Metro Nashville
DISTRICT ENERGY SYSTEM

Operations Monitoring Report

Fourth Quarter FY11

Prepared by:

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I. Executive Summary

A review of the fiscal year 2011 (FY11) Fourth Quarter performance and contract obligations between Constellation Energy (CE) 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 2011, CE has satisfactorily met all of the contract obligations to Metro and has had no contract violations.

For the Fourth Quarter FY11, the chilled water sendout increased slightly over the previous Fourth Quarter (FY10), but the sales decreased by approximately 1.6%, indicating an increase in the amount of system losses. However, the chiller system city water make-up decreased by approximately 4% over the previous Fourth Quarter. The Fourth Quarter FY11 saw a decrease in cooling degree days from the previous Fourth Quarter by approximately 11%. The peak chilled water demand for the current quarter was 15,225 tons, which is approximately 7.7% lower than the previous Fourth Quarter.

For the fiscal year (FY11), the chilled water sendout has increased by approximately 10.4% with an increase in sales of 9.5% over FY10. The number of cooling degree days increased in FY11 by 20%. The chilled water system losses experienced an increase of approximately 17%, which was accompanied by a 153% increase in city water make-up to the EDS. The peak system chilled water demand, as recorded at the EGF, was 16,700 ton which was approximately the same in FY10.

An increase in the steam sendout for the current quarter of approximately 18.6% over the previous Fourth Quarter is noted. Likewise, steam sales also increased by approximately 33.6% over the previous Fourth Quarter. These increases in steam sendout and sales were accompanied by an increase in the number of heating degree days of approximately 45.3%. Steam system losses were approximately 25% of the sendout, which was lower than in the previous Fourth Quarter (relative to sendout). The peak steam demand for the current quarter was 73,563 pounds per hour, which represents an approximate 43.0% increase from the previous Fourth Quarter.

For the fiscal year (FY11), the steam sendout was approximately equal to the sendout from FY10. The steam sales for the year have increased by only 2%. The steam system losses for the year have decreased by approximately 8%. These changes were accompanied by an approximate 7% decrease in heating degree days.

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 and was equal to the value from the previous Fourth Quarter. The steam plant electric consumption decreased significantly (approximately 20%) over the previous Fourth Quarter. The steam plant fuel efficiency has increased by 2.3% from the previous Fourth Quarter. The

total water consumption for the steam and chilled water plants decreased approximately10% from the previous Fourth Quarter. The chilled water EDS make-up has increased by approximately 452%, indicative a newly formed leak in the distribution piping. The steam plant make-up, however, decreased by approximately 60% over the previous Fourth Quarter.

The annual EGF performance for FY11 has improved over FY10. The steam plant electric conversion has decreased 5.2%, the fuel efficiency has increased by approximately 3% and the amount of condensate returned to the plant has increased by approximately 24%. The annual chiller plant efficiency decreased slightly for the year by 1.3%. Even though the city water make-up to the EDS has increased by approximately 152% for the year, the total EGF water usage has increased by only 10.6% over FY10.

Work continued on DES Capital and Repair & Improvement Projects during the Fourth Quarter of FY11. DES073 was closed during the Fourth Quarter FY11. Work began on DES 061B (Manholes 3 and 4) during the Fourth Quarter FY11. Due to expansion of the scope, the design for DES080 continued and was completed during the Fourth Quarter FY11. This project should be bid during the First Quarter FY12. Construction continues on DES077 with an anticipated completion date during the First Quarter FY12. Bidding began on DES076 during the Fourth Quarter FY11 with bids due early in the First Quarter FY12. Repair and Improvements to the EDS continue as scheduled.

The current fiscal year system operating costs were $17,505,822. This value represents approximately 86.2% of the total budgeted operating cost for FY11. The customer revenues from the sales of steam and chilled water for FY11 were $15,395,261 which is approximately 86.2% of the budgeted amount. The difference between the operating costs and customer revenue, the Metro funding amount (MFA), is $2,110,560 (86.4% of budget). These values include a few invoiced expenses that were not paid at the time of this report but are expected to be paid and charged to FY11.

Metro Nashville
DISTRICT ENERGY SYSTEM

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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 Fourth Quarter chilled water sales is shown in Figure 1. This data reflects a decrease in sales for the current quarter over the same quarter of the previous fiscal year by 1.6%. A comparison of the two quarters reveals a decrease in the number of cooling degree days by approximately 11%.

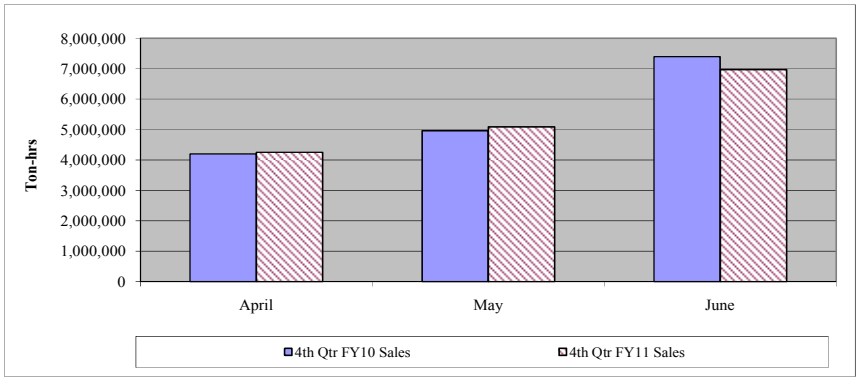

Figure 1. Fourth Quarter FY11 Sales Comparison

The peak chilled water demand for the current quarter is 15,225 tons. This peak demand is approximately 7.7% lower than in the previous Fourth 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.

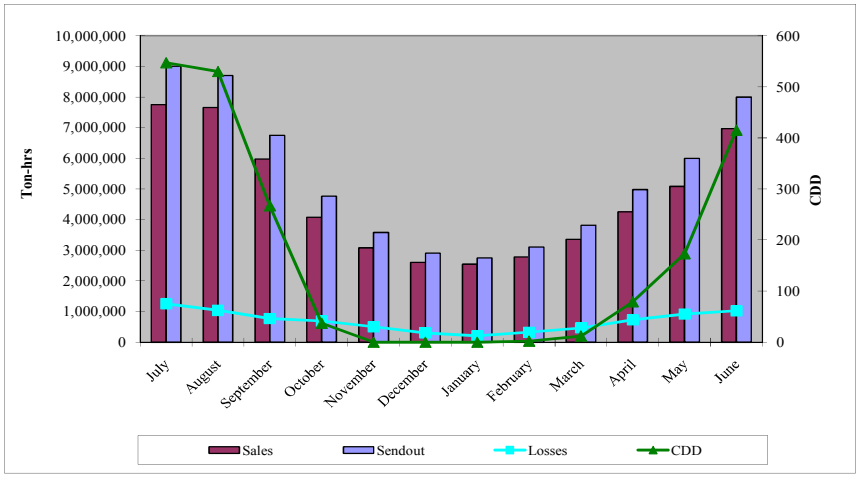

Figure 2. Chilled Water Sales, Sendout, Losses and CDD for the Previous Twelve Months

2. Losses

A comparison of the total, chilled water energy losses in the EDS for the Fourth Quarter is shown in Figure 3. These losses are the difference in chilled water sendout and sales. Due to an apparent error in the reading of the sendout meter at the EGF, the calculation of the energy losses is believed to be errant. The typical increase in the supply temperature between the EGF and the customers is less than 0.5°F. Therefore, the losses cannot be as significant as indicated by this calculation.

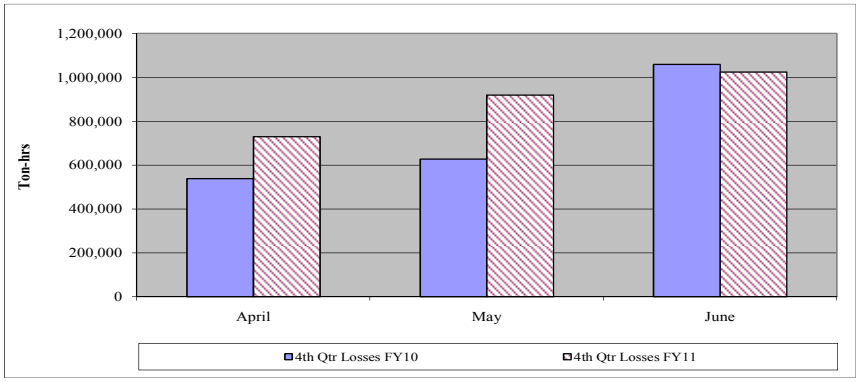

Figure 3. Chilled Water System Loss Comparison for the Fourth Quarter FY11

The EDS make-up increased by approximately 452% over the previous Fourth Quarter. This increase may be indicative of an additional leak in the system. However, several known causes for EDS make-up, including filling the in-building system and a portion of the distribution system for the Schermerhorn Symphony in May and June, contributed to this increase in make-up. The total

energy losses have increased by approximately 20% over the previous Third Quarter. The make-up to the cooling towers decreased by approximately 5.3% due to the decrease in chilled water sales and production. The number of cycles of concentration in the condensing water circuit experienced a 12.3% increase during the current Fourth Quarter over the previous Fourth Quarter. The overall city water make-up comparison for the chilled water system is shown in Figure 4.

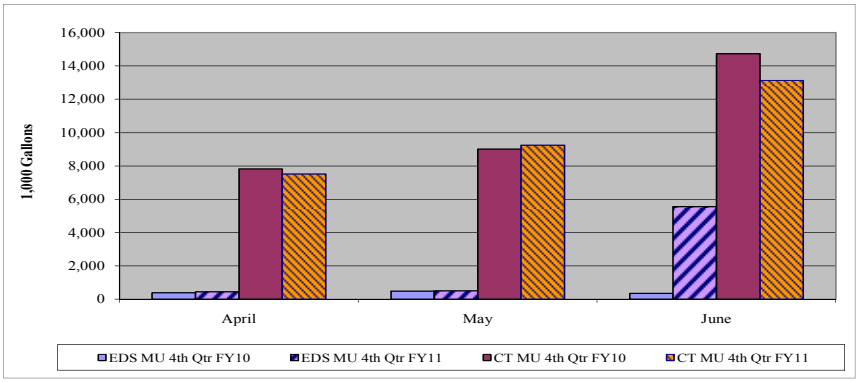

Figure 4. Chilled Water System City Water Usage Comparison

3. Performance

The performance of the chilled water aspect of the EGF is presented by the following two charts, Figures 5 and 6, for FY11. Under the management of CE, the System Performance Guarantee levels as described in the ARMA are being achieved quite satisfactorily.

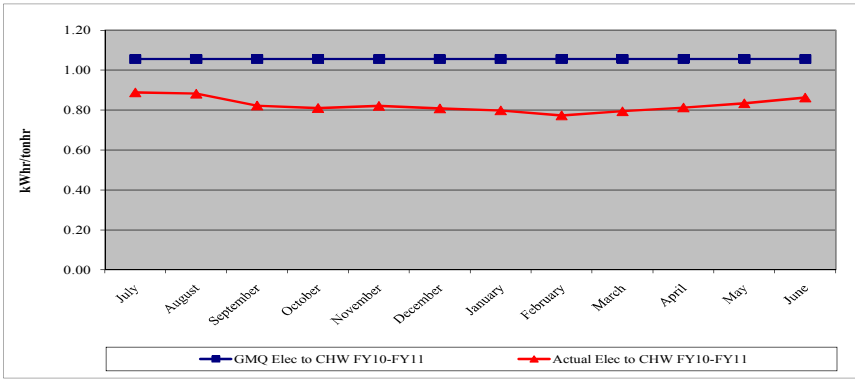

Figure 5. Chiller Plant Electric Performance Guarantee Comparison for the Previous Twelve Months

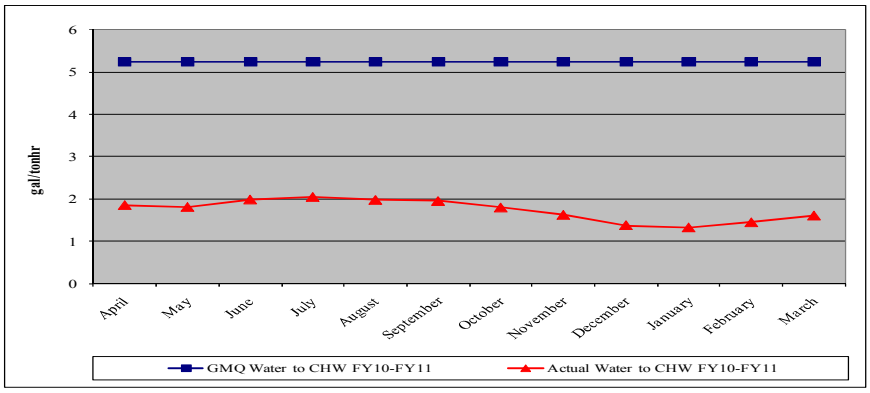

Figure 6. Chiller Plant Water Consumption Performance Guarantee Comparison for the Previous Twelve Months

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 1.6% over the Fourth Quarter for FY10 due to a comparable decrease in chilled water sales. The actual electric conversion factor remained the same as in the previous Fourth Quarter.

The actual chilled water plant water conversion factor is approximately 2.6% greater than in the previous Fourth Quarter. The total consumption of city water for the chiller plant for the current quarter is approximately 4.2% lower than that for the previous Fourth Quarter.

B. Steam

1. Sales and Sendout

The steam sendout increased by approximately 18.7% over the previous Fourth Quarter (FY10), and the sales increased by approximately 35.6%. The steam system losses have decreased by approximately 10.9% over the previous Fourth Quarter. The number of heating degree days has increased by 45.3% over the previous Fourth Quarter. A comparison for the Fourth Quarter steam sales is shown in Figure 7.

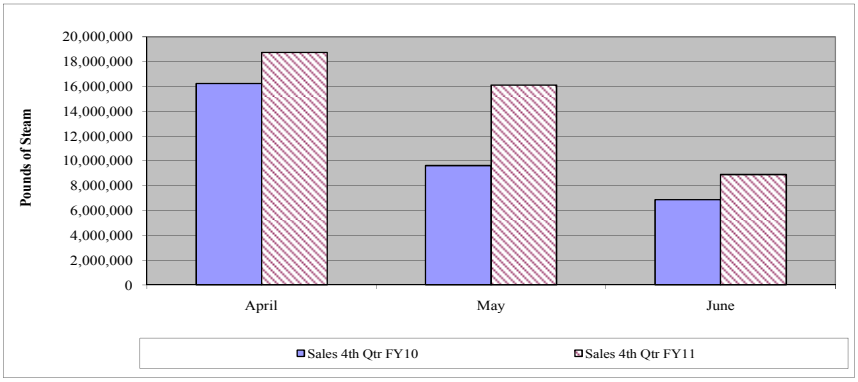

Figure 7. Steam Sales Comparison for the Fourth Quarter FY11

The peak steam demand for the current quarter is 73,563 pph, which reflects an approximate 43% increase in the peak steam production over the previous Fourth Quarter.

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.

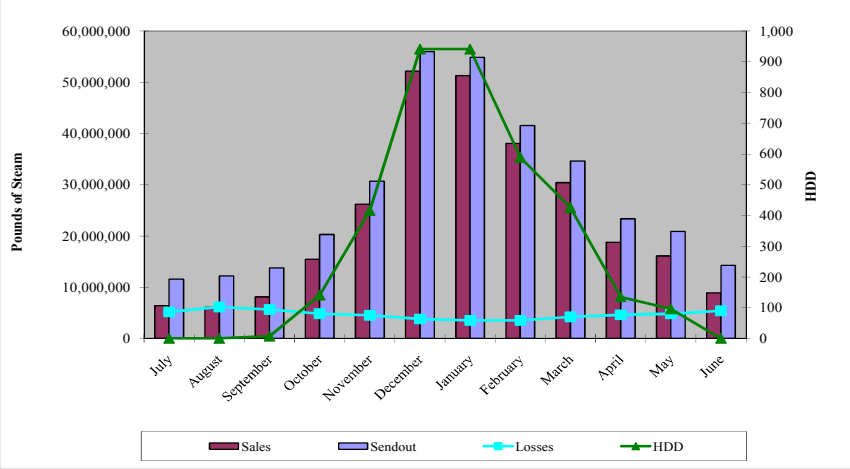

Figure 8. Steam Sales, Sendout, Losses and HDD for the Previous Twelve Months

2. Losses

A comparison of the total steam mass losses in the EDS for the Fourth 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.

The total losses for the current quarter are approximately 10.9% lower than in the previous Fourth Quarter.

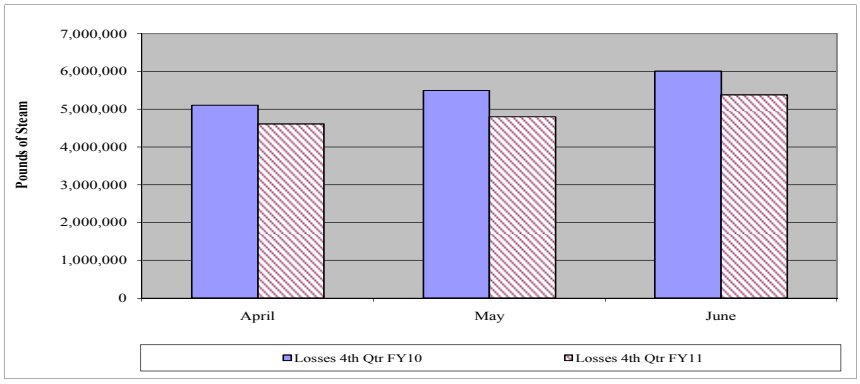

Figure 9. Fourth Quarter FY11 Steam System Losses

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 Fourth Quarter data in Figure 10. Figure 10 depicts a decrease in city water make-up to the steam system of approximately 60% for the current quarter due primarily to the ongoing capital and maintenance improvements within the EDS.

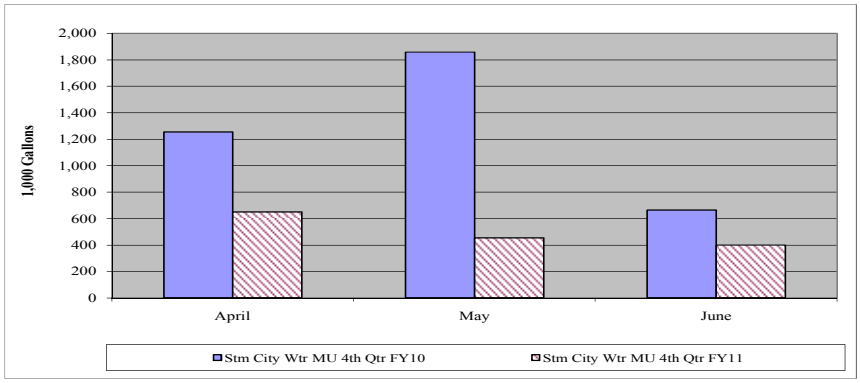

Figure 10. Fourth Quarter FY11 Steam System City Water Make-up Comparison

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 CE, the System Performance Guarantee levels as described in the ARMA are being achieved satisfactorily.

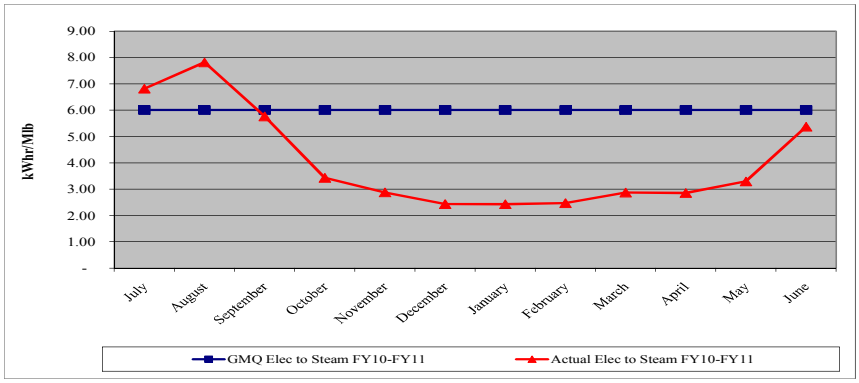

Figure 11. Steam Plant Electric Performance Guarantee for the Previous Twelve Months

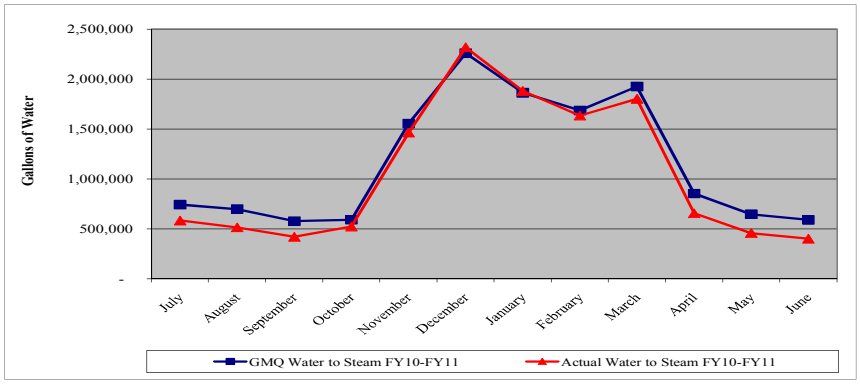

Figure 12. Steam Plant Water Performance Guarantee for the Previous Twelve Months

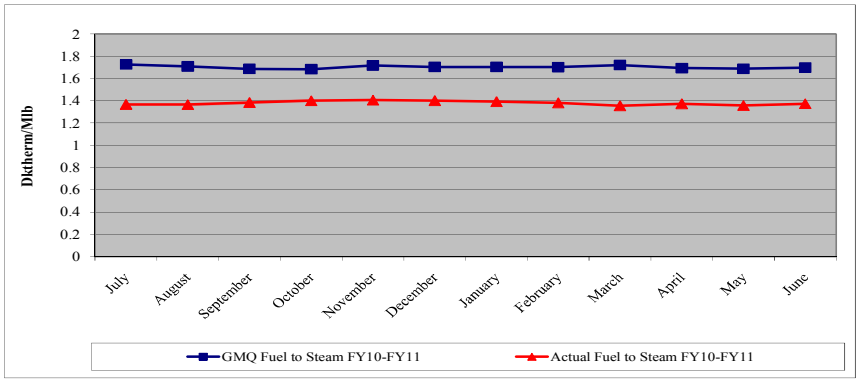

Figure 13. Steam Plant Fuel Performance Guarantee for the Previous Twelve Months

The current quarter experienced a 7.0% increase in the steam plant electric consumption while experiencing a 5.2% decrease in the electric conversion factor. The water consumption for the steam plant decreased 35% this quarter as compared to the previous Fourth 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 2.4% for the current quarter.

C. Contract Guarantee Performance

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

Table 1. Fourth Quarter FY11 and Annual Production, Sales and Consumption Summary

Item	Unit	Fourth Quarter FY11	Fourth Quarter FY10	*Percent Difference		Total Year FY11	Total Year FY10	*Percent Difference
	days	91	91	0.00%		365	365	0.00%
Total Electric Use	kWhrs	13,855,345	14,066,248	-1.50%		47,861,764	43,278,196	10.59%
Chilled Water	kWhrs	13,701,227	13,922,278	-1.59%		47,009,987	42,397,725	10.88%
Steam	kWhrs	154,118	143,970	7.05%		851,777	880,471	-3.26%
Total Water Use	kgal	32,839	36,492	-10.01%		119,153	113,332	5.14%
Total Chilled Water	kgal	31,340	32,717	-4.21%		106,633	94,064	13.36%
EDS Make-up	kgal	6,483	1,175	451.74%		10,345	4,095	152.63%
Cooling Towers	kgal	29,857	31,542	-5.34%		101,288	89,969	12.58%
Calc CT Evaporation	kgal	25,949	26,980	-3.82%		86,869	76,837	13.06%
CT Blowdown	kgal	3,908	4,562	-14.34%		14,419	13,132	9.80%
Calc # Cycles		6.64	5.91	12.27%		6.02	5.85	2.97%
Steam	kgal	1,499	3,775	-60.29%		12,520	19,268	-35.02%
Total Fuel Use	mmBTU	80,066	69,128	15.82%		460,277	472,158	-2.52%
Natural Gas	mmBTU	80,030	69,128	15.77%		459,983	471,490	-2.44%
Propane	mmBTU	36	0	n.a.		294	668	-55.99%
Condensate Return	kgal	5,362	2,384	124.91%		28,812	23,131	24.56%
	lbs	43,731,668	19,444,362	124.91%		234,984,721	188,651,336	24.56%
Avg Temp	°F	168.3	172.3	-2.32%		169.3	166.7	1.60%
Sendout								
Chilled Water	tonhrs	18,974,400	18,790,200	0.98%		64,353,800	58,313,100	10.36%
Steam	lbs	58,541,000	49,341,000	18.65%		334,106,000	333,071,000	0.31%
Peak CHW Demand	tons	15,225	16,500	-7.73%		16,700	16,600	0.60%
Peak Steam Demand	lb/hr	73,563	51,375	43.19%		123,938	121,500	2.01%
CHW LF		57.06%	52.14%	9.44%		43.99%	40.10%	9.70%
Steam LF		36.44%	43.97%	-17.14%		30.77%	31.29%	-1.66%
Sales								
Chilled Water	tonhrs	16,304,629	16,567,774	-1.59%		56,118,251	51,271,619	9.45%
Steam	lbs	43,753,606	32,743,834	33.62%		277,943,083	272,447,630	2.02%
Losses								
Chilled Water	tonhrs	2,669,771	2,222,426	20.13%		8,235,549	7,041,481	16.96%
Steam	lbs	14,787,394	16,597,166	-10.90%		56,162,917	60,893,370	-7.77%
		25.26%	33.64%	-24.91%				
Degree Days								
CDD		667	749	-10.95%		2,062	1,718	20.02%
HDD		231	159	45.28%		3,692	3,956	-6.67%

*positive percent difference values imply an increase from FY10 to FY11

Table 2. Fourth Quarter FY11 and Annual Performance Guarantee Comparison for Steam and Chilled Water

GMQ Calculations	Unit	Fourth Quarter FY11	Fourth Quarter FY10	*Percent Difference		Total Year FY11	Total Year FY10	*Percent Difference
Steam								
GMQ Elec Conversion	kWhr/Mlb	6.00	6.00			6.00	6.00	
Electric Conversion	kWhr/Mlb	3.52	4.40	-19.89%		3.06	3.23	-5.17%
GMQ Plant Efficiency	Dth/Mlb	1.693	1.755			1.702	1.741	
Plant Efficiency	Dth/Mlb	1.368	1.401	-2.38%		1.378	1.418	-2.82%
Actual %CR		74.70%	39.41%	89.56%		70.33%	56.64%	24.17%
Avg CR Temp	°F	168	172	-2.32%		169	167	1.60%
GMQ Water Conversion	gal	2,088,161	4,215,518			13,976,406	20,363,618	
Water Conversion	gal	1,513,990	3,812,750	-60.29%		12,645,200	19,460,680	-35.02%
Chilled Water								
GMQ Elec Conversion	kWhr/tonhr	1.055	1.055			1.055	1.055	
Electric Conversion	kWhr/tonhr	0.840	0.840	0.00%		0.838	0.827	1.30%
GMQ Water Conversion	gal/tonhr	5.25	5.25			5.25	5.25	
Water Conversion	gal/tonhr	1.92	1.97	-2.66%		1.90	1.83	3.57%

*positive percent difference values imply an increase from FY10 to FY11

D. Operating Costs

The operating costs for the DES include the management fee to CE, debt service payments on the bonds and engineering and administration costs. Some of these costs are fixed, implying that they do not vary depending on the production or sales of steam or chilled water. 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 FY11 were $17,505,822. This value represents approximately 86.2% of the total budgeted operating cost for FY11 and include expenses to date that have been invoiced but were not paid at the time of this report. The customer revenues from the sales of steam and chilled water for FY11 are $15,395,261 which is approximately 86.2% of the budgeted amount. The difference between the operating

costs and customer revenue, the Metro funding amount (MFA), is approximately $2,110,560. This value is approximately 86.4% of budget. However, the amount of actual contributions by Metro represents 100% of the budgeted MFA, $2,444,100.

Table 3. DES Expenses and Revenues to Date

Item		FY11 Budget	First Quarter Expenses	Second Quarter Expenses	Third Quarter Expenses	Fourth Quarter Expenses	Total Spending to Date	% of Budget
FOC:	Basic	$ 3,976,200	$ 988,756	$ 988,756	$ 988,756	$ 988,756	$ 3,955,023	99.47%
	9th Chiller	$ 37,200	$ 9,265	$ 9,265	$ 9,265	$ 9,265	$ 37,059	99.62%
	C/O 6A	$ 73,400	$ 18,292	$ 18,292	$ 18,292	$ 18,292	$ 73,166	99.68%
	C/O 6B	$ 64,300	$ 16,013	$ 16,013	$ 16,013	$ 16,013	$ 64,054	99.62%
Pass-thru Charges:	Water	$ 574,000	$ 156,948	$ 67,786	$ 63,145	$ 108,795	$ 396,675	69.11%
	Chemical Treatment	$ 150,000	$ 33,955	$ 43,503	$ 40,368	$ 37,177	$ 155,003	103.34%
	Engineering	$ 26,200	$ 13,167	$ 7,226	$ 16,758	$ (3,595)	$ 33,556	128.08%
	Insurance	$ 27,700	$ -	$ -	$ 23,235	$ -	$ 23,235	83.88%
	EDS Electricity	$ -	$ 13,576	$ 12,858	$ 13,124	$ 11,955	$ 51,513	n.a.
	EDS R&I Transfers	$ 247,100	$ 61,775	$ 61,775	$ 61,775	$ 61,775	$ 247,100	100.00%
	EDS R&I	$ 176,500	$ 6,465	$ 25,625	$ 237,003	$ 90,774	$ 359,868	n.a.
	EDS Surcharge	$ 70,600	$ -	$ -	$ -	$ -	$ -	n.a.
Marketing:	CES Sales Activity	$ -	$ -	$ -	$ 900	$ -	$ 900	n.a.
	Incentive Payments	$ -	$ -	$ -	$ -	$ -	$ -	n.a.
	Metro Marketing	$ 15,000	$ -	$ -	$ 467	$ -	$ 467	3.11%
	Project Administration	$ 30,700	$ 360	$ 66	$ -	$ -	$ 426	1.39%
FEA:	Steam	$ -	$ 13,191	$ 36,854	$ 51,147	$ 20,974	$ 122,166	n.a.
	Chilled Water	$ -	$ 125,431	$ 72,425	$ 77,690	$ 108,628	$ 384,174	n.a.
Misc:	Metro Credit	$ -	$ (170,524)	$ (80,644)	$ (76,269)	$ (120,749)	$ (448,186)	n.a.
	ARFA	$ -	$ 14,360	$ 14,360	$ 14,360	$ 14,360	$ 57,441	n.a.
	Deferral	$ -	$ -	$ (30,569)	$ (128,837)	$ (129,602)	$ (289,009)	n.a.
	Subtotal - Man Fee =	**$ 4,902,800**	**$ 1,219,262**	**$ 1,168,898**	**$ 1,111,188**	**$ 1,083,864**	**$ 4,583,212.51**	**93.48%**
Reimbursed Management Fee			**$ 1,219,262**	**$ 1,168,898**	**$ 1,111,188**	**$ 1,075,484**	**$ 4,574,833**	
Metro Costs:	Metro Incremental Cost	$ 469,900	$ 316,665	$ 117,793	$ 164,717	$ 104,497	$ 703,673	149.75%
	EDS Water/Sewer	$ -	$ 38	$ 80	$ 38	$ 39	$ 194	n.a.
	Natural Gas	$ 4,445,500	$ 313,518	$ 799,407	$ 966,145	$ 417,072	$ 2,496,141	56.15%
	Propane	$ -	$ -	$ -	$ -	$ -	$ -	n.a.
	Electricity	$ 4,949,700	$ 1,567,252	$ 728,020	$ 743,298	$ 1,219,973	$ 4,258,542	86.04%
	Subtotal - Operations =	**$ 15,086,900**	**$ 3,436,726**	**$ 2,847,115**	**$ 3,239,614**	**$ 2,912,624**	**$ 12,436,079**	**82.43%**
Debt Service	2002 Bonds	$ 4,239,500	$ 1,090,723	$ 1,090,723	$ 1,090,723	$ 1,090,723	$ 4,362,894	102.91%
	2005 Bonds	$ 628,100	$ -	$ 28,321	$ 142,153	$ 170,963	$ 341,438	54.36%
	2007 Bonds	$ 227,800	$ -	$ 112,075	$ 112,075	$ -	$ 224,150	98.40%
	2008 Bonds	$ 220,500	$ -	$ 112,075	$ -	$ 112,075	$ 224,150	101.66%
	2010 Bonds	$ -	$ -	$ -	$ -	$ -	$ -	n.a.
	Interest Revenue	$ (100,000)	$ (17,379)	$ (27,462)	$ (12,919)	$ (25,129)	$ (82,889)	82.89%
Oper. Reserve Funding Deposit		$ -	$ -	$ -	$ -	$ -	$ -	n.a.
	Subtotal - Capital =	**$ 5,215,900**	**$ 1,073,344**	**$ 1,315,733**	**$ 1,332,033**	**$ 1,348,632**	**$ 5,069,742**	**97.20%**
	Total =	**$ 20,302,800**	**$ 4,510,070**	**$ 4,162,848**	**$ 4,571,647**	**$ 4,261,256**	**$ 17,505,822**	**86.22%**
	Revenues =	**$ 17,858,700**	**$ 4,003,527**	**$ 3,767,410**	**$ 3,834,662**	**$ 3,789,663**	**$ 15,395,261**	**86.21%**
	Metro Funding Amount =	**$ 2,444,100**	**$ 506,544**	**$ 395,438**	**$ 736,985**	**$ 471,594**	**$ 2,110,560**	**86.35%**

The DES serves 26 customers and 40 buildings in downtown Nashville. 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. 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	$ 3,733,309	19,869,892	$ 0.1879		$ 1,526,170	83,476	$ 18.2827
State Government	$ 3,314,694	17,266,764	$ 0.1920		$ 2,025,265	100,132	$ 20.2260
Metro Government	$ 3,155,139	18,981,595	$ 0.1662		$ 1,822,988	94,335	$ 19.3246
New Customers	$ 1,237,018	6,676,266	$ 0.1853		$ 265,766	17,139	$ 15.5066
Total	**$ 10,203,142**	**56,118,251**	**$ 0.1818**		**$ 5,374,424**	**277,943**	**$ 19.3364**

Total Revenue	**$**	**15,577,565**
True-up and Adjustments	**$**	**(182,304)**
Net Revenue	**$**	**15,395,261**

III. EGF Operations

Items relating to the facility operations presented herein are derived from the monthly reports issued by CE for FY11. Communication between TEG and CE continues to be excellent, and CE 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.

- A chiller tripped offline in April due to a failure of a pneumatic operator. This trip caused the chilled water sendout temperature to rise to 44.8°F and be above 44.3°F for 32 minutes.
- The steam sendout pressure dropped below 150 psig for 45 minutes on two separate occasions in May. The first incident was due to a feedwater control valve failure. The second was due to the improper operation of the level controller for #1 de-aerator.
- On May 25th while resetting the tie breaker, electric power was lost momentarily to the chilled water pumps which caused the chillers to trip. The chillers were immediately restarted but the chilled water supply temperature climbed above 43.3°F for over 30 minutes.
- Other minor occurrences of higher than normal chilled water supply temperatures are included in the Monthly Operational Reports from CE.

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

Fourth 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 Emergency Preparedness, Fire Extinguisher Safety and MSDS and Chemical Safety.

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. CE filled a previously open position for Stationary Engineer (SE-2) during the quarter.

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 steam and condensate system had excellent chemistry for most of the quarter. Condensate return remained high throughout the quarter.

- Condensing Water System
  - The conductivity of the condensing water continues to be 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

CE 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 cooling tower suction strainers and balancing boxes were periodically cleaned during the quarter due to the local cicada infestation.
- The blowdown headers on boilers #2, 3 and 4 were replaced.
- The actuator valve on the propane system was rebuilt.
- The fan belt on cooling tower #18 was replaced and damaged fill was replaced on tower #1.
- The bearings were replaced on the boiler feedwater pump #1.
- Other minor repairs and maintenance were made during the quarter and are listed in the monthly reports issued by CE.

H. EGF Walk-through

A quarterly Walk-through of the EGF was performed on June 28, 2011, 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.

- Chilled water pump #6 remains tagged out in the electric room even though the coupling and coupling guard have been replaced. This pump had been serviced during the Third Quarter, but remains off-line due to the condition of the motor. The necessary repairs should be completed during the First Quarter FY12.
- The wooden platform that was constructed in order to make repairs on the expansion tank bladder should be removed by CE personnel.

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. Fourth Quarter FY11 Open Projects

The following projects remained open at the end of the Fourth Quarter FY11.

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. DES048 – Tunnel Lighting & Electrical Upgrades Phase III

The first two phases of this project have been completed, and the final phase is budgeted and has been postponed pending the completion of the Tunnel Rock Rehabilitation Project (DES067). Since DES067 was completed during the Fourth Quarter, this final phase of the tunnel lighting and electrical upgrades is anticipated begin in the very near future.

3. DES060 – Manhole & Tunnel Insulation Repair (Revised from DES050 for FY10)

The work associated with this project will be ongoing as required.

4. DES061B – Manhole 3 and 4 Structural Repairs

Work began and was substantially completed for the structural repairs for Manholes 3 and 4 during the Fourth Quarter FY11. This work is awaiting the completion of piping insulation, including the installation of insulation blankets. Work should be completed during the First Quarter FY12.

5. DES067 – EDS Tunnel Structural (Rock) Rehabilitation

Substantial completion of this project occurred during the Third Quarter FY11 with final punchlist items being addressed during the Fourth Quarter FY11. Final invoicing is underway, and this project is expected to be closed out during the First Quarter FY12.

6. DES073 – MH-18 Platform Extension & Sump Pump Control Modifications

Work was completed and this project was closed out during the Fourth Quarter FY11.

7. DES076 – Manhole S4A Rehabilitation

The State has completed the installation of a secondary fiber optic line to replace the fiber optics within this manhole. This project was bid during the Fourth

Quarter FY11 and is expected to be awarded and have construction begin during the First Quarter FY12.

8. DES077 – Music City Center Service Connection

Work was nearly completed with the extension of services to the MCCC during the Fourth Quarter. The cleaning and hydrostatic testing of the new steam and condensate systems were successfully completed. Some work remains with the chilled water system cleaning. A few punch list and close-out items remain. The expansion of the distribution system is anticipated to be completed during the First Quarter FY12. Service is not expected to be required by the MCCC until November 2011.

Additional aspects of this project include the MCCC metering station, the cooling tower testing and the modification of the EGF chilled water pumps. The work on the MCCC metering station is subject to the schedule of the internal construction of the building. This aspect of the project is expected to be completed prior to the need of steam service in November 2011. The components for the chilled water pumps have been ordered and submittals have been approved. The new motors and pump parts are expected to be installed during the Second Quarter FY12. The cooling tower testing at the EGF is expected to be completed during the First Quarter FY12. This part of the project was commissioned to verify the performance of the existing cooling towers.

9. DES080 – Misc. Manhole & Tunnel Safety Repairs

As a result of the ongoing review of the manholes and tunnels, some safety items have been noted that require attention. This project was established to address these items.

Some additional items were added to the scope of this project during the Fourth Quarter FY11 and design was completed during the same quarter. It is anticipated that this project will be bid and awarded during the First Quarter FY12.

10. DES081 – Flood Related Repairs

Repairs continued during the Fourth Quarter on portions of the lighting and electrical systems that were damaged during the May 2, 2010 flood in the Broadway and 4th Avenue Tunnels. This project is anticipated to be closed out during FY12.

FEMA provided partial reimbursement for some of the remediation costs. DES has submitted an appeal for a portion of these costs that were not initially

recognized as reimbursable by FEMA. Acceptance or rejection of the appeal is expected in the First Quarter FY12.

11. DES 083 – Manhole 13 Leak Repair

A steam leak developed at a flanged steam line connection in this manhole. Upon further investigation, it was determined that a structural stop was required on the steam line in order to ensure that the steam line would not be over-stressed during operation and shutdowns. Work was substantially completed during the Fourth Quarter FY11. A few punchlist items remain to be completed. Closeout of the project is expected during the First Quarter FY12.

12. DES 086 – Manhole 12 Roof Replacement

Work began and was substantially completed during the Fourth Quarter FY11 for this project. Cost substantiation was presented and reviewed and questions are currently being addressed. It is anticipated that this project will be closed out during the First Quarter FY12.

13. DES 088 – Andrew Jackson Steam Tunnel PRV Control

During the Third Quarter FY11, the main steam pressure reducing valve (PRV) closed due to a failure in the in-building compressed air system. Although this problem had never occurred prior to this event, the isolation of the state steam system and the uncontrolled re-start of the system presents a potential safety hazard to building personnel and equipment.

This project involves the installation of a dedicated compressed air system and safety controls to reduce the potential hazard. The initial bid for this work was exceptionally high and was rejected during the Fourth Quarter. Additional bids will be solicited during the First Quarter FY12.

14. DES 091 – NES Time of Use Rates

Beginning in June 2011, the local electric utility, the Nashville Electric Service (NES), began implementing time use electric rates. This capital project was commissioned to address ways to reduce the cost of electric service to the customers by implementing changes in EGF operation and by evaluating the potential savings associated with new chiller plant equipment, such as thermal energy storage.

15. DES 092 – Sheraton Chilled Water Pumps

Due to the observed under-performance of the DES-side chilled water pumps at the Sheraton Hotel, the DES intends to replace the existing motors with larger 50 hp motors and rotating assemblies. New variable speed drives will also be required. The new design point for the modified pumps should provide considerably more head and flow, thus increasing their ability to flow water through the building's heat exchanger. A pre-bid meeting and walk-through of the building is scheduled for the First Quarter FY12. This project is expected to begin and be completed during the First Quarter FY12.

B. Fourth Quarter FY11 Closed Projects

DES073 was closed during the Fourth Quarter FY11.

C. Capital Projects Budget

The following table summarizes the costs and remaining balance of the DES capital projects based on reported expenditures at the end of the FY11. 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. Since the remaining funds from the 2002A bond have been consumed, the previous projects associated with this bond are no longer noted in the following table. The 2008 Bond fund is also depleted and the projects associated with it are also not shown. The remainder of the 2007 Bonds was added to new funding and is now referred to as the 2010 Bond. The MCCC Fund represents the monies allocated for the MCCC connection and new projects in FY11.

Table 5. Capital Projects Expense Summary

	DES Project #	Description	Total Budget	FY11 Spending to Date	Total Spent to Date	Remaining Balance
2005B Bond Projects						
	DES064	Spring 09 Steam Shutdown	$ -	$ -	$ 950	$ (950)
	DES063	Sump Pump MH B and M	$ -	$ 21,677	$ 26,870	$ (26,870)
	DES056	Citizen's Plaza Steam and Condensate	$ -	$ -	$ 252	$ (252)
	DES057	Manhole 13	$ -	$ -	$ 177	$ (177)
	DES061	Tunnel Steel Corrosion	$ -	$ 50,885	$ 58,942	$ (58,942)
	DES073	MH 18 Condensate and Platform Exp	$ -	$ 6,114	$ 18,769	$ (18,769)
		Total Closed Projects	$ 7,320,301	$ 854	$ 6,770,187	$ 550,114
		Project Development	$ 866,199	$ -	$ 315,570	$ 550,628
		Total 2005B Bond	**$ 8,186,500**	**$ 79,529**	**$ 8,155,750**	**$ 30,750**
2007 Bond Projects						
		Total Closed Projects	$ 2,374,348	$ -	$ 2,620,771	$ (246,423)
		Project Development	$ 464,152	$ -	$ -	$ 464,152
		Total 2007 Bond	**$ 2,838,500**	**$ -**	**$ 2,838,500**	**$ -**
2010 Bond Projects						
	DES059	CJC Steam & Cond Ser. Line Replace.	$ 150,000	$ 15,936	$ 19,000	$ 131,000
	DES062	Stm and Cnd Line MHK to Wildhorse	$ 300,000	$ -	$ 240,670	$ 59,330
	DES066	First Ave MH Abandoment	$ -	$ 97	$ 1,494	$ (1,494)
	DES067	Tunnel Rock Repair	$ 1,152,000	$ 1,056,718	$ 1,076,354	$ 75,646
	DES068	St. Mary's Cond Tempering Station	$ 20,000	$ 35,359	$ 73,481	$ (53,481)
	DES069	Municipal Aud Tempering Station	$ 25,000	$ 38,140	$ 42,467	$ (17,467)
	DES070	MH 6 to 23 Cond Line	$ 300,000	$ -	$ 527	$ 299,473
	DES071	Hermitage Hotel Ser Modifications	$ 125,000	$ -	$ 1,119	$ 123,881
	DES072	Sheraton Stm & Cond Line	$ 250,000	$ 769	$ 800	$ 249,200
	DES073	MH 18 Condensate and Platform Exp	$ -	$ 18,681	$ 19,430	$ (19,430)
	DES075	2010 CHW Outage	$ -	$ -	$ -	$ -
	DES076	MH S4A Rehabilitation	$ -	$ 9,677	$ 10,359	$ (10,359)
	DES077	Music City Convention Center Design	$ -	$ 47,866	$ 149,928	$ (149,928)
	DES079	TN Tower Repaving	$ -	$ 2,250	$ 2,250	$ (2,250)
	DES091	NES Time of Use Electric Rate	$ -	$ 30,376	$ 30,376	$ (30,376)
	DES092	Sheraton CHW Pumps	$ -	$ 167	$ 167	$ (167)
		Transfer from 2010 Bond/MCCC Connection Fund	$ -	$ (149,928)	$ (149,928)	$ 149,928
		Transfer from 2007 Bond Remaining Balance	$ -	$ (217,729)	$ (217,729)	$ 217,729
		Total Closed Projects	$ -	$ -	$ -	$ -
		Metro Project Admin	$ -	$ -	$ -	$ -
		Project Man, Development, etc	$ 88,000	$ -	$ -	$ 88,000
		Total 2010 Bond	**$ 2,410,000**	**$ 888,379**	**$ 1,300,763**	**$ 1,109,237**
MCCC Construction Fund						
	DES077	Music City Convention Center Design/Const	$ 325,900	$ 175,012	$ 277,074	$ 48,826
	DES077	MH-B4 Valve Replacement	$ 8,000	$ 7,119	$ 7,119	$ 881
	DES077	MCCC Metering	$ 121,870	$ -	$ -	$ 121,870
	DES077	EGF Cooling Tower Testing	$ 47,884	$ -	$ -	$ 47,884
	DES077	EGF Chilled Water Pumps	$ 598,672	$ -	$ -	$ 598,672
	DES077	Bell/Clark Construction Fund	$ 4,697,860	$ 3,557,036	$ 3,557,036	$ 1,140,824
		Metro Project Admin	$ -	$ -	$ -	$ -
		Project Man, Development, etc	$ 2,699,814	$ -	$ -	$ 2,699,814
		Total MCCC Construction Fund	**$ 8,500,000**	**$ 3,739,167**	**$ 3,841,229**	**$ 4,658,771**

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

Several EDS repairs and improvements were made during the Fourth 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 $404,936. Table 6 provides a summary of the FY11 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 FY10						**$ (7.36)**	**$ 493,424.22**	**$ 493,424.22**
Transfer to General Account	07/08/10			$ 6,682.81				
Period 5/1/10 - 5/31/10 (EDS Repair)	06/30/10	DES-1196	CE	$ 613.67				
Period 6/1/10 - 6/30/10 (EDS Repair)	06/30/10	DES-1203	CE	$ 1,399.60				
Overpayment Credit	08/12/10	-	-	$ (1,019.45)				
Period 7/1/10 - 7/31/10 (EDS Repair)	09/13/10	DES-1224	CE	$ 1,268.79				
		Sub-Total First Quarter		**$ 8,945.42**	**$ 61,775.01**	**$ -**	**$ 52,829.59**	**$ 52,829.59**
Period 8/1/10 - 8/31/10 (EDS Repair)	10/20/10	DES-1236	CE	$ 374.14				
DES Repair And Improvements, for billing period of 7/04/10 - 10/02/10	10/05/10	DES-1231	TEG	$ 2,808.96				
DES Repair And Improvements, for billing period of 10/03 - 10/30/10	11/04/10	DES-1243	TEG	$ 1,684.25				
Period 10/1/2010-10/31/2010 (Mgmt. Fee)	12/14/10	DES-1274	CE	$ 657.68				
Period 9/1/10 - 9/30/10 (EDS Repair)	11/23/10	DES-1251	CE	$ 3,780.20				
DES-059 CJC Repair October 3102010	11/23/10	DES-1253	CE	$ 18,886.75				
DES Repair And Improvements, for billing period of 10/31/10- 11/27/10	12/07/10	DES-1258	TEG	$ 616.55				
		Sub-Total Second Quarter		**$ 28,808.53**	**$ 61,775.01**	**$ -**	**$ 32,966.48**	**$ 32,966.48**
DES Repair And Improvements, for billing period of 11/28/10-1/29/11	2/3/2011	DES-1291	TEG	$ 4,990.80				
Period 11/01/2010/11/30/2010 (Mgmt. Fee)	1/26/2011	DES-1287	CE	$ 3,802.10				
Period 12/31/2010 Andrew Jackson Repairs (Mgmt. Fee)	1/26/2011	DES-1295	CE	$ 7,910.00				
DES Repair And Improvements, for billing period of 01/30/11 - 02/26/11	3/23/2011	DES-1312	TEG	$ 13,676.93				
Period 12/31/2010 manhole B2 Replaced (Mgmt. Fee)	1/26/2011	DES-1303	CE	$ 7,920.00				
Period 12/01/10 - 12/31/10 (Mgmt. Fee)	1/26/2011	DES-1302	CE	$ 1,925.02				
Constellation Energy - Period 2/28/11 Manhole 13 Steam Valve Replasement	3/21/2011	DES-1318	CE	$ 13,800.00				
Constellation Energy - Period 1/11/11-1/31/11 (EDS Repair &Maint)	3/21/2011	DES-1317	CE	$ 2,726.94				
		Sub-Total Third Quarter		**$ 56,751.79**	**$ 61,775.01**	**$ -**	**$ 5,023.22**	**$ 5,023.22**
Constellation Energy - Period 3/1/11 - 3/31/11(EDS R&I)	5/18/2011	DES-1348	CE	$ 4,935.04				
Constellation Energy - Period 4/1/11 - 4/30/11 (EDS Repair &Maint) APR '11	6/16/2011	DES-1358	CE	$ 2,841.91				
DES Repair And Improvements, for billing period of 02/27/11 - 04/02/11	4/6/2011	DES-1325	TEG	$ 8,761.21				
Constellation Energy - Period 2/1/11 - 2/28/11(EDS R&I)	4/20/2011	DES-1330	CE	$ 4,874.28				
Constellation Energy - Period 3/21/11 DES-085 Explor Excav)	4/20/2011	DES-1332	CE	$ 71,769.00				
Constellation Energy - Period 3/31/11 DES-067 EDS Tunnel R & I)	4/20/2011	DES-1333	CE	$ 89,912.00				
DES Repair And Improvements, for billing period of 04/03/11 - 04/30/11	5/5/2011	DES-1340	TEG	$ 5,001.36				
DES Repair And Improvements, for billing period of(5/29/11 - 7/02/11)	6/30/2011	DES-1368	TEG	$ 2,065.10				
Constellation Energy -Project DES-067 Tunnel Rock Rehab	6/16/2011	DES-1366	CE	$ 35,478.66				
Constellation Energy - Period 5/1/11 - 5/31/11(EDS R&I)	6/30/2011		CE	$ 15,444.16				
		Sub-Total Fourth Quarter		**$ 241,082.72**	**$ 61,775.01**	**$ -**	**$ (179,307.71)**	**$ (179,307.71)**
		FY11 Year to Date		**$335,588.46**	**$247,100.04**	**$ -**	**$404,935.80**	**$ 404,935.80**

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. Some leaks were found during the quarter and continue to be monitored.
   b. The ventilation fan on the north end of the 4th Avenue tunnel was repaired.
   c. The 7th Avenue ventilation fan experienced an electrical problem during the quarter that was expeditiously repaired by CE.
   d. Minor repairs were made during the quarter.
2. State Tunnel Inspections
   a. CE continues to monitor some steam and condensate leaks within the tunnel.
   b. The tunnel radio system is continues to be non-operational. State personnel have been notified.
   c. Other minor repairs were made during the quarter.

3. Other EDS Inspections
   a. No new hot spots were observed during the quarter, but the hot spot along Molloy Street near 2nd Avenue South and MH-B2 continues to be monitored.
   b. Other minor items are included in the CE monthly reports.

C. Emergencies

No emergencies were reported during the quarter.

D. EDS Walk-through

The primary EDS walkthrough was conducted on June 16, 2011, by Jon Belcher, PE with TEG. The structures visited included Manholes A, B, K, M, N1, N2, S5, S6 and 15. The following comments and observations are a result of these visits:

1. Manhole A
   a. There was some water in the bottom of this vault but not as much as there has been in the past. The Metro Nashville Water & Sewer Department recently discovered a leaking 2" water line just south of this vault location, and it was isolated. It is anticipated that this

discovery will reduce the amount of water infiltration into the manholes along 1st Avenue South.

b. The vault entry consists of two ladders for a portion of the entry length. An extension ladder has been positioned "on top of" ladder rungs which are embedded into the concrete wall of the vault entry. The embedded ladder rungs interfere with the use of the extension ladder rungs and should be removed for safety reasons.

c. Some portions of the four slip joints in the manhole are not insulated. The existing insulation on these joints should be removed and insulation blankets should be ordered and installed.

d. There is some corrosion on the piping supports. These supports should be wire brush 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.

2. Manhole B

a. There was some water in the manhole requiring pumping before entry. The water infiltration into the manhole has recently been reduced. The Metro Nashville Water & Sewer Department recently discovered a leaking 2" water line south of this vault location, and it was isolated. It is anticipated that this discovery will reduce the amount of water infiltration into the manholes along 1st Avenue South.

b. The Molloy Street steam isolation valve in the chilled water side of the vault has a slight leak. It is not known whether the leak is originating from the stem packing or the bonnet flange. The packing on this valve should be checked and tightened to determine if this is the origin of the leak and the bonnet bolts should be checked for tightness.

c. The northern steam slip joint in the steam side of the vault is noticeably leaking and should be repaired by Colt as soon as possible.

d. After the leak is repaired on the northern steam slip joint, a new insulation blanket should be installed. The existing blanket was damaged in the May 2010 flood and was removed.

e. The link seals at the wall penetrations in the steam side of the vault are leaking slightly. These link seals should be tightened, repaired or replaced.

f. There is some corrosion on the piping supports. These supports should be wire brush 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.

3. Manhole M
   a. There was a small amount of water in this vault. It is hoped that the water infiltration into the manhole has been reduced. The Metro Nashville Water & Sewer Department recently discovered a leaking 2" water line south of this vault location, and it was isolated. The water infiltration into this vault should be monitored to determine if the isolation of the leaking 2" line will reduce the amount of water infiltration.
   b. Recently, due to leaking valves, portions of the existing chilled water piping were removed from this manhole. As a result, there are two sets of anchor bolts (8 bolts total) and plating that are no longer in use and protrude up from the floor presenting a potential trip hazard. These plates should be removed and the bolts should be cut flush with the floor.
   c. The link seal on the steam line penetration at the northern wall has been dislodged from the top portion of the pipe. The reason this has occurred is not clear. There is a slip type expansion joint just south of this wall penetration, and it appears that the piping penetrating the wall has "lifted up" forcing the link seal from its position. If this has occurred, potential binding of the slip joint is possible. This linkseal needs to be re-installed. The re-installation of this linkseal was originally noted by CEPS personnel during the October 2007 manhole inspection.
   d. There is some corrosion of some 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.
   e. There is some minor debris in the manhole which should be cleaned.

4. Manhole L
   a. It does not appear that any of the 3 traps in the manhole are functioning. These traps should be repaired or replaced as soon as possible to insure their proper function.
   b. There is some corrosion of some 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 debris in the manhole which should be removed.

5. Manhole K
   a. There is some mud in the floor of the manhole which was probably left from the May 2010 flood. This mud should be cleaned from the manhole.

b. There is an indentation in the floor where flowable fill was used to fill the manhole below Manhole K; this indentation should be filled.
c. The chilled water vent/fill points are not capped; these connections should be capped in case the valves start leaking.
d. There is some corrosion of some 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.

6. Manhole N1
   a. There are no deficiencies to report for this manhole.

7. Manhole N2
   a. There was water present in this manhole that required pumping.
   b. There is quite a bit of mud in the floor of this manhole. Due to this manhole's location and the fact that the manway is recessed, it would be difficult to prevent the intrusion of mud. However some of the mud present is probably from the May 2010 flood. This mud should be cleaned from the manhole to control its build-up.

8. Manhole S5
   a. There was water present in this manhole that required pumping.
   b. There is some degradation to the insulation in this manhole. This manhole should be listed as a "moderate" priority on the Manhole Insulation priority list developed by Constellation.
   c. There is some structural distress of the concrete walls of this manhole. As the maintenance of the structure is the responsibility of the State, the structural integrity of the manhole should be monitored so the State can be informed if repairs become necessary.

9. Manhole S6
   a. Insulation is non-existent. Because of the small amount of piping that could be insulated in this manhole, the small size of the manhole and the absence of any valves or equipment that would require maintenance, there is no need to insulate this piping.
   b. Because of the lack of serviceable equipment in this manhole, it is not necessary to inspect this manhole on a monthly basis; this manhole could be inspected annually.

10. Manhole 15
    a. There was no water present in the vault entry area or in the vault.
    b. There is some minor debris and old pieces of insulation in this vault that should be removed.

c. The 4th Avenue tunnel access panel has been re-installed. However due to its configuration, it is very difficult to operate and requires one person to hold it open while a second person passes through it. This access panel needs to be replaced with a more user-friendly design. This item has been added to DES080, (Manhole and Tunnel Safety Repairs) to be corrected.

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 26 customers, comprised of 40 different buildings, connected to the EDS. Service to each of these buildings continues to prove satisfactory, and the responsiveness to customer issues is handled by CE in an excellent and professional manner.

A. Marketing

TEG and Metro DES continue to monitor and remain involved with the progress associated with the development of the new Music City Convention Center (MCCC). Construction for this project which began in the First Quarter FY11 and is expected to be completed during the First Quarter FY12 with service available as required during construction.

B. Customer Interaction

The CE 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.

- Several customers reported issues with either their in-building heating or cooling systems. These issues were addressed by the CE customer service representative (CSR). In most cases, the issues related to failed customer equipment or the improper control of the building system.
- A steam leak was discovered at the 201 4th Avenue building during April. Upon investigation by CE, the leak was found to be originating from a flange. The necessary repairs were made the following day.
- The Fifth Third Financial Center reported instances of water hammer in their building during the month of April. CE investigated the matter and did not observe any hammering. No additional reports of water hammer were made from this customer during the quarter.
- The Sheraton Hotel reported cooling problems in May. Upon investigation by CE and TEG personnel, the decision was made to proceed with the modification of the DES-side in-building circulation pumps to improve the building's chilled

water flow rate (DES092). Other potential causes of poor cooling that are directly related to the maintenance and operation of the building were pointed out and discussed with the building personnel. No additional complaints were reported from this customer during the quarter.

- The condensate return at the Schermerhorn Symphony was placed to drain after it was discovered that the existing isolation valve in MH-B4 would not hold so that the tie-in and testing of the new service extension to the MCCC could be made.
- The Viridian reported cooling problems in June. Upon investigation by CE and TEG personnel, the building chilled water return temperature setpoint was reduced to permit a greater DES-side flow rate. No additional complaints were reported from this customer during the quarter.
- Other minor issues and customer interactions are noted in the monthly CE reports.

VII. Recommendations

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

- The repair of the cracks in the west wall of the EGF and the repair of the flashing in this area, as noted in previous reports, should be addressed.
- Safety items noted in the EDS Walk-through will be addressed in project DES080.
- Steam traps noted as not functioning should be repaired or replaced as soon as possible.
- Leaks noted in the EDS walk through should be repaired.
- Structural components requiring cleaning and painting noted in the EDS walk through should be addressed.
- Insulation which is absent, or in disrepair, in the manholes should be addressed through either additional capital projects, which include work within these manholes, or through DES060.