



Metro Nashville
DISTRICT ENERGY SYSTEM

DES Advisory Board Meeting
Third Quarter FY16
May 19, 2016

Agenda

1. Call to Order
2. Review & Approval of Previous Meeting Minutes
3. Customer Sales
4. Review of DES Contractor Performance
5. Natural Gas Purchasing Status
6. FY16 Costs to Date
7. FY17 Budget
8. Capital Projects Review & Status
9. Other Board Member Items
10. Adjourn



1. *Call to Order*
2. *Review and Approval of
Previous Meeting Minutes*

3. *Customer Sales*

- ❖ Table 3: Customer Cost Comparison
- ❖ TOU Schedule
- ❖ Figure 3A: Summary TOU Cost Comparison
- ❖ Figure 3B: Sample Customer Load

Summary Table 3: Customer Cost Comparison for the Previous 12 Months

		Steam - Rolling 12 Month			Chilled Water - Rolling 12 Month		
		Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	% Diff.	Apr 2014 - Mar 2015	Apr 2015 - Mar 2016	% Diff.
Private	Cost	\$ 1,515,809	\$ 1,287,404	-15.07%	\$ 3,455,202	\$ 3,574,798	3.46%
	Usage (lbs or tonhrs)	96,247,402	80,565,859	-16.29%	16,957,135	18,321,724	8.05%
	Unit Cost	\$ 15.75	\$ 15.98	1.5%	\$ 0.204	\$ 0.195	-4.2%
State	Cost	\$ 2,100,201	\$ 1,736,949	-17.30%	\$ 3,316,303	\$ 3,378,814	1.88%
	Usage (lbs or tonhrs)	119,743,240	93,972,626	-21.52%	13,916,501	14,797,466	6.33%
	Unit Cost	\$ 17.54	\$ 18.48	5.4%	\$ 0.238	\$ 0.228	-4.2%
Metro	Cost	\$ 2,581,398	\$ 2,067,782	-19.90%	\$ 5,550,143	\$ 5,518,475	-0.57%
	Usage (lbs or tonhrs)	170,815,595	135,787,174	-20.51%	28,295,720	28,086,160	-0.74%
	Unit Cost	\$ 15.11	\$ 15.23	0.8%	\$ 0.196	\$ 0.196	0.2%
Aggregate	Cost	\$ 6,326,148	\$ 5,213,973	-17.58%	\$ 12,321,648	\$ 12,581,581	2.11%
	Usage (lbs or tonhrs)	392,641,651	316,166,463	-19.48%	59,169,356	61,783,199	4.42%
	Unit Cost	\$ 16.11	\$ 16.49	2.4%	\$ 0.208	\$ 0.204	-2.21%

MFA not included in values shown

Electric Time of Use On-Peak/Off-Peak Schedule

- On-Peak Summer: Apr, May, June, July, Aug, Sept, Oct
M-F 1 pm to 7pm
- On-Peak Winter: Nov, Dec, Jan, Feb, Mar M-F 4am to
10 am
- Off-Peak: All other times plus Federal Holidays and Nov
1 if it falls on a Tues, Wed, Thurs or Fri
- Anticipate Implementing TOU with July 2016 Customer
Invoice

Figure 3A: Summary TOU Cost Comparison

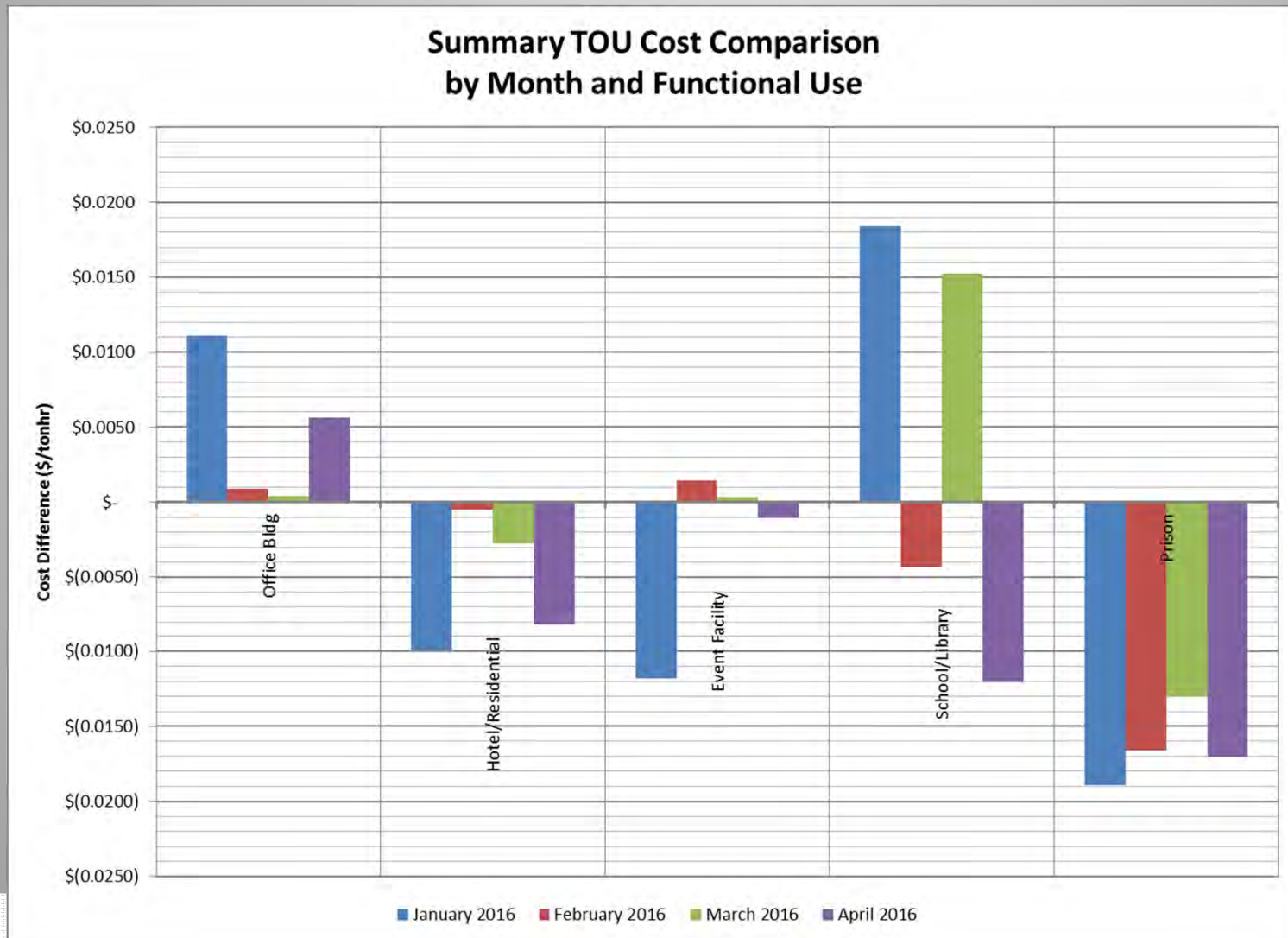
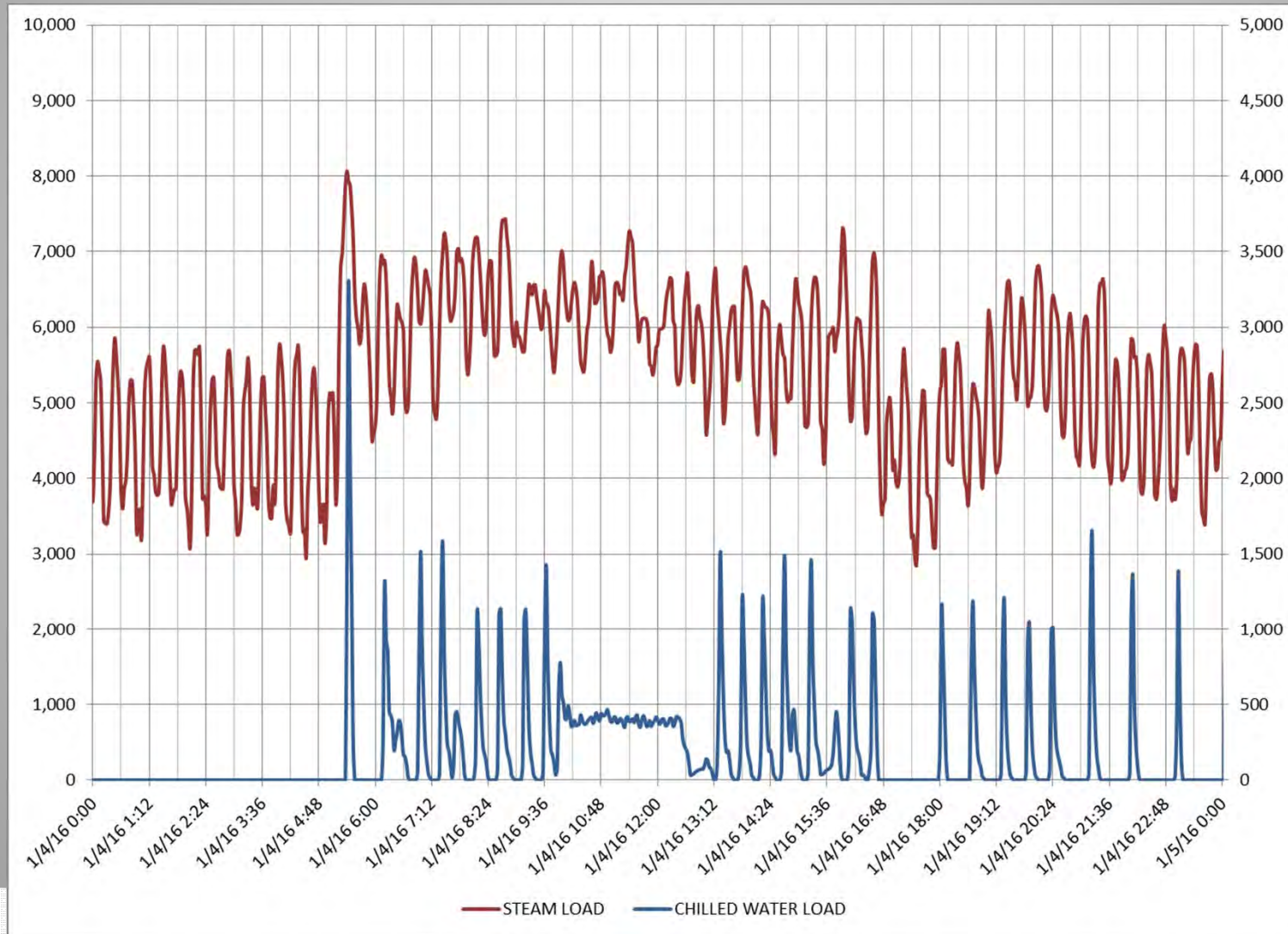





Figure 3B: Sample Customer Load

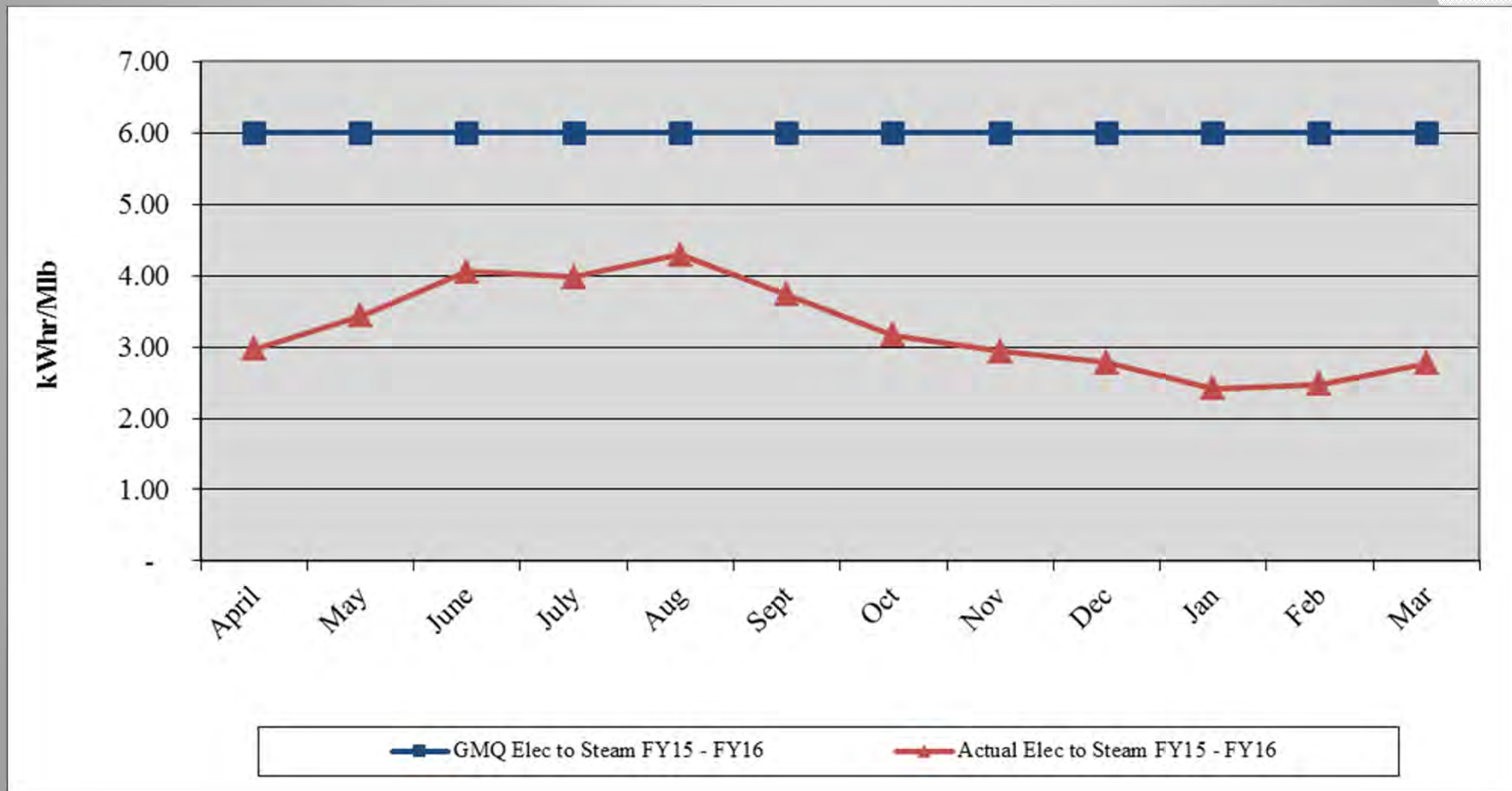


4. *Review of DES Contractor Performance*

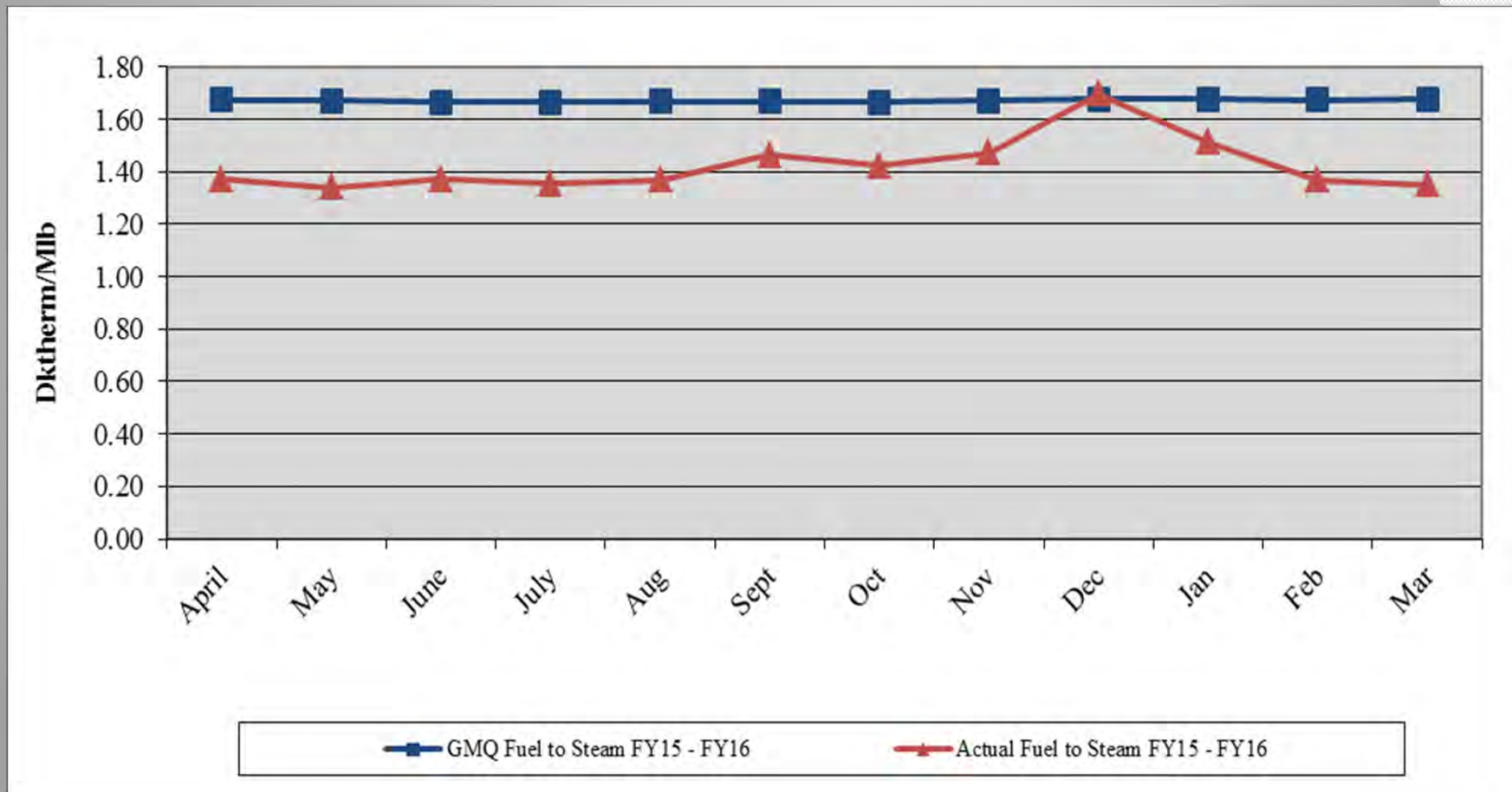
Contractor (CNE) is in compliance with their contractual obligations for FY16.

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

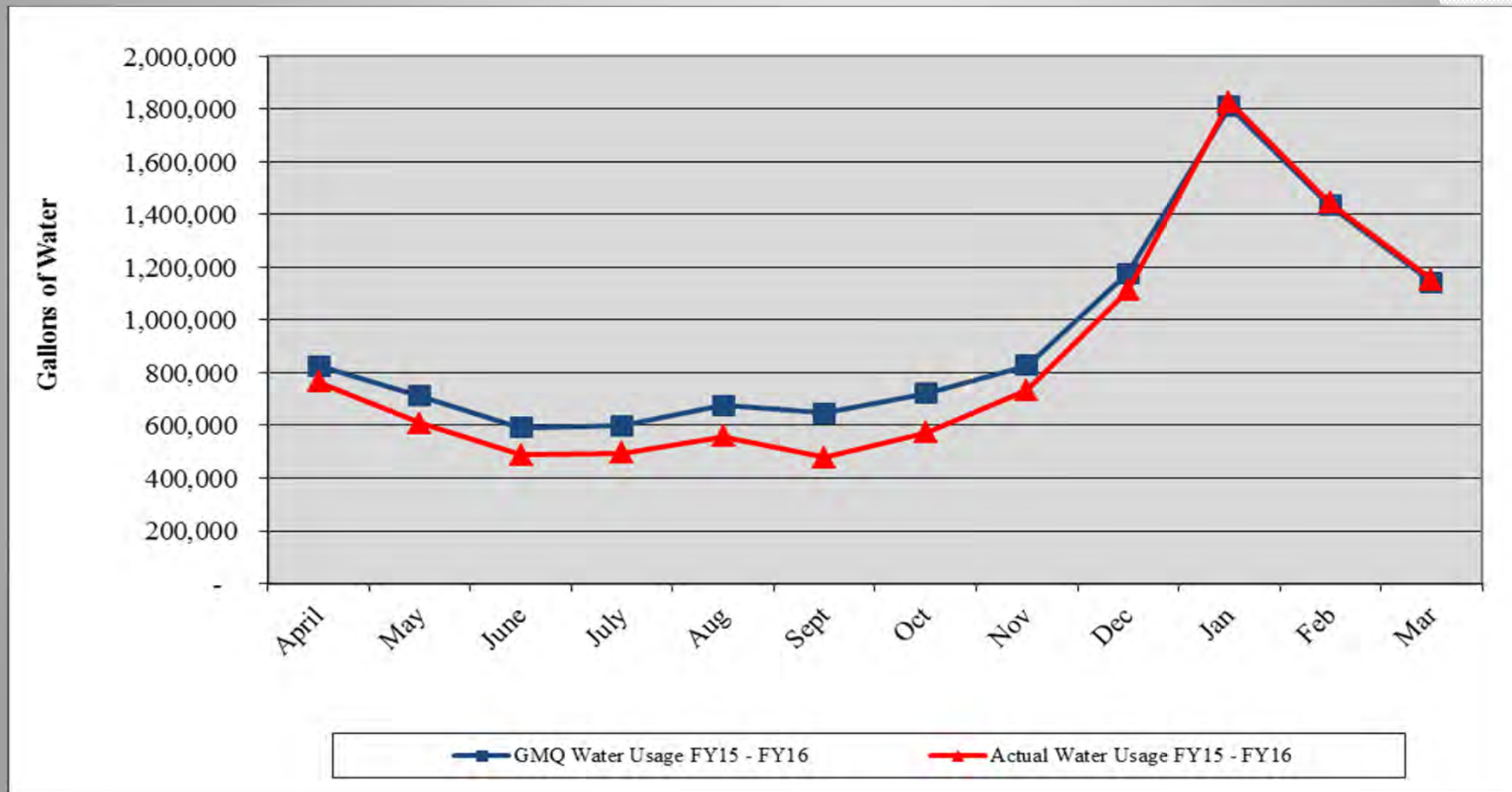
Performance Measurement FY16: Steam Electric Conversion ●



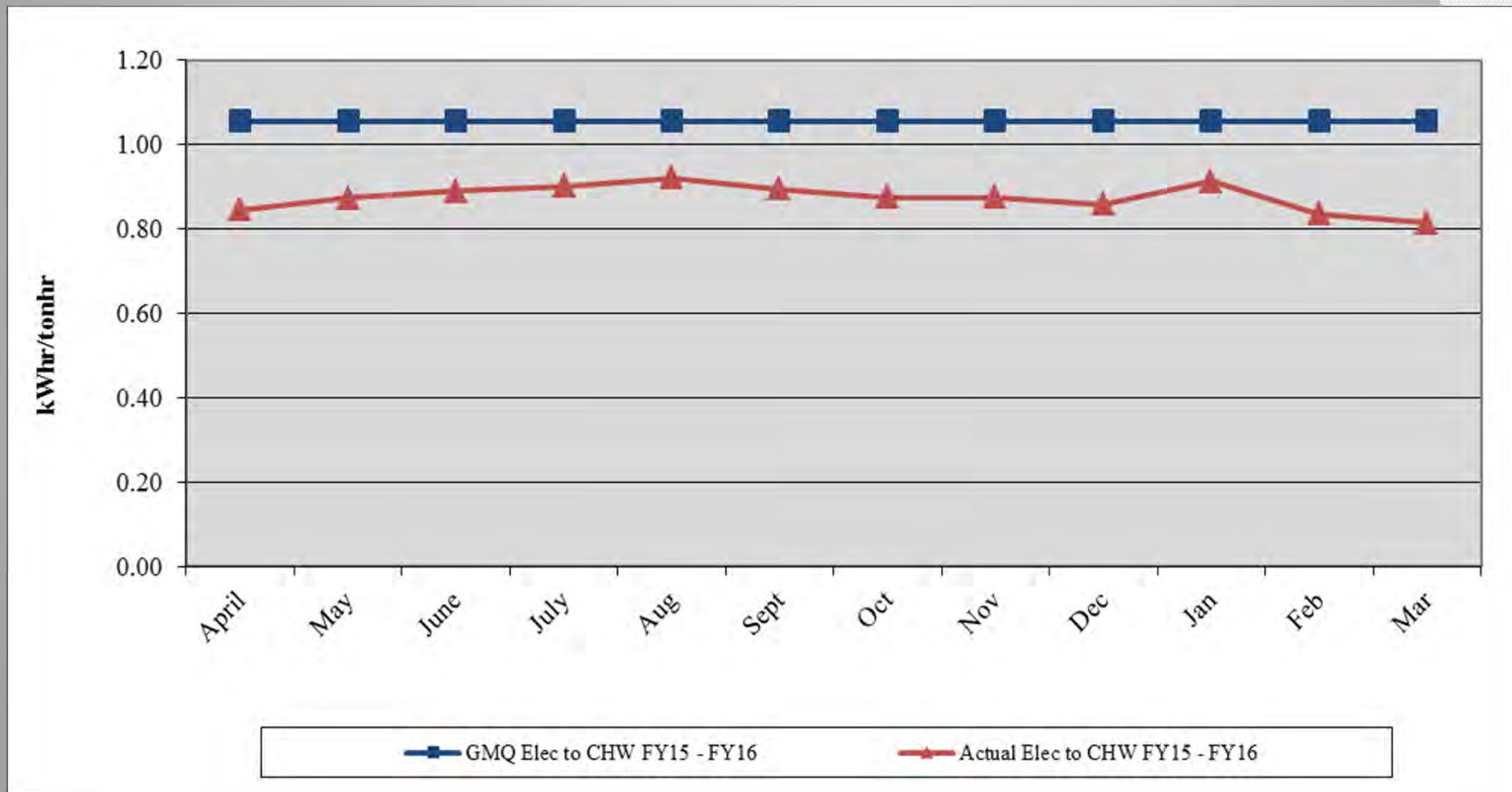
Performance Measurement FY16: Steam Plant Efficiency



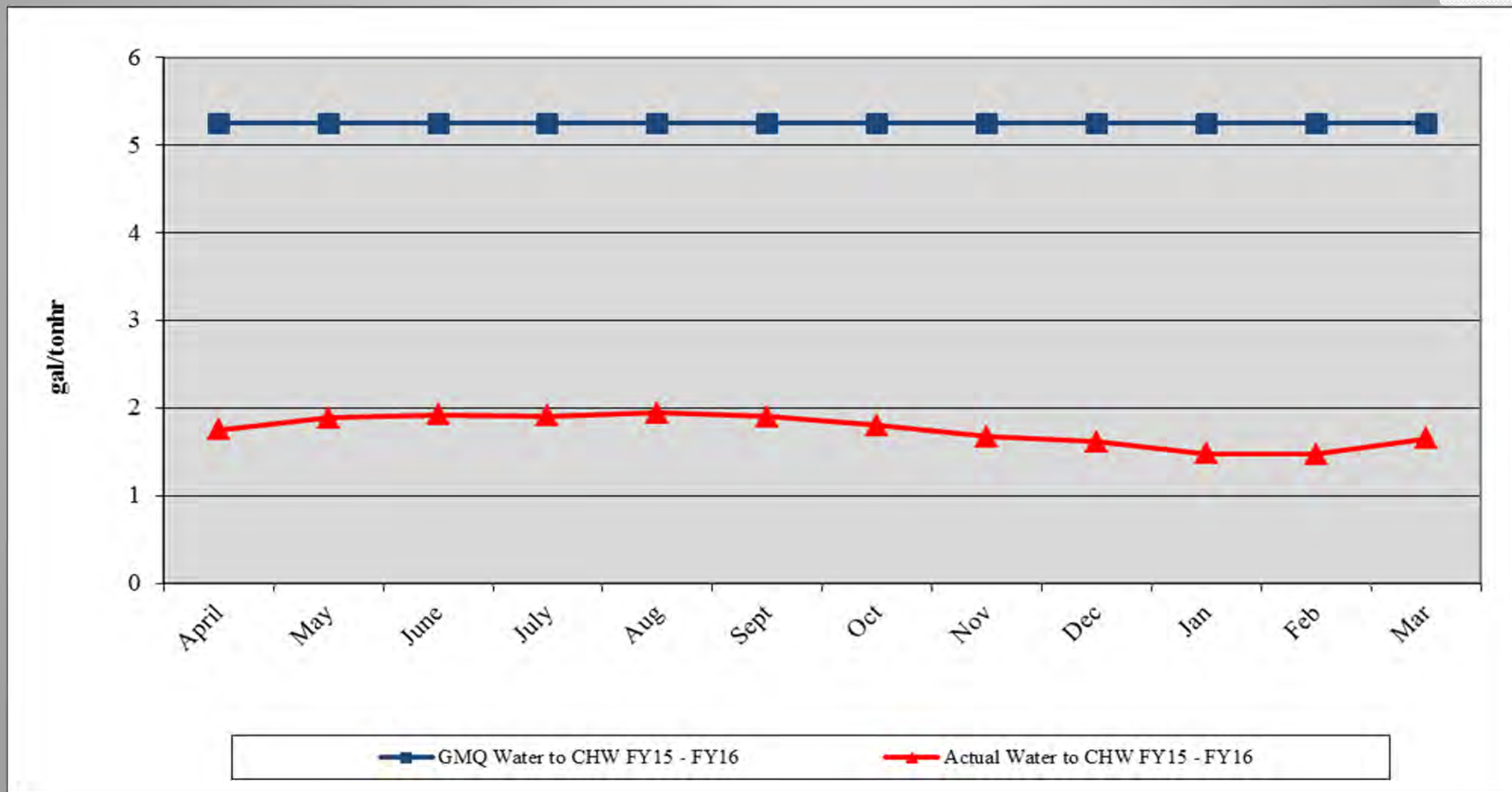
Performance Measurement FY16: Steam Water Conversion ●



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 ●



5. Natural Gas Purchasing

- ❖ Natural Gas Purchasing Review
 - ❖ Table 5: FY16 Gas Spending & Budget Comparison
 - ❖ Figure 5: Actual and Projected Gas Cost Comparison

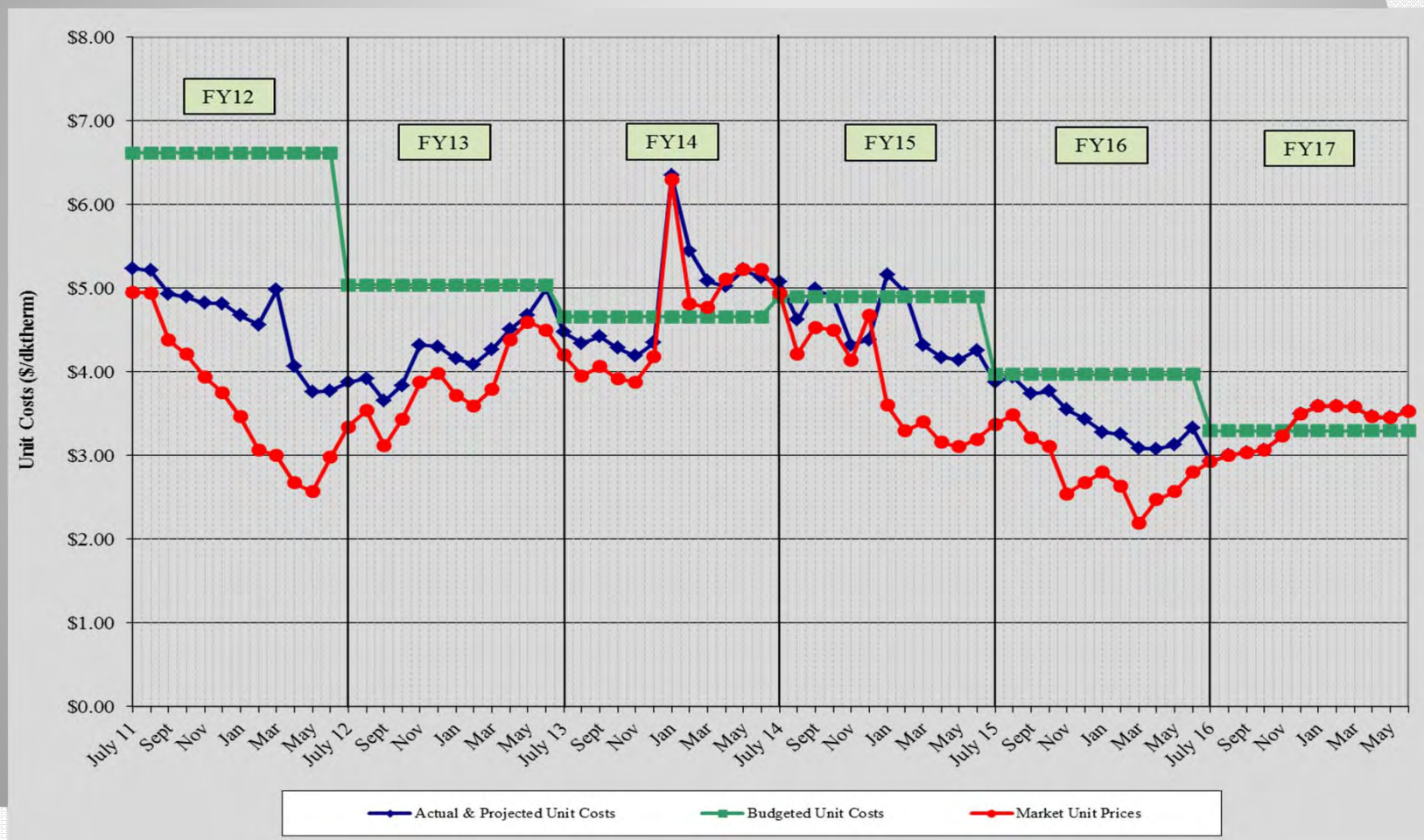
Table 5: FY16 Gas Spending & Budget Comparison

		Actual FY16 To date (Mar 31)	Budget FY16	Percent Difference
Steam Sendout (Mlbs)		310,151	395,634	-21.6%
Fuel Use (Dth) (includes propane)	●	452,601	542,810	-16.6%
Plant Eff (Dth/Mlb)	●	1.459	1.372	6.3%
Total Gas Cost (includes propane)	●	\$1,649,724	\$2,658,138	-37.9%
Unit Cost of Fuel (\$/Dth)	●	\$3.645	\$4.174	-12.7%

Excludes consultant fees and FEA and budget contingency;

Includes transportation and propane costs (\$70,000 pre-purchased propane)

Figure 5. Actual and Projected Gas Cost Comparison History



6. 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	\$ 3,399,100	72.81%
Pass Throughs				
Non-Energy	\$ 1,249,000	\$ 1,069,500	\$ 791,300	73.99%
Water/Sewer	\$ 509,000	\$ 745,400	\$ 402,600	54.01%
Natural Gas Base	\$ 2,897,000	\$ 2,832,858	\$ 1,656,300	58.47%
Natural Gas Contingency	\$ -	\$ 555,142	\$ -	0.00%
Electricity	\$ 5,459,700	\$ 6,545,700	\$ 4,103,000	62.68%
ORF Deposit	\$ 600	\$ -	\$ -	
Debt Service	\$ 5,646,000	\$ 5,565,900	\$ 4,033,700	72.47%
Total Expenses	\$ 20,293,400	\$ 21,982,700	\$ 14,386,000	65.44%
Total Revenues	\$ 18,425,800	\$ 20,188,200	\$ 13,396,900	66.36%
Metro Funding Amount	\$ 1,867,600	\$ 1,794,500	\$ 1,794,000	99.97%

7. FY17 Budget

Item	FY16 Budget	FY17 Budget	Percent Change
FOC's	\$ 4,668,200	\$ 4,668,000	0.00%
Pass Throughs			
Non-Energy	\$ 1,069,500	\$ 1,103,500	3.18%
Water/Sewer	\$ 745,400	\$ 640,200	-14.11%
Natural Gas Base	\$ 2,832,858	\$ 2,155,654	-23.91%
Natural Gas Contingency	\$ 555,142	\$ 570,846	2.83%
Electricity	\$ 6,545,700	\$ 6,093,800	-6.90%
ORF Deposit	\$ -	\$ -	N.A.
Debt Service	\$ 5,565,900	\$ 5,525,000	-0.73%
Total Expenses	\$ 21,982,700	\$ 20,757,000	-5.58%
Total Revenues	\$ 20,188,200	\$ 19,035,000	-5.71%
Metro Funding Amount	\$ 1,794,500	\$ 1,722,000	-4.04%

8. *Capital Expenditure Update*

	Spent to End of FY15	FY16 Spending	Balance to Date (03/31/16)
R&I Projects	\$2,579,384	\$263,650	\$18,318
49109-2010 Bond	\$2,309,419	\$164,432	\$168,705
49107-Customer Connection Fund	\$6,711,621	\$51,245	\$1,746,134
49116-DES CHP and EDS Projects	\$0	\$89,431	\$25,910,569
Total	\$11,600,424	\$568,757	\$27,843,727

Capital Projects Review

Active Capital Projects

- DES 061: MH & Tunnel Steel Corrosion Repair & Prevention – Ongoing
- DES 104: TOU – CNE Implementing Program (anticipate completion for FY17)
- DES 110: EGF Alternate Fuels Evaluation – CNE Propane Acquisition Plan; no second propane tank
- DES 111: EGF Combined Heat and Power – Engineer developing economic model
- DES 119: Chilled Water System Delta T – Equipment Installed
- DES 121: Misc. Manhole Repairs – Replace Ladders; Insulation, etc.; in construction
- DES 122: Manhole 13 Structural Repairs – Concrete Roof Repairs; in design
- DES 123: Condensate Return Piping Replacement John Sevier Bldg – construction to be completed 4th Qtr FY16
- DES 124: CJC Redevelopment – DES Services Demolition Plan; Economic model
- DES 125: Exploratory Excavation 1st Ave – CHW Leak; in close-out
- DES 126: Exploratory Excavation 3rd Ave – CHW Leak; in close-out
- DES 127: Manhole 12 Steam Anchor Repair – in design



Capital Projects Review

Capital Projects in Close-out

- DES 110: EGF Alternate Fuels Evaluation

9. *Other Board Member Items*

10. *Adjourn*

- *Advisory Board Meeting Schedule*
- FY16 – 4th Quarter Meeting – August 18, 2016
- FY17 – 1st Quarter Meeting – November 17, 2016
- FY17 – 2nd Quarter Meeting – February 16, 2017
- FY17 – 3rd Quarter Meeting – May 18, 2017