



***Metro Nashville***  
**DISTRICT ENERGY SYSTEM**

*DES Advisory Board Meeting*  
*First Quarter FY16*  
*November 19, 2015*



# *Agenda*

1. Call to Order
2. Nomination and Election of Chair
3. Review & Approval of Previous Meeting Minutes
4. Customer Sales
5. Review of DES Contractor Performance
6. Natural Gas Purchasing Status
7. FY16 Costs to Date
8. FY16 Budget Update
9. Capital Projects Review & Status
10. Other Board Member Items
11. Adjourn



1. *Call to Order*
2. *Nomination and Election of Chair*
3. *Review and Approval of  
Previous Meeting Minutes*

## 4. *Customer Sales*

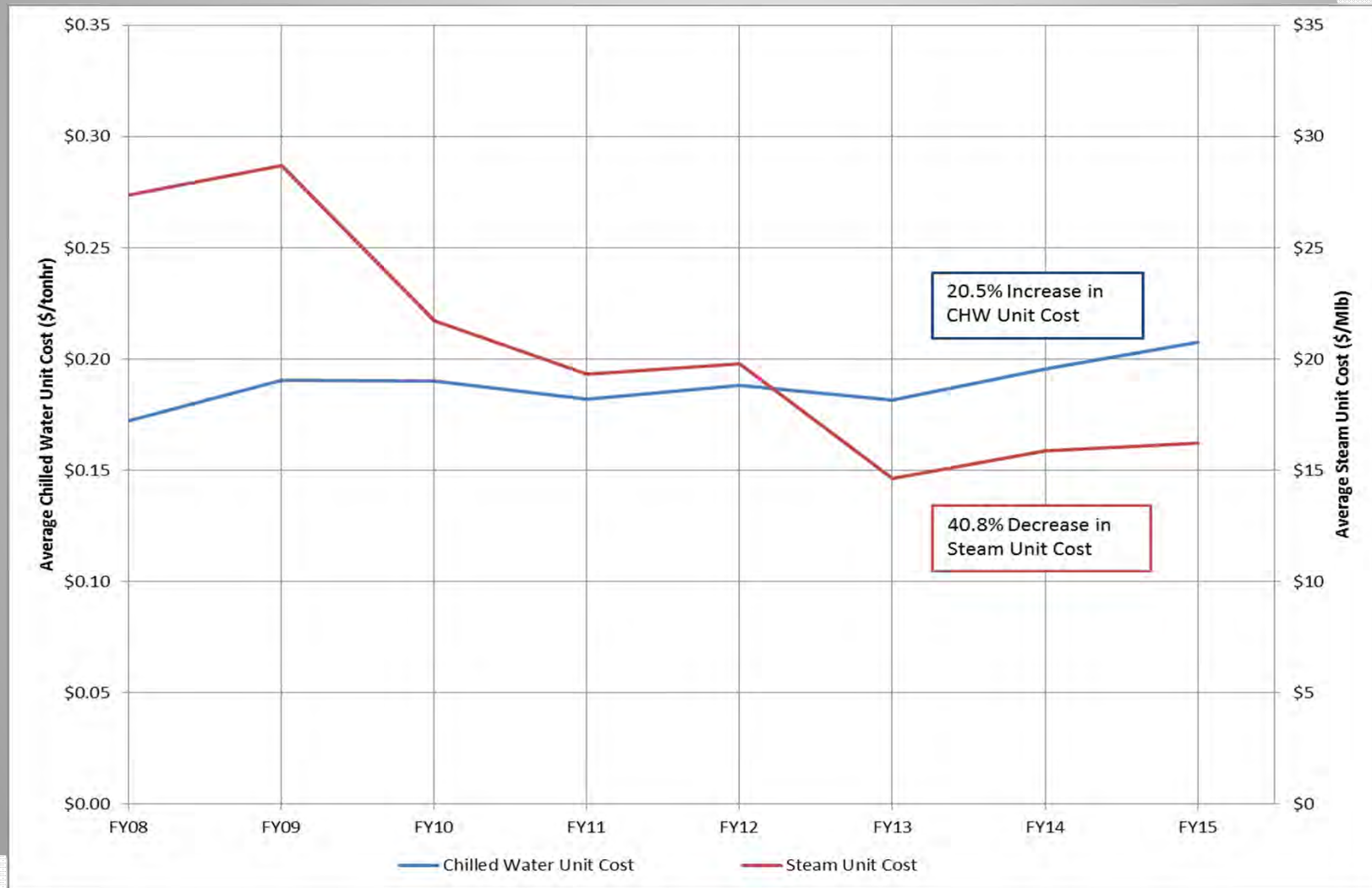
- ❖ Table 4: Customer Cost Comparison
- ❖ Figure 4A: Historic Unit Cost of Steam and Chilled Water
- ❖ Figure 4B: Historic Total Costs and Usages of Steam and Chilled Water

## Summary Table 4: Customer Cost Comparison for the Previous 12 Months

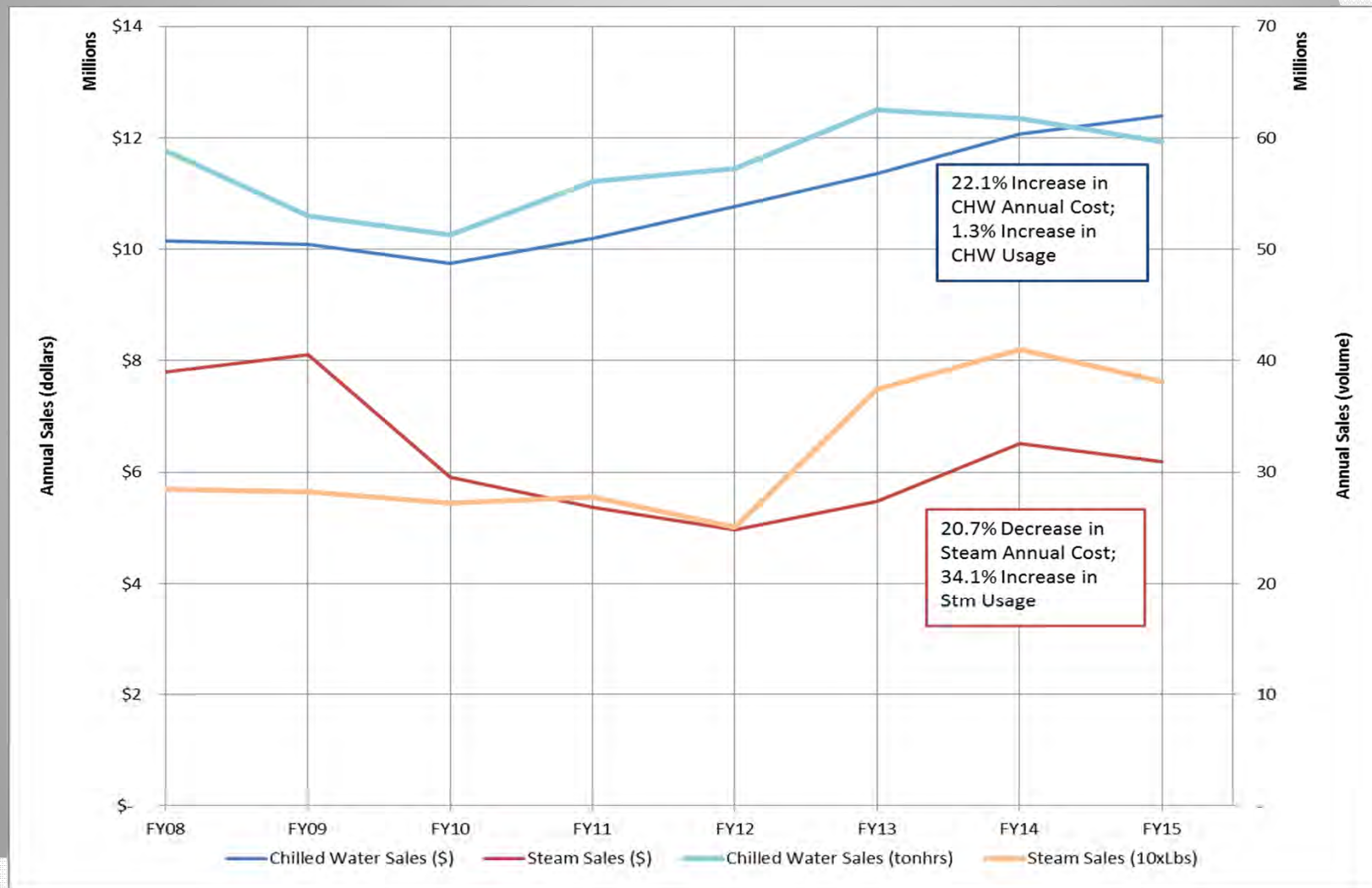
		Steam - Rolling 12 Month			Chilled Water - Rolling 12 Month		
		Oct 2013 - Sept 2014	Oct 2014 - Sept 2015	% Diff.	Oct 2013 - Sept 2014	Oct 2014 - Sept 2015	% Diff.
<b>Private</b>	Cost	\$ 1,506,861	\$ 1,522,155	1.01%	\$ 3,395,283	\$ 3,525,336	3.83%
	Usage (lbs or tonhrs)	93,485,331	96,188,895	2.89%	17,157,050	17,850,454	4.04%
	Unit Cost	\$ 16.12	\$ 15.82	-1.8%	\$ 0.198	\$ 0.197	-0.2%
<b>State</b>	Cost	\$ 2,171,937	\$ 2,044,685	-5.86%	\$ 3,305,422	\$ 3,307,959	0.08%
	Usage (lbs or tonhrs)	124,365,580	115,482,382	-7.14%	14,705,922	14,026,720	-4.62%
	Unit Cost	\$ 17.46	\$ 17.71	1.4%	\$ 0.225	\$ 0.236	4.9%
<b>Metro</b>	Cost	\$ 2,812,909	\$ 2,381,741	-15.33%	\$ 5,584,411	\$ 5,322,161	-4.70%
	Usage (lbs or tonhrs)	194,464,622	151,245,967	-22.22%	29,935,800	26,489,581	-11.51%
	Unit Cost	\$ 14.46	\$ 15.75	8.9%	\$ 0.187	\$ 0.201	7.7%
<b>Aggregate</b>	Cost	\$ 6,619,672	\$ 6,077,202	-8.19%	\$ 12,285,116	\$ 12,262,981	-0.18%
	Usage (lbs or tonhrs)	418,013,825	368,755,571	-11.78%	61,798,772	58,929,643	-4.64%
	Unit Cost	\$ 15.84	\$ 16.48	4.1%	\$ 0.199	\$ 0.208	4.68%

MFA not included in values shown

# Figure 4A: Historic Unit Cost of Steam and Chilled Water






# Figure 4B: Historic Total Costs and Usages of Steam and Chilled Water



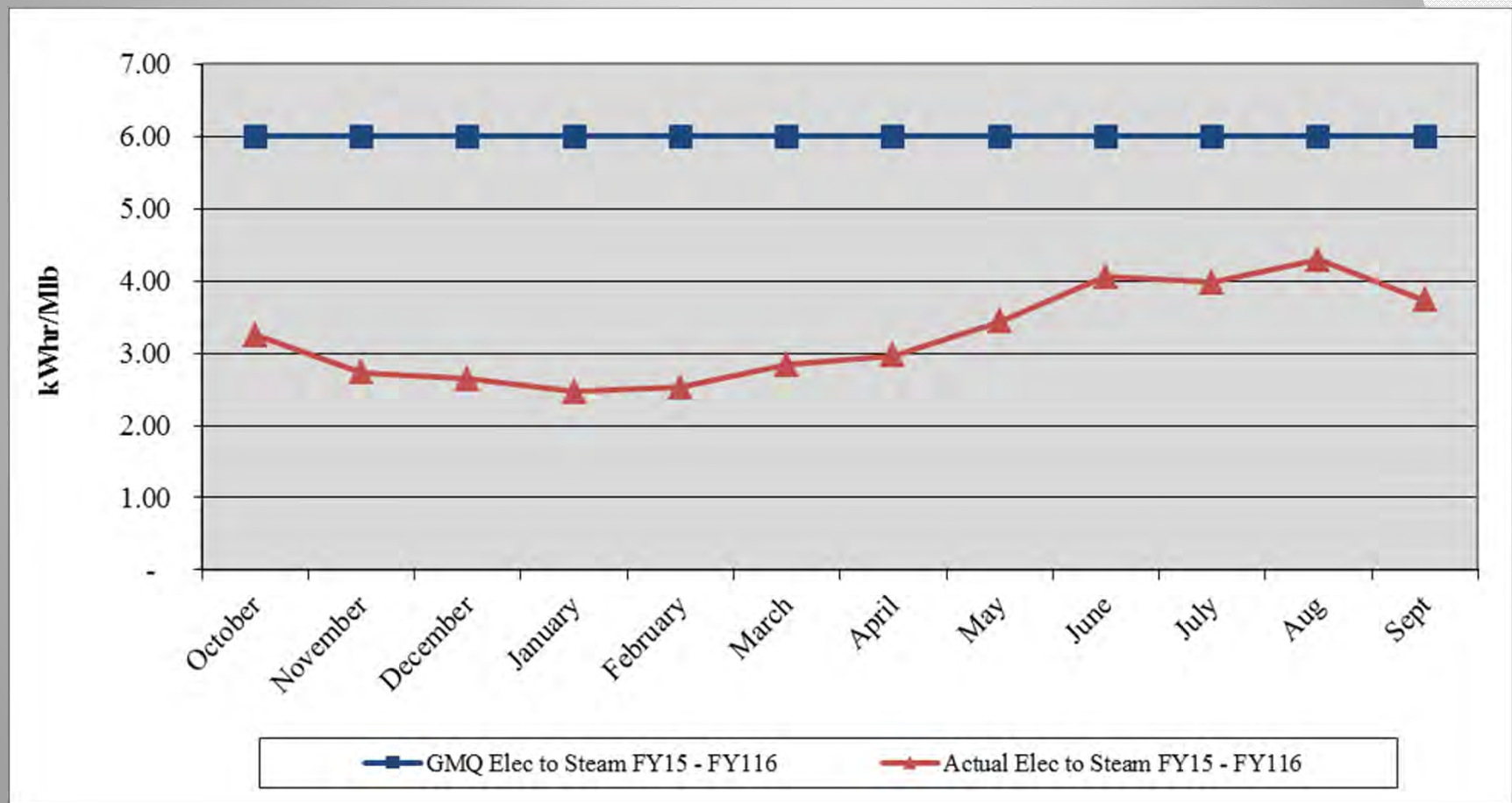
## *5. Review of DES Contractor Performance*

Contractor (CNE) is in compliance with their contractual obligations for FY16.

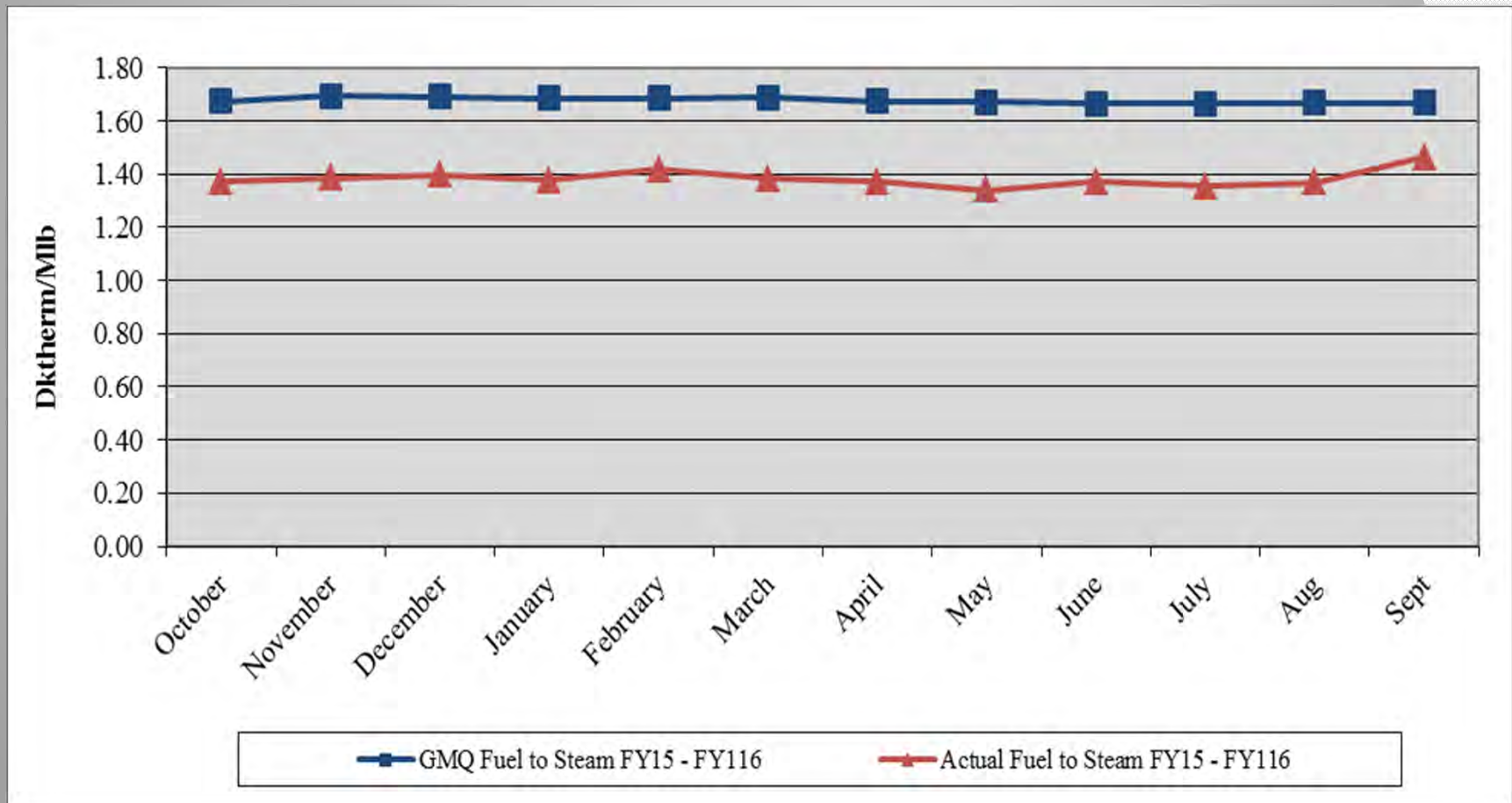
-  Excellent Performance – No Improvement Necessary
-  Satisfactory Performance – Some Improvement Could Be Made
-  Poor Performance – Much Improvement Necessary



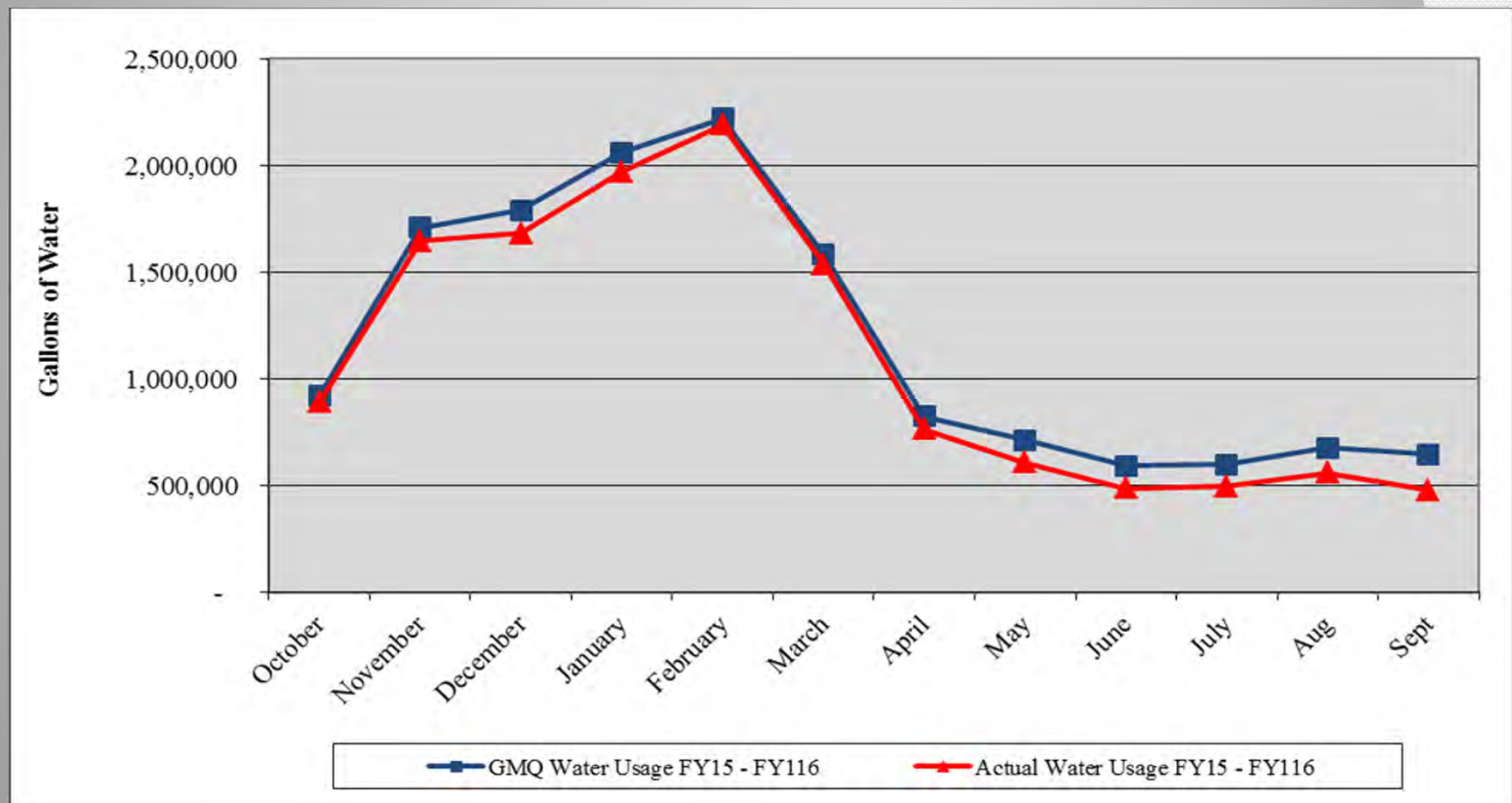
# Performance Measurement FY16: Steam Electric Conversion ●



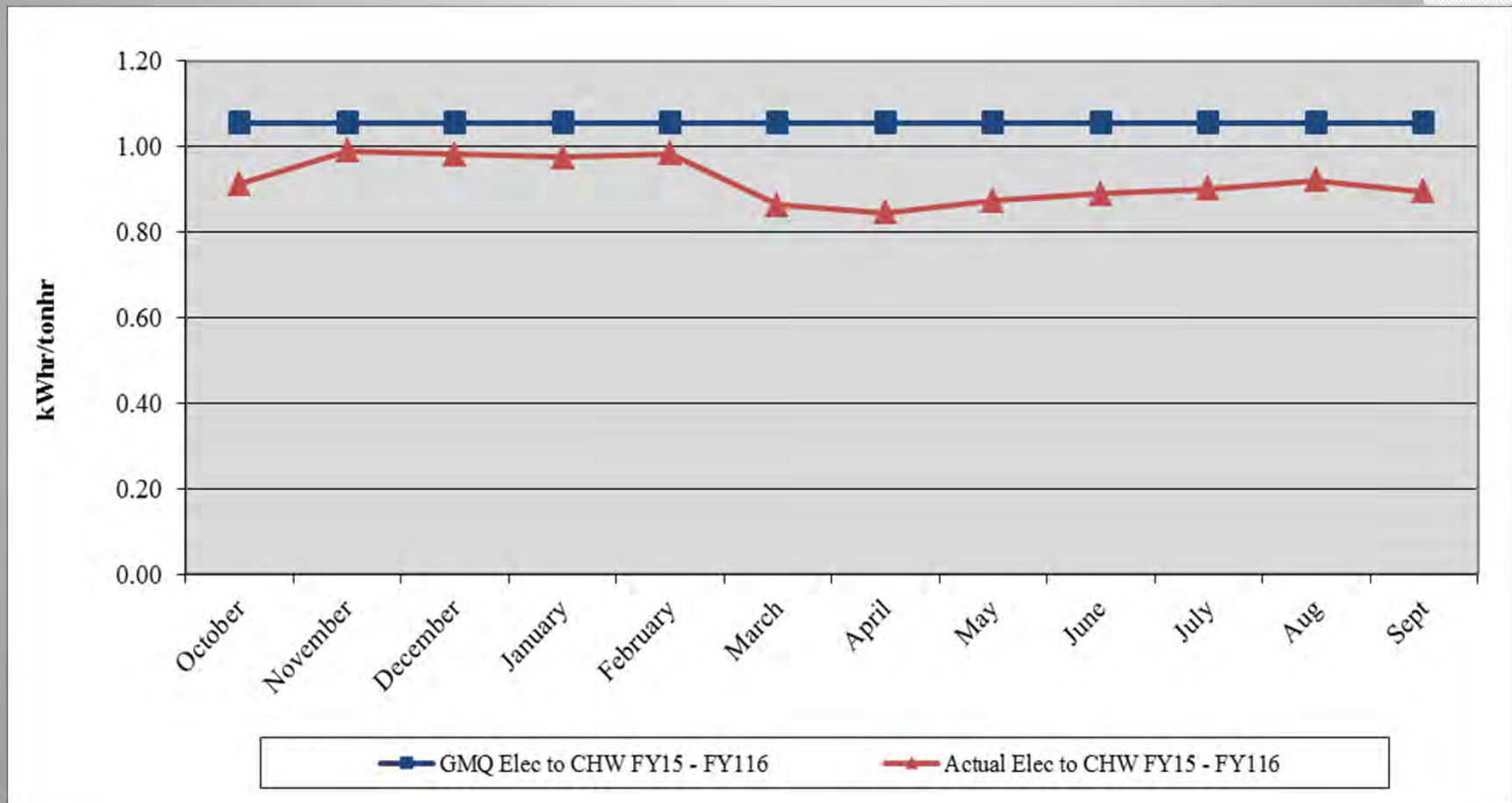
# Performance Measurement FY16: Steam Plant Efficiency



# Performance Measurement FY16: Steam Water Conversion ●

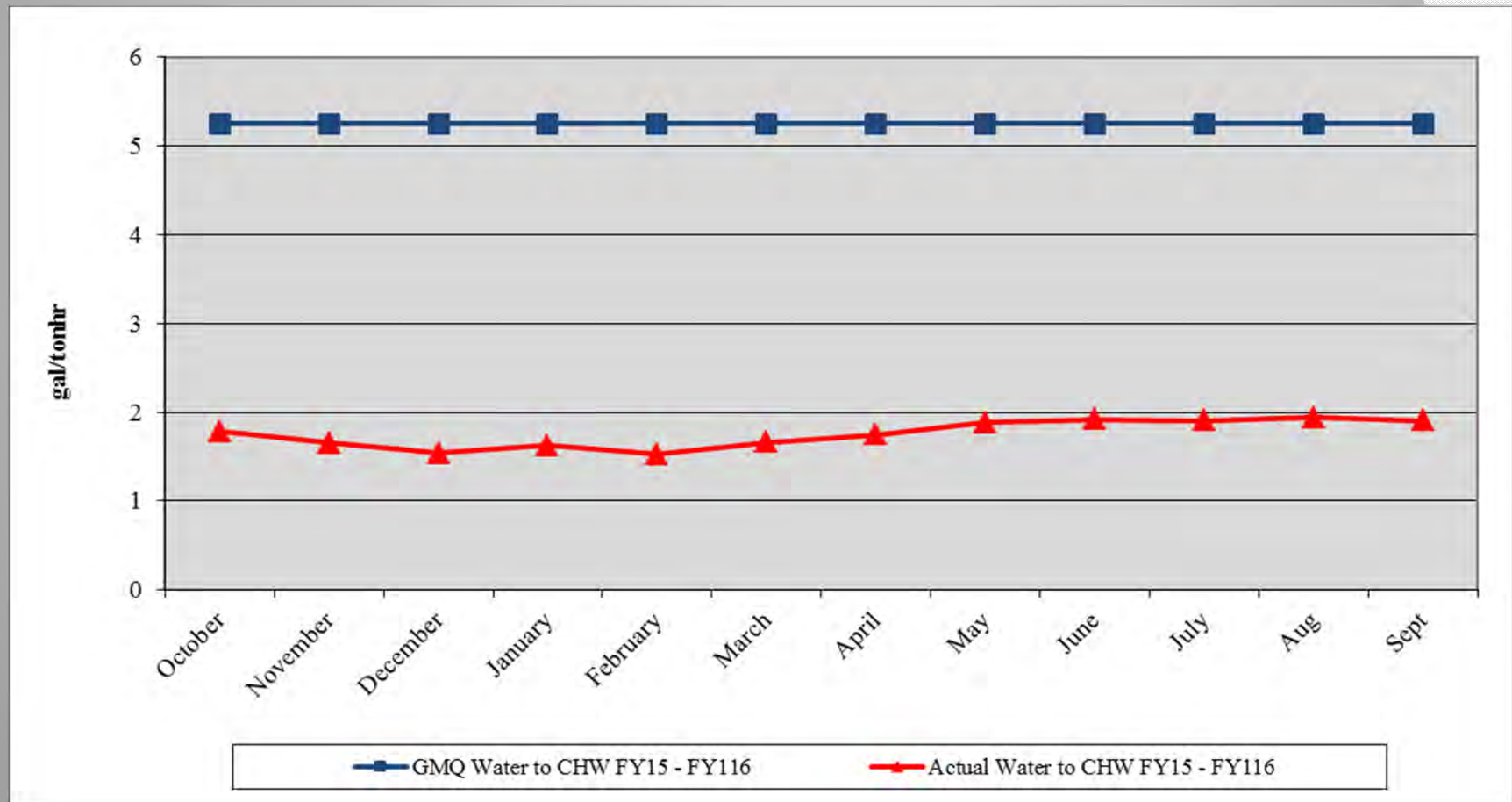


# Performance Measurement FY16: CHW Electric Conversion



# Performance Measurement FY16: CHW

## Water Conversion ●





# *Water Treatment*

## ❖ Steam and Condensate ●

- ❖ Corrosion
- ❖ Iron
- ❖ Hardness
- ❖ Chlorine/Sulfite

## ❖ Condensing Water ●

- ❖ Conductivity
- ❖ Biologicals

## ❖ Chilled Water ●

- ❖ Hardness
- ❖ Corrosion
- ❖ Biologicals
- ❖ Delta T Issue



## *EGF Walkthrough*

- ✓ Equipment Maintenance ●
- ✓ Operations ●
- ✓ Electrical ●
- ✓ Housekeeping ●
- ✓ Building Structure ●
- ✓ Building Exterior and Grounds ●



## *EDS Walkthrough*

- ✓ Vault/Tunnel Housekeeping ●
- ✓ Maintenance Items ●
  - ✓ Insulation Repair/Replacement ●
  - ✓ Water Infiltration ●
  - ✓ Corrosion of Structural Metal Components ●
- ✓ Safety Items ●





## 6. *Natural Gas Purchasing*

- ❖ Natural Gas Purchasing Review
  - ❖ Table 6: FY16 Gas Spending & Budget Comparison
  - ❖ Figure 6: Actual and Projected Gas Cost Comparison

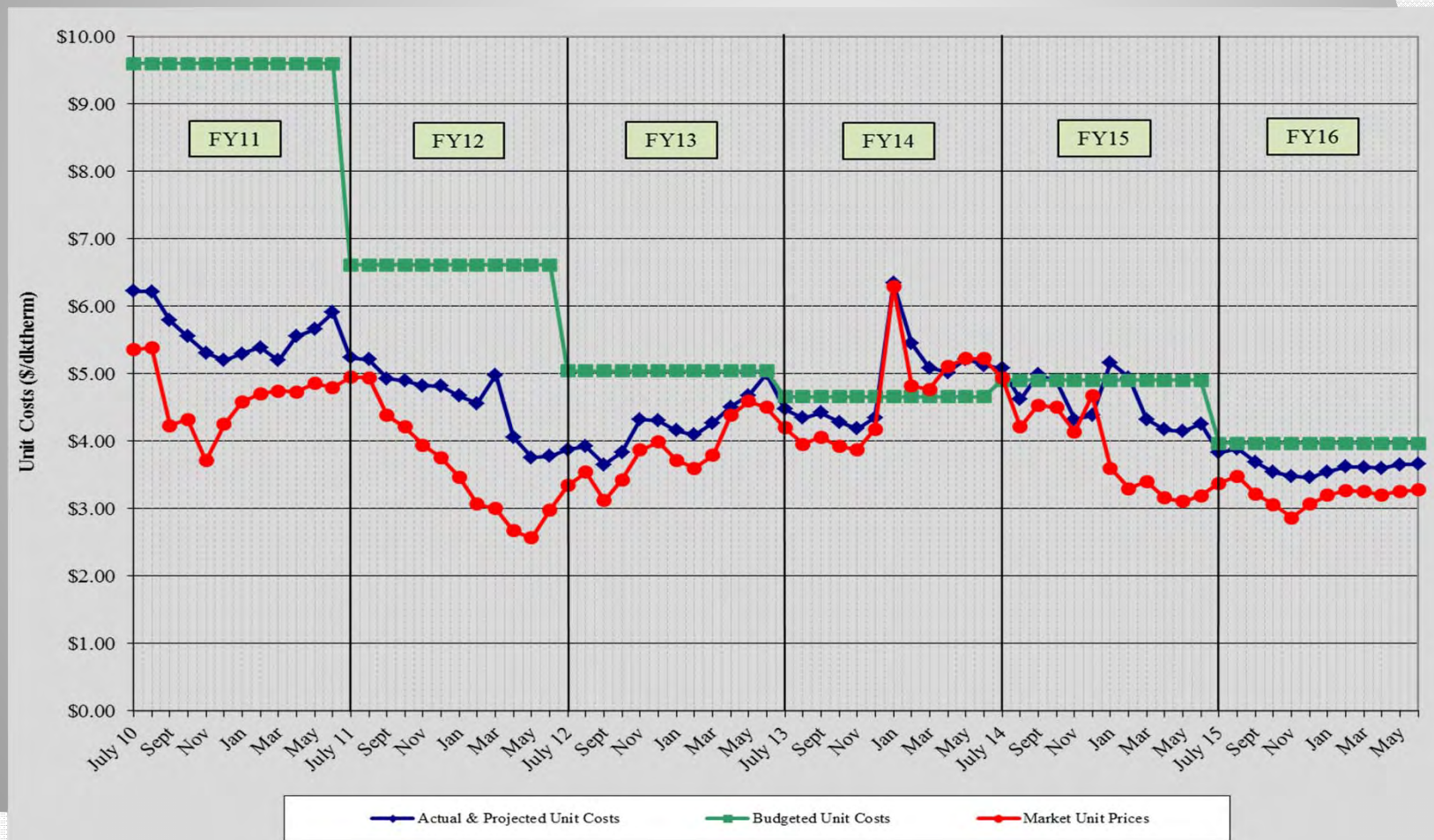
## Table 6: FY16 Gas Spending & Budget Comparison

	Actual FY16 To date (Sept 30)	Budget FY16	Percent Difference
Steam Sendout (Mlbs)	59,226	68,503	-13.5%
Fuel Use (Dth) (includes propane)	● 82,728	94,000	-12.0%
Plant Eff (Dth/Mlb)	● 1.397	1.372	1.8%
Total Gas Cost (includes propane)	● \$314,074	\$392,356	-20.0%
Unit Cost of Fuel (\$/Dth)	● \$3.796	\$4.174	-9.1%

Excludes consultant fees and FEA and budget contingency;

Includes transportation and propane costs

# Figure 6. Actual and Projected Gas Cost Comparison History



## 7. FY16 Costs to Date

Item	FY15 Actual	FY16 Budget	FY16 Actual to date	Percent of FY16 Budget
FOC's	\$ 4,532,100	\$ 4,668,200	\$ 1,133,000	24.27%
Pass Throughs				
Non-Energy	\$ 1,249,000	\$ 1,069,500	\$ 319,600	29.88%
Water/Sewer	\$ 509,000	\$ 745,400	\$ 210,500	28.24%
Natural Gas Base	\$ 2,897,000	\$ 2,832,858	\$ 315,400	11.13%
Natural Gas Contingency	\$ -	\$ 555,142	\$ -	0.00%
Electricity	\$ 5,459,700	\$ 6,545,700	\$ 2,353,100	35.95%
ORF Deposit	\$ 600	\$ -	\$ -	
Debt Service	\$ 5,646,000	\$ 5,565,900	\$ 878,300	15.78%
<b>Total Expenses</b>	<b>\$ 20,293,400</b>	<b>\$ 21,982,700</b>	<b>\$ 5,209,900</b>	<b>23.70%</b>
<b>Total Revenues</b>	<b>\$ 18,425,800</b>	<b>\$ 20,188,200</b>	<b>\$ 5,434,000</b>	<b>26.92%</b>
<b>Metro Funding Amount</b>	<b>\$ 1,867,600</b>	<b>\$ 1,794,500</b>	<b>\$ 448,625</b>	<b>25.00%</b>

## 8. FY16 Budget

Item	FY15 Budget	FY16 Budget	Percent Change
FOC's	\$ 4,606,800	\$ 4,668,200	1.33%
Pass Throughs			
Non-Energy	\$ 1,041,300	\$ 1,069,500	2.71%
Water/Sewer	\$ 724,600	\$ 745,400	2.87%
Natural Gas Base	\$ 3,121,940	\$ 2,832,858	-9.26%
Natural Gas Contingency	\$ 635,260	\$ 555,142	-12.61%
Electricity	\$ 6,574,600	\$ 6,545,700	-0.44%
ORF Deposit	\$ 600	\$ -	-100.00%
Debt Service	\$ 5,645,900	\$ 5,565,900	-1.42%
<b>Total Expenses</b>	<b>\$ 22,351,000</b>	<b>\$ 21,982,700</b>	<b>-1.65%</b>
<b>Total Revenues</b>	<b>\$ 20,501,500</b>	<b>\$ 20,188,200</b>	<b>-1.53%</b>
<b>Metro Funding Amount</b>	<b>\$ 1,849,500</b>	<b>\$ 1,794,500</b>	<b>-2.97%</b>

## 9. Capital Expenditure Update

	<b>Spent to End of FY15</b>	<b>FY16 Spending</b>	<b>Balance to Date (10/31/15)</b>
R&I Projects	\$2,579,384	\$123,820	\$17,098
49109-2010 Bond	\$2,309,419	\$12,115	\$304,382
49107-Customer Connection Fund	\$6,711,621	\$11,214	\$1,777,165
Total	\$11,600,424	\$147,149	\$2,098,645

# *Capital Projects Review*

## Active Capital Projects

- DES 061: MH & Tunnel Steel Corrosion Repair & Prevention – Ongoing
- DES 104: TOU – CNE Implementing Program
- DES 110: EGF Alternate Fuels Evaluation – Awaiting Final Report from CNE
- DES 111: EGF Combined Heat and Power – Engineer Selected
- DES 117: Manhole S5 Rebuild State Library and Archives – Nearing Completion
- DES 119: Chilled Water System Delta T – Proposal Phase

# *Capital Projects Review*

## Capital Projects in Close-out

- DES 107: Manholes A, B and M Modifications at the New West Riverfront Park
- DES 112: Condensate Return Piping Replacement Cordell Hull Building



## *Potential Customer: Lifeway*

- Approx 257,000 sq ft Office Building Next Door
- Anticipated CHW Demand of 492 tons
- Anticipated Steam Demand of 2,500 pph
- Anticipated Completion in Fall 2017
- Building Design Progressing with DES Service
- DES Service Agreement Commitment Anticipated

## *10. Other Board Member Items*

Notification for Inclement Weather

## *11. Adjourn*

- *Advisory Board Meeting Schedule*
- FY16 – 2<sup>nd</sup> Quarter Meeting – February 18, 2016
- FY16 – 3<sup>rd</sup> Quarter Meeting – May 19, 2016
- FY16 – 4<sup>th</sup> Quarter Meeting – August 18, 2016
- FY17 – 1<sup>st</sup> Quarter Meeting – November 17, 2016