17	n.a.
Revenues =	\$ 17,263,800	\$ 4,802,302.03	\$ 3,673,147.72	\$ 3,907,963.13	\$ -	\$ 12,383,412.88	71.73%
Metro Funding Amount =	\$ 2,315,655	\$ 284,727	\$ 458,280	\$ 455,554	\$ 21,850	\$ 1,220,411	52.70%

The DES serves 28 customers and 41 buildings in downtown Nashville, including the new Music City Convention Center (MCCC) and Nashville Hyatt Place (not yet taking service). These customers are divided into three categories: 1) Private customers who privately own their buildings, 2) State of TN owned buildings and 3) Metro owned buildings. For FY13, the MCCC is considered a Metro owned building even though the general contractor is paying for temporary services. A summary of the annual costs for each of these three categories is presented in Table 4. These values include late fees and penalties and any unpaid balances.

Table 4. Customer Revenue Summary to Date

Building	Chilled Water			Steam		
	Total Cost	Consumption (tonhrs/yr)	Unit Cost (\$/tonhr)	Total Cost	Consumption (Mlb/yr)	Unit Cost (\$/Mlb)
Private Customers	\$ 2,899,821	13,886,449	\$ 0.2088	\$ 1,031,250	71,868	\$ 14.3492
State Government	\$ 2,563,172	11,837,388	\$ 0.2165	\$ 1,468,030	94,356	\$ 15.5584
Metro Government	\$ 2,844,190	17,540,773	\$ 0.1621	\$ 1,684,329	138,757	\$ 12.1387
New Customers	\$ 971,454	4,530,688	\$ 0.2144	\$ 183,354	13,824	\$ 13.2633
Total	\$ 8,307,184	43,264,610	\$ 0.1920	\$ 4,183,609	304,982	\$ 13.7176

Total Revenue \$ 12,490,793
 True-up and Adjustments (Net) \$ (107,380)
 Net Revenue \$ 12,383,413

III. EGF Operations

Items relating to the facility operations presented herein are derived from the monthly reports issued by CNE for FY13. Communication between TEG and CNE continues to be excellent, and CNE has reported and managed all EGF operations satisfactorily and according to the ARMA with no contract violations.

A. Reliability

The principle issues surrounding the reliable operation of the EGF relates to the ability to operate without significant interruption, exclusive of planned outages, and disruption of service to the customers. The following disruptions in service occurred during the quarter.

- In January, a safety relief valve on boiler #1 lifted causing the steam sendout pressure to drop below 150 psig for approximately 45 minutes.
- Failed flame scanners on boilers #1 and #3 caused the steam sendout pressure to drop below 150 psig for 45 minutes on two separate occasions in January.
- While performing maintenance on the Seimens Insight System, the chillers tripped causing the sendout temperature to rise above 43.3°F for approximately 36 minutes.
- Boiler #1 tripped in March while performing maintenance on the O2 sensor. The steam sendout pressure was below 150 psig for approximately 45 minutes.
- Excursions and disruptions in operations that have occurred throughout the year are included in the individual Monthly Operational Reports from CNE.

B. Efficiency

The operation of the EGF satisfied the guaranteed levels for all commodity usage during the quarter. There were no significant excursions above the guaranteed levels for the current quarter. A more detailed discussion of the contract guarantee performance was presented previously in this report.

C. Environment, Health and Safety

No environmental violations were reported during the quarter.

Monthly safety meetings were held on PPE Procedures, Lock-out Procedures and Elevated Work Safety.

The Semi-Annual Air Emissions Report, the Title V Certificate of Compliance, the Annual Emissions Report, the Annual Tier II Report and the Annual Greenhouse Gas Report were each submitted to their respective governmental agencies during the quarter.

D. Personnel

The EGF currently has twenty-five full time employees. Of the current number of employees, seventeen were previously employed by Nashville Thermal Transfer Corporation.

E. Training

Staff training for this quarter consisted of the Health and Safety training discussed previously.

F. Water Treatment

The water treatment program consists of regular testing and monitoring of the water chemistry in the steam, chilled water and condensing water systems. Chemicals are added to control the water hardness, chlorine levels and biologicals. Remote testing of the condensate at the AA Birch, Tennessee Tower and the Andrew Jackson also occurs regularly to monitor the concentration and distribution of the steam system chemicals.

- Steam System
 - The condensate return averaged approximately 81% of the steam sendout during the quarter.
 - The steam system make-up increased approximately 33% but the steam sendout increased approximately 50.5% over the previous Third Quarter.
- Condensing Water System
 - The conductivity of the condensing water continues normal with only a few excursions resulting in high cycles of concentration and low blowdown rates.
- Chilled Water System
 - The control of the system chemistry continues to be excellent.

G. Maintenance and EGF Repairs

CNE continues to report on the numerous routine maintenance and preventive maintenance activities performed on the EGF primary and ancillary equipment. The principle items are discussed herein as they relate to the repair, maintenance or replacement of equipment or devices at the facility and are not considered extraordinary. The cost for these items is included as part of the FOCs.

- The safety relief valve for boiler #1 was replaced.
- The flame scanners on boilers #1 and #3 were replaced.
- The wooden platform around expansion tank #2 was removed.
- The belt was replaced on the fan for cooling tower #2.
- Oil heaters were installed on chillers 1A, 1B, 2B, 4A, 4B and 7A.
- The purge suction sections were replaced on chillers 2A, 7A, 7B and 9B.
- The O2 analyzer was inspected and calibrated on boiler #1.
- The igniter on the burner for boiler #3 was repaired.
- Other minor repairs and maintenance were made during the quarter and are listed in the monthly reports issued by CNE.

H. EGF Walk-through

A quarterly Walk-through of the EGF was performed on March 27, 2013, by Kevin Jacobs, P.E. with TEG. This review involved a tour of the facility with the primary points of interest and concern noted herein.

- Many of the housekeeping items noted in the previous walk-through have been repaired or resolved. Some empty boxes and other items are still being stored in the electric room. These items need to be removed.
- The riser pipes in several of the cooling towers remain in need of repair.
- The insulation on chilled water pump #3 has been repaired.
- The remaining portions of the wooden platform at the expansion tank #2 have been removed. A leak was discovered in expansion tank #1 by CNE personnel during the quarter. The repairs are anticipated to be complete during the Fourth Quarter FY13 and will not include the construction of a wooden platform.
- The damaged insulation on the chillers, noted in previous walkthrough reports, has been repaired. Additional maintenance on chillers #4 and #6 were performed during the quarter which required portions of the insulation on the evaporator shells to be removed.
- Other minor items remaining include:
 - Cobwebs have reformed in various places throughout the plant and on MCCC 4 located near the boilers; these should be removed.

IV. Capital Projects

The Capital Projects discussed in this section are those projects funded through the issuance of bonds by Metro. Costs for these projects will be paid from funds already appropriated. The statuses of the projects are discussed, and the project cost-to-date and bond balances are also presented.

A. Third Quarter FY13 Open Projects

The following projects remained open at the end of the Third Quarter FY13.

1. DES033 – Manhole Lid and Ring Replacement/Restoration

This project relates to the repair and replacement of manhole lids and rings whenever Metro Public Works performs Street re-paving. This project will remain open.

2. DES077 – Music City Center Service Connection

All aspects of the construction of this project are complete except for the procurement of access equipment for the new metering station. Contract negotiations between the DES and the MCCC personnel continued through the quarter. The general contractor, Bell/Clark, is currently paying for the steam and chilled water services from DES used during construction. A final customer service agreement is anticipated during the Fourth Quarter.

3. DES080 – Misc. Manhole & Tunnel Safety Repairs

All work related to this project is now complete. It is anticipated that this project will be closed during the Fourth Quarter FY13.

4. DES090 – Manhole & Tunnel Insulation Repair (Revised from DES060)

Work associated with this project will be ongoing as required.

5. DES091 – Thermal Storage and NES Time of Use Rates

Although the thermal storage aspect of this project is completed, additional investigation is currently being performed by TEG for the conversion of the current billing practices to a time of use basis matching that of the electric invoice from NES.

6. DES 094 – Molloy Street Exploratory Dig

All of the work associated with this project has been completed. Cost substantiation documentation was received and reviewed during the First Quarter FY13. It is anticipated that the official Close-Out Documents will be signed and submitted during the Fourth Quarter FY13.

7. DES 095 – Manhole B2 Water Infiltration Remediation

The wall penetrations have been sealed and the amount of water infiltration has been substantially reduced. It appears that the water entering the vault is due to surface water and rain entering through the lids. A second step in this process would be to coat/seal the interior walls of the manhole. CNE and TEG continue evaluating the potential benefits of implementing this second step. It is expected that this project will be in closed during the Fourth Quarter FY13.

8. DES 098 – Nashville Hyatt Place Customer Connection

The installation of the new metering equipment was completed during the quarter, but is awaiting final electrical connections subject to the building contractor's schedule. Start-up of the in-building systems is anticipated during the Fourth Quarter FY13 or early in FY14.

B. Third Quarter FY13 Closed Projects

No projects were closed during the Third Quarter FY13.

C. Capital Projects Budget

The following table summarizes the costs and remaining balance of the DES capital projects based on reported expenditures to date. Open projects or completed projects that require some additional management are shown. Total costs for projects that are closed are shown with a gray highlight. Only the funds currently available are shown.

Table 5. Capital Projects Expense Summary

DES Project #	Description	Total Budget	FY13 Spending to Date	Total Spent to Date	Remaining Balance
2010 Bond Projects					
DES070	MH 6 to 23 Cond Line	\$ 20,000	\$ -	\$ 527	\$ 19,473
DES071	Hermitage Hotel Ser Modifications	\$ 20,000	\$ -	\$ 1,119	\$ 18,881
DES072	Sheraton Strm & Cond Line	\$ 11,000	\$ -	\$ 10,462	\$ 538
DES076	MH S4A Rehabilitation	\$ 233,000	\$ -	\$ 209,117	\$ 23,883
DES091	NES Time of Use Electric Rate	\$ 100,000	\$ 8,822	\$ 58,286	\$ 41,714
Total Closed Projects		\$ 1,763,304	\$ -	\$ 1,605,534	\$ 157,770
	Metro Project Admin	\$ -	\$ -	\$ -	\$ -
	Project Man, Development, etc	\$ 262,696	\$ -	\$ -	\$ 262,696
Total 2010 Bond		\$ 2,410,000	\$ 8,822	\$ 1,885,045	\$ 524,955
MCCC Construction Fund					
DES077	Music City Convention Center Design/Const	\$ 545,900	\$ 45,156	\$ 451,056	\$ 94,844
DES077	MCCC Metering	\$ 121,870	\$ 19,259	\$ 139,929	\$ (18,059)
DES077	Bell/Clark Construction Fund	\$ 4,697,860	\$ 184,878	\$ 4,240,421	\$ 457,439
DES097	EGF Cooling Tower Test #2	\$ 30,000	\$ 21,492	\$ 22,914	\$ 7,086
DES098	Nashville Hyatt Service Connection	\$ 300,000	\$ 235,678	\$ 248,290	\$ 51,710
Sub-Total Closed Projects		\$ 656,197	\$ 22,515	\$ 677,712	\$ (21,515)
	Metro Project Admin	\$ 50,000	\$ 21,515	\$ 21,515	\$ 28,485
	Project Man, Development, etc	\$ 2,098,173	\$ -	\$ -	\$ 2,098,173
Total MCCC Construction Fund		\$ 8,500,000	\$ 550,492	\$ 5,801,836	\$ 2,698,164

V. Energy Distribution System Repairs, Improvements, PM and Emergencies

Several EDS repairs and improvements were made during the Third Quarter. The principle items for discussion are presented in the following sections.

A. Repairs and Improvements

Several repairs were made to the EDS and at customer buildings during the quarter. The remaining value of the R&I budget at the end of the current quarter is \$26,327. Table 6 provides a summary of the FY13 expenditures and revenues to date associated with the R&I budget.

Table 6. Repair and Improvement Expenditure and Revenue Summary

Description	Date	Tracking #	Vendor	Expenditure	Transfers	Net Market Adjustment	Market Value	Balance
Value at end of FY12						\$ -	\$ 428,758.17	\$ 428,758.17
DES 090B S4A Pipe In	6/30/2012	N/A	CE	\$ 2,547.75				
DES 080 Misc Safety	6/30/2012	N/A	CE	\$ 72,280.00				
DES 090A Misc EDS	6/30/2012	N/A	CE	\$ 90,161.25				
DES 093A Manhole 6 S	6/30/2012	N/A	CE	\$ 38,407.20				
May 2012 EDS Repair & Escrow	6/30/2012	N/A	CE	\$ 8,485.33				
Overage Correction	8/2/2012	N/A	N/A	\$ (105.00)				
DES-080 MISC TUNNEL	8/3/2012	N/A	TEG	\$ 144.40				
DES-093 MH 6 REHAB	8/3/2012	N/A	TEG	\$ 492.61				
DES-094 MOLLOY HOT SPOT	8/3/2012	N/A	TEG	\$ 674.25				
DES-096 MH B4 VALVE	8/3/2012	N/A	TEG	\$ 695.35				
DES-099 EDS STEAM SHUTDOWN	8/3/2012	N/A	TEG	\$ 960.30				
DES 087/ Manhole D E	8/14/2012	N/A	CE	\$ 29,488.52				
June 2012 EDS Repair	7/1/2012	N/A	CE	\$ 12,303.61				
Misc tunnel Repair D	9/10/2012	N/A	TEG	\$ 673.11				
DES-094 Molloy Hot Spot DES	9/10/2012	N/A	TEG	\$ 132.24				
DES-096 MH B4 Valve Replacement	9/10/2012	N/A	TEG	\$ 220.65				
DES-099 EDS Steam Shutdown D	9/10/2012	N/A	TEG	\$ 848.60				
DES-096 Manhole B4 S	9/24/2012	N/A	CNE	\$ 15,092.46				
Sub-Total First Quarter				\$ 273,502.63	\$ 65,550.00	\$ -	\$ (207,952.63)	\$ (207,952.63)
DES-094 Molly Hot Sp	10/9/2012	N/A	TEG	\$ 1,299.60				
DES R&I Sept	10/9/2012	N/A	TEG	\$ 324.90				
EDS R&I July	10/9/2012	N/A	CNE	\$ 6,354.96				
EDS R&I Aug	10/9/2012	1585	CNE	\$ 4,690.15				
DES-080 Misc Tunnel/	11/9/2012	1592	TEG	\$ 1,023.60				
DES-094 Molloy Hot S	11/9/2012	1592	TEG	\$ 614.85				
EDS R&I Sept	11/6/2012	1596	CNE	\$ 1,996.18				
DES-099 Stean Outage	11/6/2012	1598	CNE	\$ 38,663.65				
DES-094 Molloy St Ex	11/6/2012	1599	CNE	\$ 199,459.50				
DES-076 MH-S4A Transfer	11/30/2012	-	-	\$ 118.50				
DES-076 MH-S4A Transfer	11/30/2012	-	-	\$ 12.76				
DES-090 MH Tunnel Repair	12/17/2012	1611	TEG	\$ 600.91				
EDS R & I 10/12	12/21/2012	1614	CNE	\$ 2,772.35				
EMR 12-002 Manhole 1	12/21/2012	1616	CNE	\$ 17,808.69				
Sub-Total Second Quarter				\$ 275,740.60	\$ 65,550.00	\$ -	\$ (210,190.60)	\$ (210,190.60)
DES 090 MH/Tunnel In	1/18/2013	1625	TEG	\$ 36.10				
35965-EDS R&I 11/12	1/31/2013	1630	CNE	\$ 3,395.37				
Misc Tunnel/MH Repair	2/11/2013	1635	TEG	\$ 506.59				
DES 090C Mhohle A.B.	2/28/2013	1642	CNE	\$ 13,505.00				
35968 - R & I 12/1	2/28/2013	1641	CNE	\$ 9,955.64				
DES 080 2/3/13-3/2/1	3/13/2013	1645	TEG	\$ 37.18				
DES 080 Misc EDS Saf	3/25/2013		CNE	\$ 28,454.00				
35965 - 01/13	3/26/2013		CNE	\$ 15,798.05				
Sub-Total Third Quarter				\$ 71,687.93	\$ 65,550.00	\$ -	\$ (6,137.93)	\$ (6,137.93)
Sub-Total Fourth Quarter				\$ -	\$ 21,850.00	\$ -	\$ 21,850.00	\$ 21,850.00
FY13 Year to Date				\$ 620,931.16	\$ 218,500.00	\$ -	\$ 26,327.01	\$ 26,327.01

B. Preventive Maintenance

Preventive maintenance, tunnel and manhole inspections and reviews of customers' mechanical rooms were performed during the quarter. The principle items for discussion are presented. A more detailed review of the condition of the EDS is presented in sub-section D of this report, "EDS Walk-through."

1. EDS Tunnel and Manhole Inspections
 - a. The water leaking into MH-B2 has significantly decreased due to repairs made this fiscal year.
 - b. Faulty steam traps were replaced.
 - c. Minor repairs were made during the quarter.
2. State Tunnel Inspections
 - a. CNE continues to monitor some minor steam and condensate leaks within the tunnel.
 - b. Other minor repairs were made during the quarter.

3. Other EDS Inspections

- a. The monthly thermographic analyses revealed no changes in the new hot spots near the James K Polk Building and in the Ryman Auditorium alley previously reported. The hot spots in Molloy Street remain.
- b. Other minor items are included in the CNE monthly reports.

C. Emergencies

No emergencies were reported during the quarter.

D. EDS Walk-through

The Third Quarter 2013 EDS walkthrough was conducted on April 16, 17 and 19, 2013, by Jon B. Belcher, PE. The manholes that were visited included Manholes B2, B3, B4, B6, B7, B8, B9, B10, 12, 14, 16A, Viridian, 22B, S4A, U and C. The following comments and observations are a result of these visits:

1. Manhole B2

- a. There was water present and the vault had to be pumped out; however it was not an extreme amount of water. A recent project to seal pipe wall penetrations in this vault has significantly reduced the amount of groundwater infiltration.
- b. There is some corrosion on the piping supports. These supports should be cleaned and painted to prevent additional corrosion. This vault should be included in the capital project to repair and prevent structural corrosion with a “moderate” rating.
- c. There is some minor insulation repair needed in this vault; this vault should be included in the capital project to repair insulation with a “moderate” rating.
- d. There is moisture on the chilled water supply and return piping near the eastern wall penetrations. It is difficult to discern whether this moisture is from the groundwater infiltration or a leak in the chilled water piping casing. The presence of this moisture should be monitored.

2. Manhole B3

- a. There was not any water present in this vault.
- b. There is some corrosion on the piping supports. These supports should be cleaned and painted to prevent additional corrosion. This vault should be included in the capital project to repair and prevent structural corrosion with a “moderate” rating.

- c. There is some minor insulation repair needed in this vault; this vault should be included in the capital project to repair insulation with a “moderate” rating.
 - d. There is a nut missing from an anchor bolt on a pipe support which should be replaced.
 - e. There is some minor spalling of a concrete wall where it appears that rebar chairs were placed. These spalls should be patched. TEG will coordinate with Constellation to have this done.
 - f. There are several hairline cracks in the ceiling of this vault; these cracks should be monitored.
3. Manhole B4
- a. There was a lot of water present in this vault and it required pumping before entry.
 - b. There is some corrosion of the structural components in this manhole. This vault should be included in the capital project to repair and prevent structural corrosion with a “moderate” rating.
 - c. There is some minor insulation repair needed in this vault; this vault should be included in the capital project to repair insulation with a “moderate” rating.
 - d. There are several hairline cracks in the ceiling of this vault; these cracks should be monitored.
4. Manhole B6
- a. There was a minor amount of water in this manhole.
 - b. The pre-insulated piping end can vent piping does not include any check valves. During the monthly inspections of this vault, the valve on the vent piping should be opened to determine the condition of the piping system in the general vicinity of the vault and closed prior to leaving the vault.
5. Manhole B7
- a. There was a minor amount of water in this manhole.
 - b. The pre-insulated piping end can vent piping does not include any check valves. During the monthly inspections of this vault, the valve on the vent piping should be opened to determine the condition of the piping system in the general vicinity of the vault and closed prior to leaving the vault.
 - c. The “putty” filling the western steam penetration has pulled away from the wall; this should be monitored to see if it moves any further.
6. Manhole B8
- a. There was a minor amount of water in this manhole.

- b. There is hardened grout in the floor of this manhole; CNE should hire a contractor to remove this grout.
 - c. The pre-insulated piping end can vent piping does not include any check valves. During the monthly inspections of this vault, the valve on the vent piping should be opened to determine the condition of the piping system in the general vicinity of the vault and closed prior to leaving the vault.
 - d. Some of the paint on the anchor support is flaking. This should be cleaned and re-painted to prevent the formation of corrosion.
7. Manhole B9
- a. There was water present in this manhole and it required pumping prior to entry.
 - b. There is hardened grout in the floor of this manhole; CNE should hire a contractor to remove this grout.
 - c. The pre-insulated piping end can vent piping does not include any check valves. During the monthly inspections of this vault, the valve on the vent piping should be opened to determine the condition of the piping system in the general vicinity of the vault and closed prior to leaving the vault.
 - d. There is a hairline crack in the ceiling of this vault. This crack should be monitored.
8. Manhole B10
- a. There was water present in this manhole and it required pumping prior to entry.
 - b. There is hardened grout in the floor of this manhole; CNE should hire a contractor to remove this grout.
 - c. The pre-insulated piping end can vent piping does not include any check valves. During the monthly inspections of this vault, the valve on the vent piping should be opened to determine the condition of the piping system in the general vicinity of the vault and closed prior to leaving the vault.
9. Viridian Manhole
- a. There was water present in this manhole and it required pumping prior to entry.
 - b. No deficiencies to report.
10. Manhole 16A
- a. No deficiencies to report.

11. Manhole 22B
 - a. The link seal on the steam piping to the library is leaking and requires tightening.
 - b. The vent on the steam piping casing to the library is absent. A new pipe nipple with a valve and check valve needs to be re-installed on this pipe casing.
 - c. The CHW vent valves are sweating due to poor insulation. This vault should be included in the capital project to repair insulation with a “minor” rating.

12. Manhole S4A
 - a. There was no water present in this manhole.
 - b. There are several cracks in the concrete sidewalk above this manhole; these cracks are probably due to traffic cutting the corner short when making turns.
 - c. There are hairline cracks in the western wall of this manhole. These cracks should be monitored.

13. Manhole U
 - a. There was no water present in this manhole.
 - b. There is some corrosion on the bottom portion of the ladder in this manhole. The ladder should be cleaned and painted or replaced.

14. Manhole 12
 - a. There was no water present in this manhole.
 - b. There is a hairline crack in the ceiling of this manhole; this crack should be monitored.

15. Manhole 14A
 - a. This is an abandoned manhole located on Charlotte Ave. and is periodically checked to verify its condition. It consists of one steam and condensate manhole with two manways and two chilled water valve manholes with a single manway each.
 - b. There was water present in these manholes and they required pumping before entry.
 - c. All 4 manhole frames are cracked, chipped or split. All 4 of these manhole frames need to be replaced.
 - d. The manhole has a large amount of mud in the floor.
 - e. The manholes appear to be structurally sound.

16. Manhole 6A
 - a. This manhole consists of two separate manholes; one manhole houses the service valves for the steam and condensate to the

- Hermitage Hotel; the other manhole houses the chilled water supply and return to the Hermitage Hotel.
- b. There was not any water in either of these manholes.
 - c. The steam/condensate manhole is extremely hot; however, there are no apparent leaks and the insulation appears to be intact.
17. Manhole C
- a. There was water present in this manhole and it required pumping before entry.
 - b. A portion of southern condensate slip joint blanket is missing; this insulation blanket portion should be replaced.
 - c. The link seals on the water line which passes through the vault are leaking. These link seals should be tightened.
 - d. The link seal on both the northern and southern steam line penetrations are starting to “back out”. This link seal should be loosened, re-positioned in the wall sleeve and re-tightened.

VI. Customer Relations

This section contains descriptions of the marketing efforts made by the DES Team during the quarter. The topics of interactions, meetings and training seminars with the customers are also discussed. There are currently 28 customers, comprised of 41 different buildings, connected to the EDS, including the Music City Convention Center and Nashville Hyatt Place. Service to each of these buildings continues to prove satisfactory, and the responsiveness to customer issues is handled by CNE in an excellent and professional manner.

A. Marketing

TEG and DES continue actively work on the final Customer Service Agreement (CSA) with the MCCC. The CSA is anticipated to be presented to the Metro Council for their review and approval in May 2013.

TEG is finalizing the CSA between the Nashville Hyatt Place and DES.

B. Customer Interaction

The CNE customer service representative (CSR) continues to respond to customer issues as they arise. Much of the communication involves minor problems with the customers’ heating and cooling systems that are unrelated to DES service. Other more significant issues are summarized herein.

- The CSR coordinated several meetings between the customers, CNE, TEG and the contractors for particular projects that affected the steam, condensate and/or chilled water service to the customer.

- The Andrew Jackson building made some HVAC repairs during the quarter that required coordination with CNE and the temporary isolation of their services from DES.
- The Hermitage Hotel discovered a faulty pressure regulating valve at their building and notified CNE to help investigate.
- The temperature control valve at the Hermitage Hotel was placed back into service during the quarter.
- A disruption in the chilled water flow at the Schermerhorn Symphony prompted an investigation of the operation at the MCCC and the Symphony in February. The investigation revealed that the chilled water pumps at the MCCC had been manually energized without supervision causing the disruption in flow to the Symphony. Adequate flow was restored within a couple of hours at the Symphony.
- A faulty pressure regulating valve was discovered at the State Library and Archives Building. Repairs were made in January.
- CNE provided several customers assistance during the quarter regarding steam and chilled water leaks within buildings. Most of the time when such assistance is provided, it is determined that the leaks are the customers responsibility and are unrelated to the services provided by DES.
- Other minor issues and customer interactions are noted in the monthly CNE reports.

VII. Recommendations

Based on the review of the Third Quarter EGF and EDS operations, the following recommendations are made.

- Steam traps noted as not functioning should be repaired or replaced as soon as possible.
- Spalling concrete in the vaults should be repaired. TEG is investigating a repair methodology for some of these repairs.
- Corroded structural steel within the vaults and tunnels should be cleaned and painted or replaced.
- Insulation which is absent, or in disrepair, in the vaults should be addressed through either additional capital projects, which include work within these vaults, or through DES090.