



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

*DES Advisory Board Meeting*  
*Third Quarter FY17*  
*May 18, 2017*

# *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. FY17 Costs to Date
7. FY18 Budget
8. Capital Projects Review & Status
9. EDS Make-up
10. Other Board Member Items
11. Adjourn

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

## 3. *Customer Sales*

- ❖ Table 3: Customer Cost Comparison
- ❖ Figure 3A: Historic Chilled Water Costs and Usages
- ❖ Figure 3B: Historic Chilled Water Electric Costs and Usages
- ❖ Figure 3C: Historic Steam Water Costs and Usages
- ❖ Figure 3D: Historic Steam Electric Costs and Usages
- ❖ Figure 3E: Historic Steam Fuel Costs and Usages
- ❖ Figure 3F: Historic Chemical Costs

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

		Steam - Rolling 12 Month			Chilled Water - Rolling 12 Month		
		Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	% Diff.	Apr 2015 - Mar 2016	Apr 2016 - Mar 2017	% Diff.
<b>Private</b>	Cost	\$ 1,409,243	\$ 1,368,292	-2.91%	\$ 3,574,798	\$ 3,603,547	0.80%
	Usage (lbs or tonhrs)	86,406,663	87,049,942	0.74%	18,321,724	19,467,012	6.25%
<b>State</b>	Cost	\$ 1,736,949	\$ 1,644,555	-5.32%	\$ 3,378,814	\$ 3,253,996	-3.69%
	Usage (lbs or tonhrs)	93,972,626	86,341,696	-8.12%	14,797,466	13,889,963	-6.13%
<b>Metro</b>	Cost	\$ 2,067,782	\$ 2,131,758	3.09%	\$ 5,518,475	\$ 5,546,503	0.51%
	Usage (lbs or tonhrs)	135,787,174	153,057,990	12.72%	28,086,160	30,995,548	10.36%
<b>Aggregate</b>	Cost	\$ 5,213,973	\$ 5,144,605	-1.33%	\$ 12,472,088	\$ 12,404,046	-0.55%
	Usage (lbs or tonhrs)	316,166,463	326,449,628	3.25%	61,205,350	64,352,523	5.14%
	Unit Cost	\$ 16.49	\$ 15.76	-4.4%	\$ 0.204	\$ 0.193	-5.41%

MFA not included in values shown

Figure 3A: Historic Chilled Water Water Costs and Usages

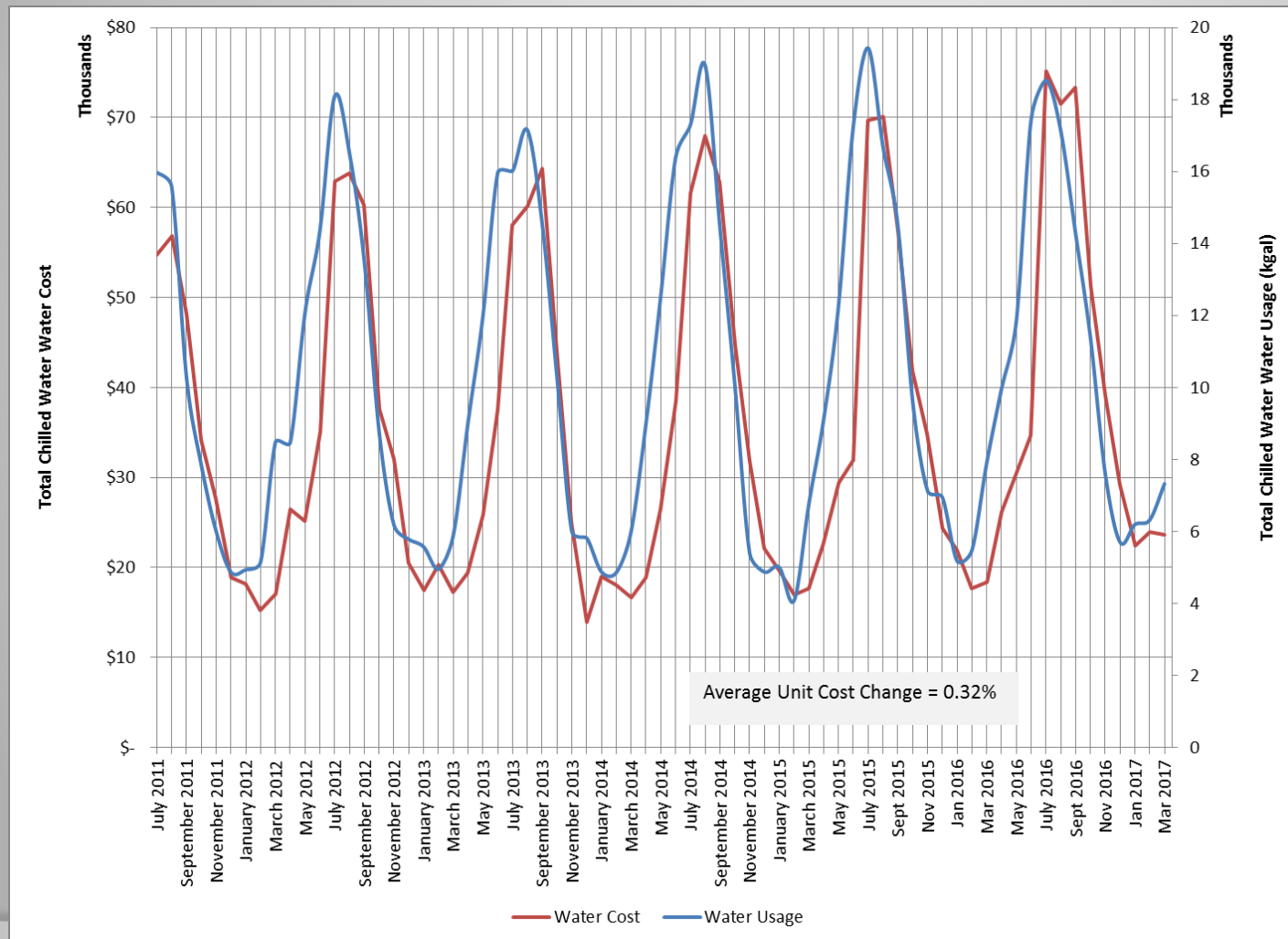


Figure 3B: Historic Chilled Water Electric Costs and Usages

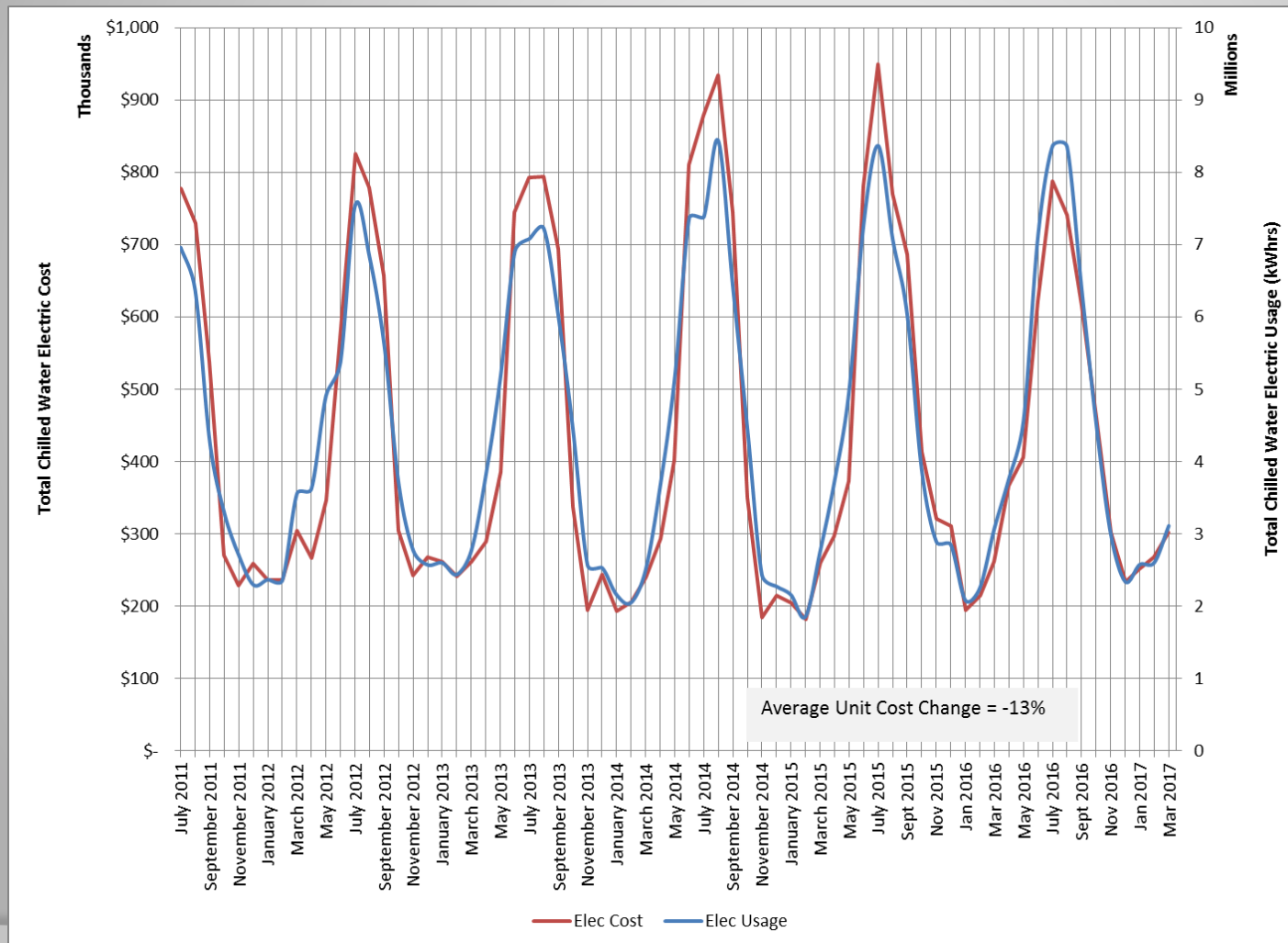


Figure 3C: Historic Steam Water Costs and Usages

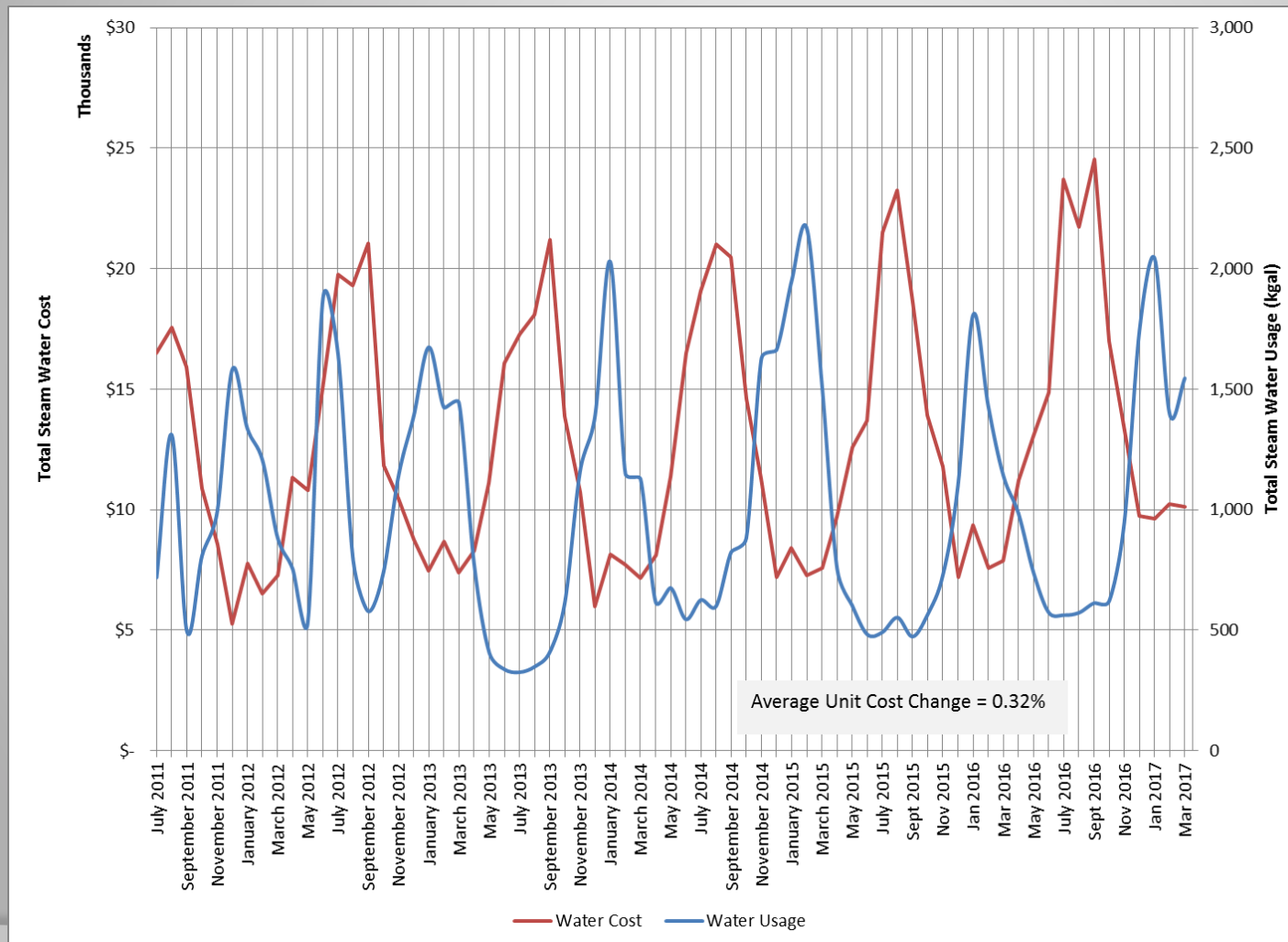




Figure 3D: Historic Steam Electric Costs and Usages

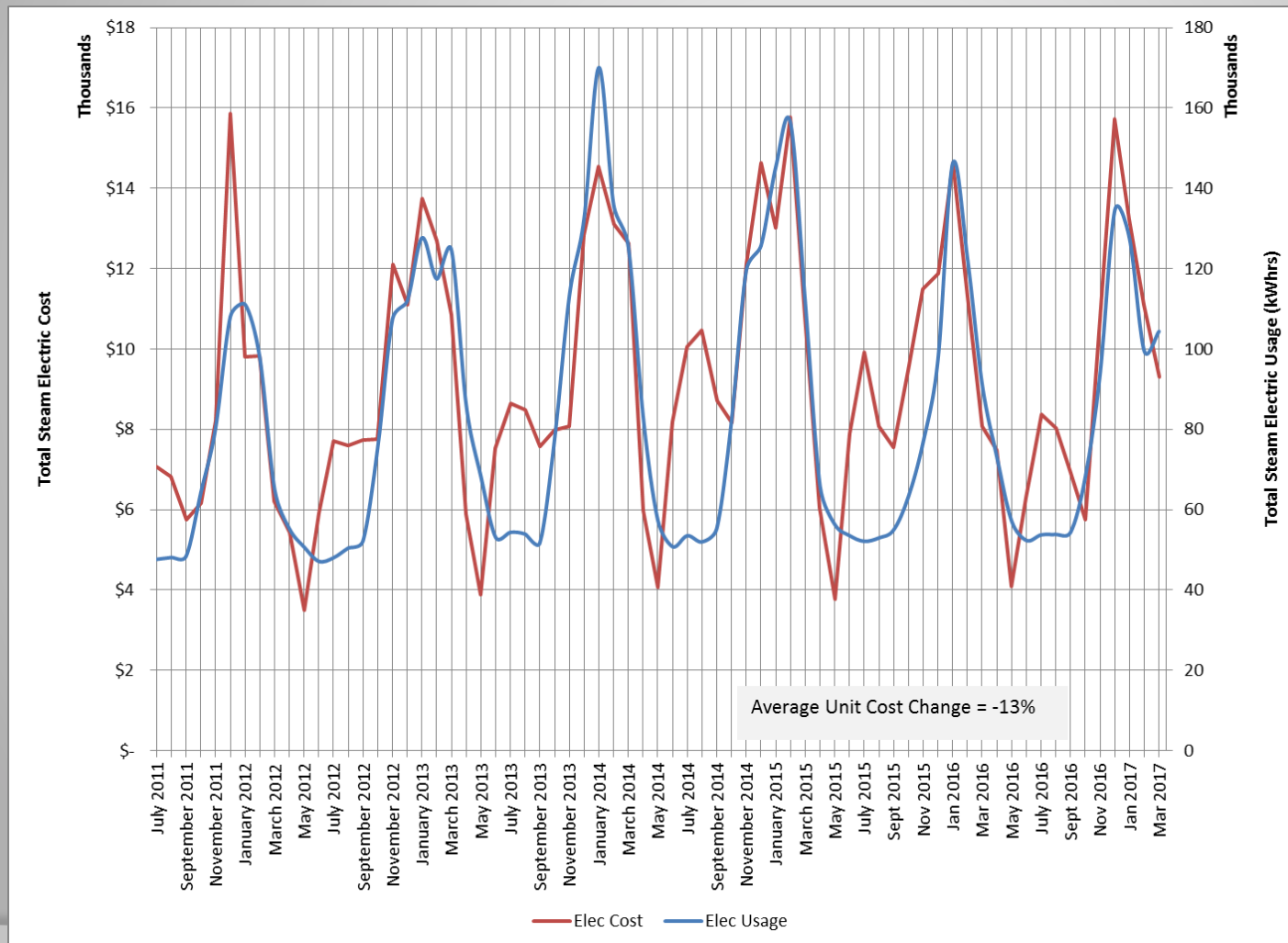


Figure 3E: Historic Steam Fuel Costs and Usages

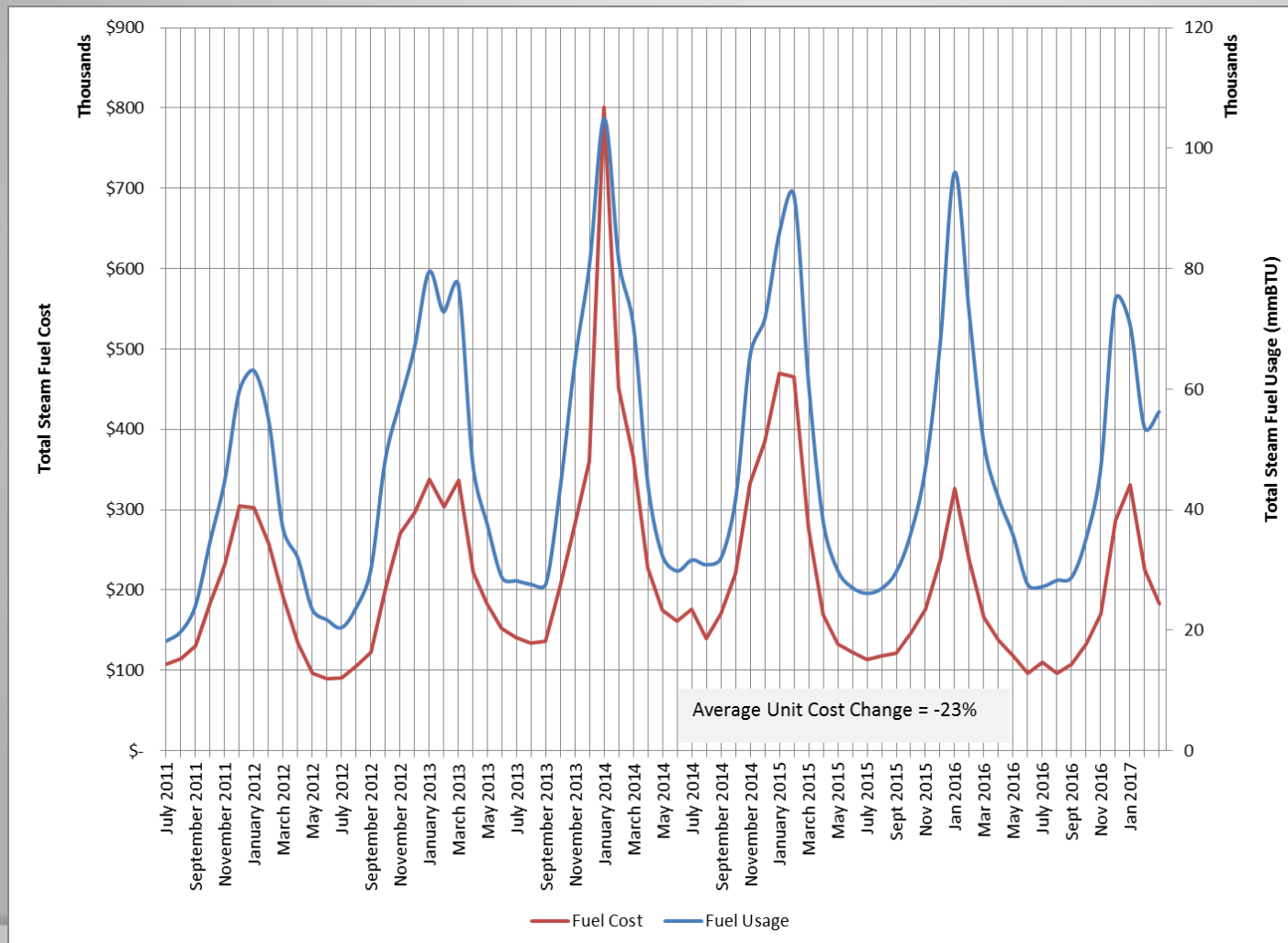
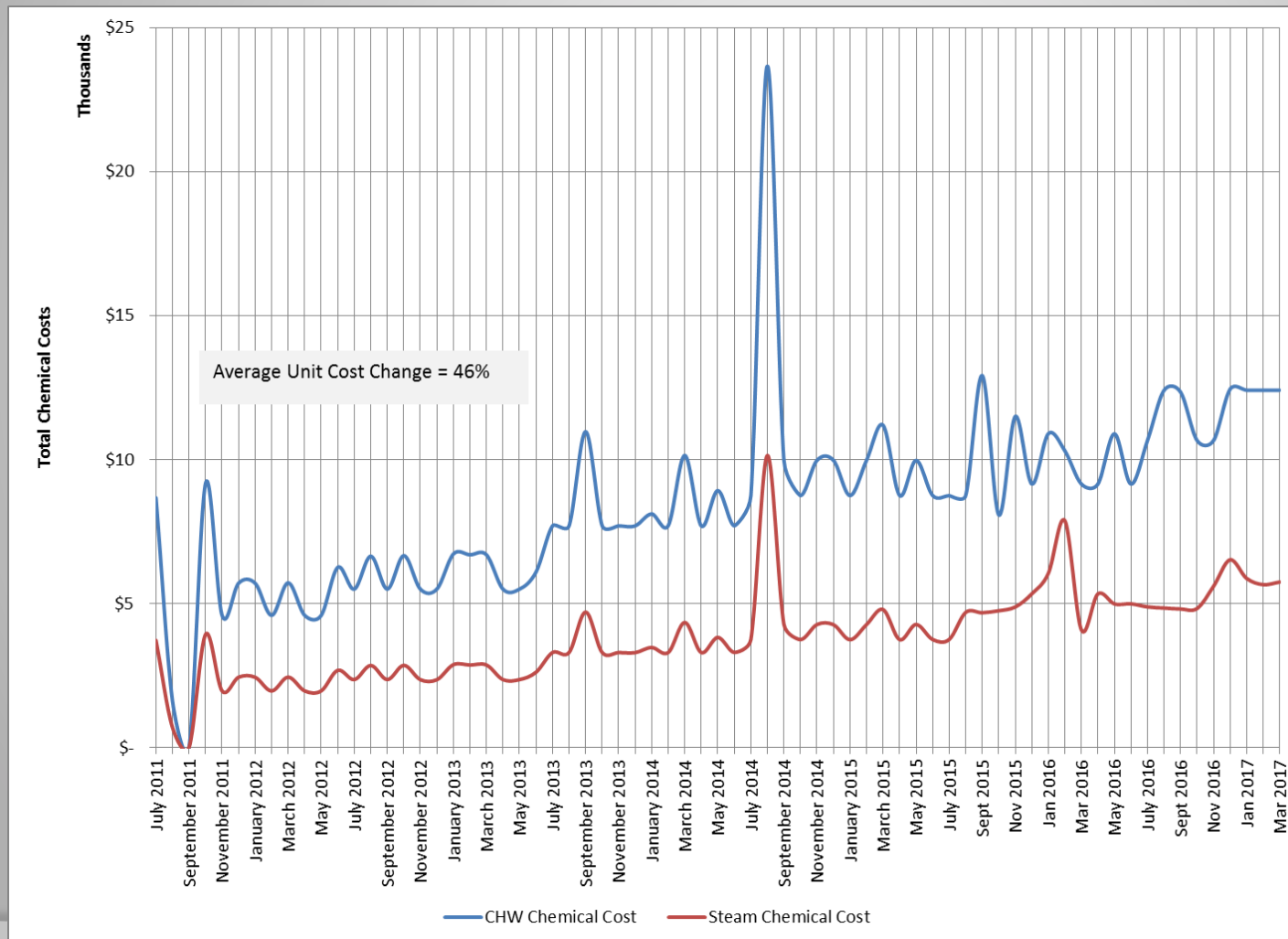





Figure 3F: Historic Chemical Costs

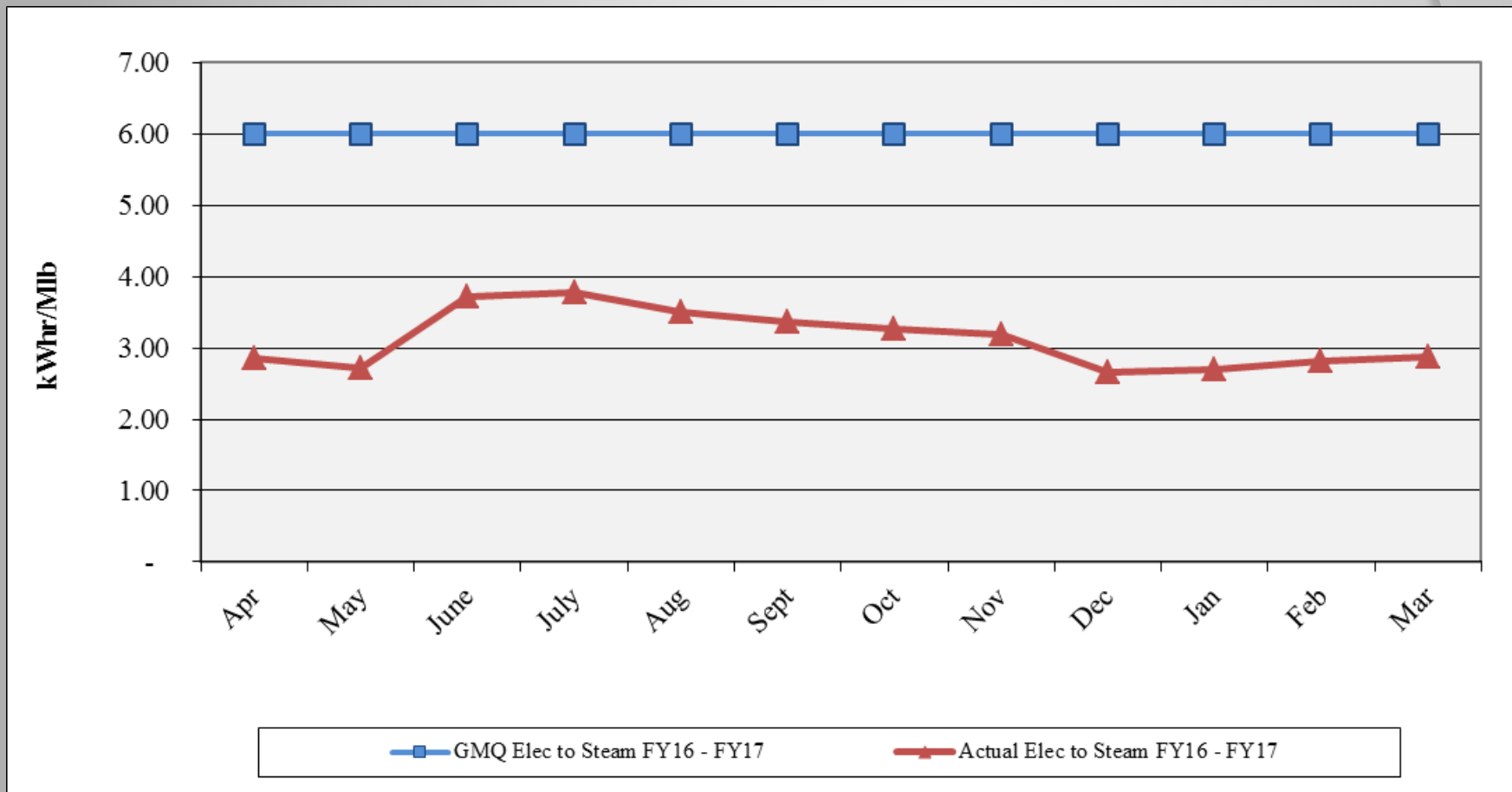


## 4. *Review of DES Contractor Performance*

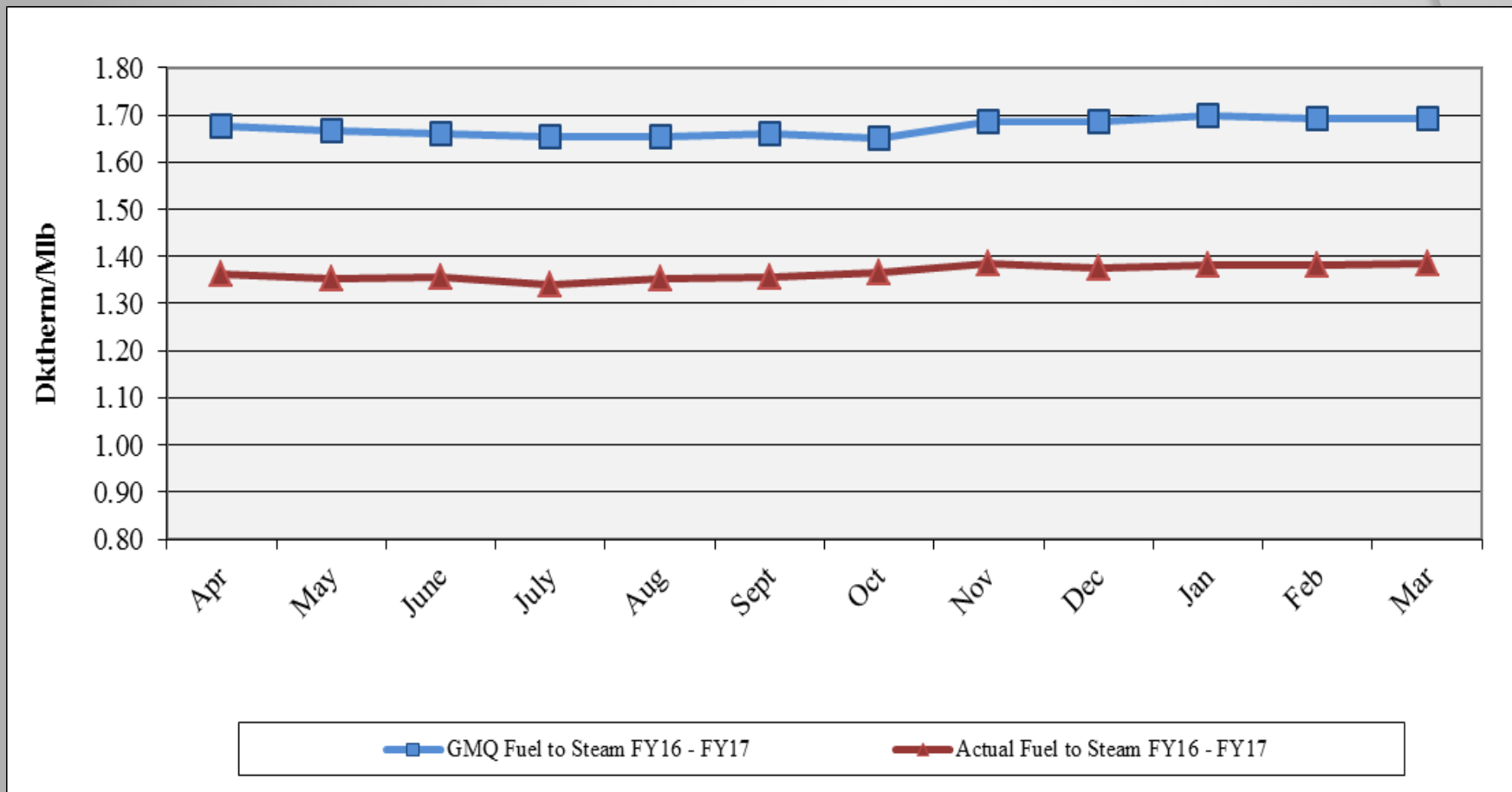
Contractor (CNE) is in compliance with their contractual obligations for FY17.

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

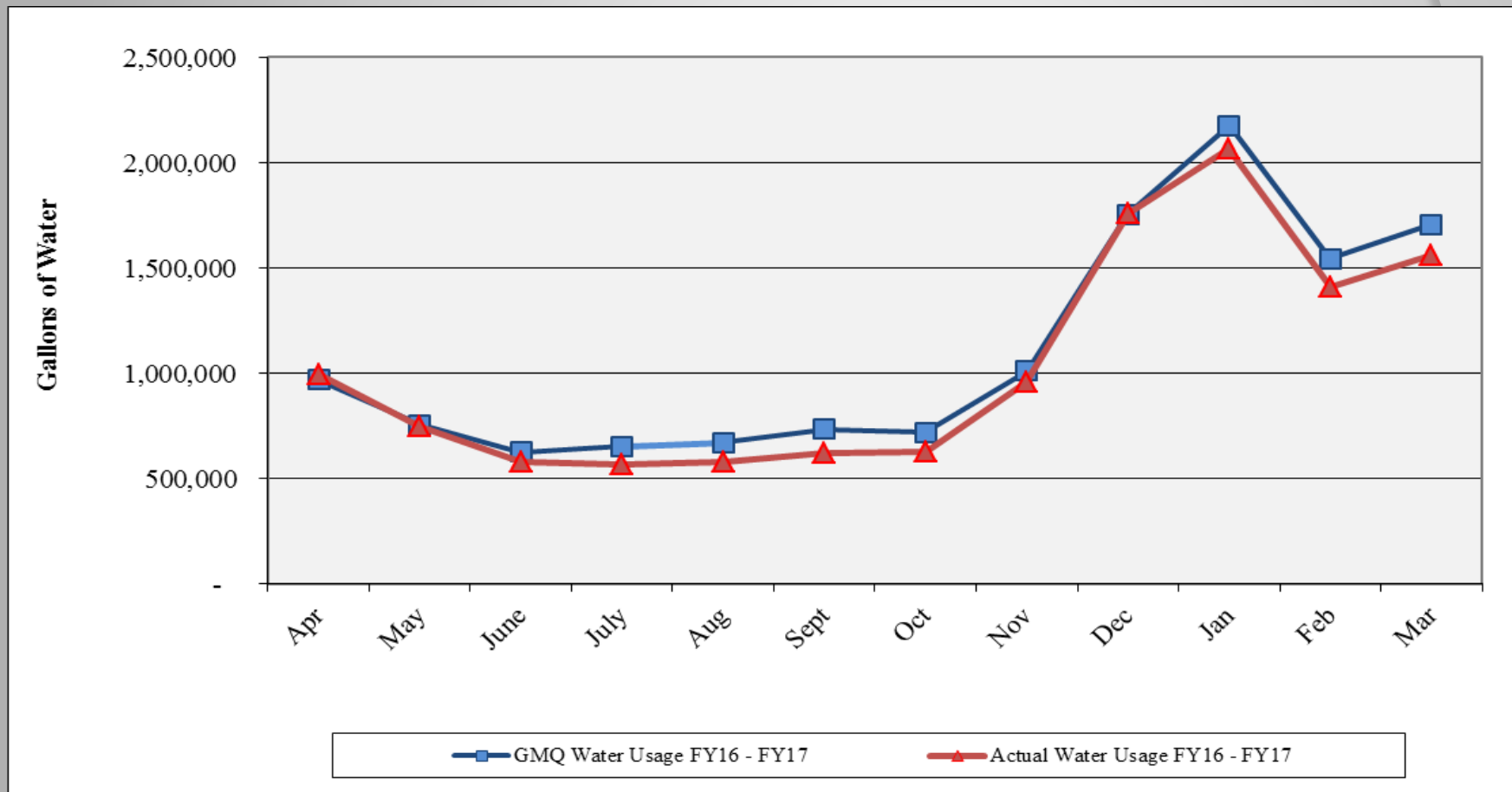
# Performance Measurement FY17: Steam Electric Conversion ●



# Performance Measurement FY17: Steam Plant Efficiency

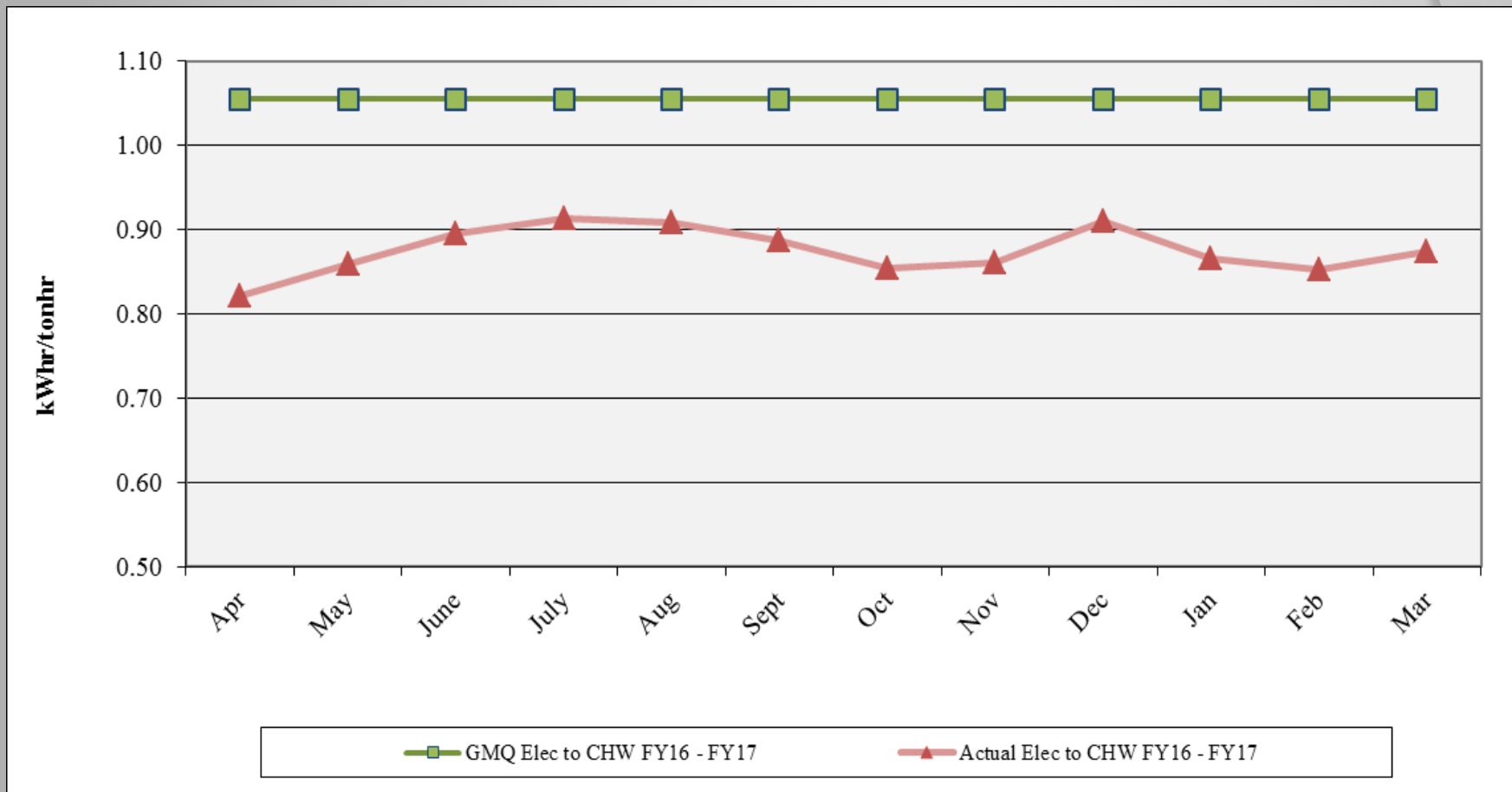


# Performance Measurement FY17: Steam Water Conversion ●



# Performance Measurement FY17: CHW

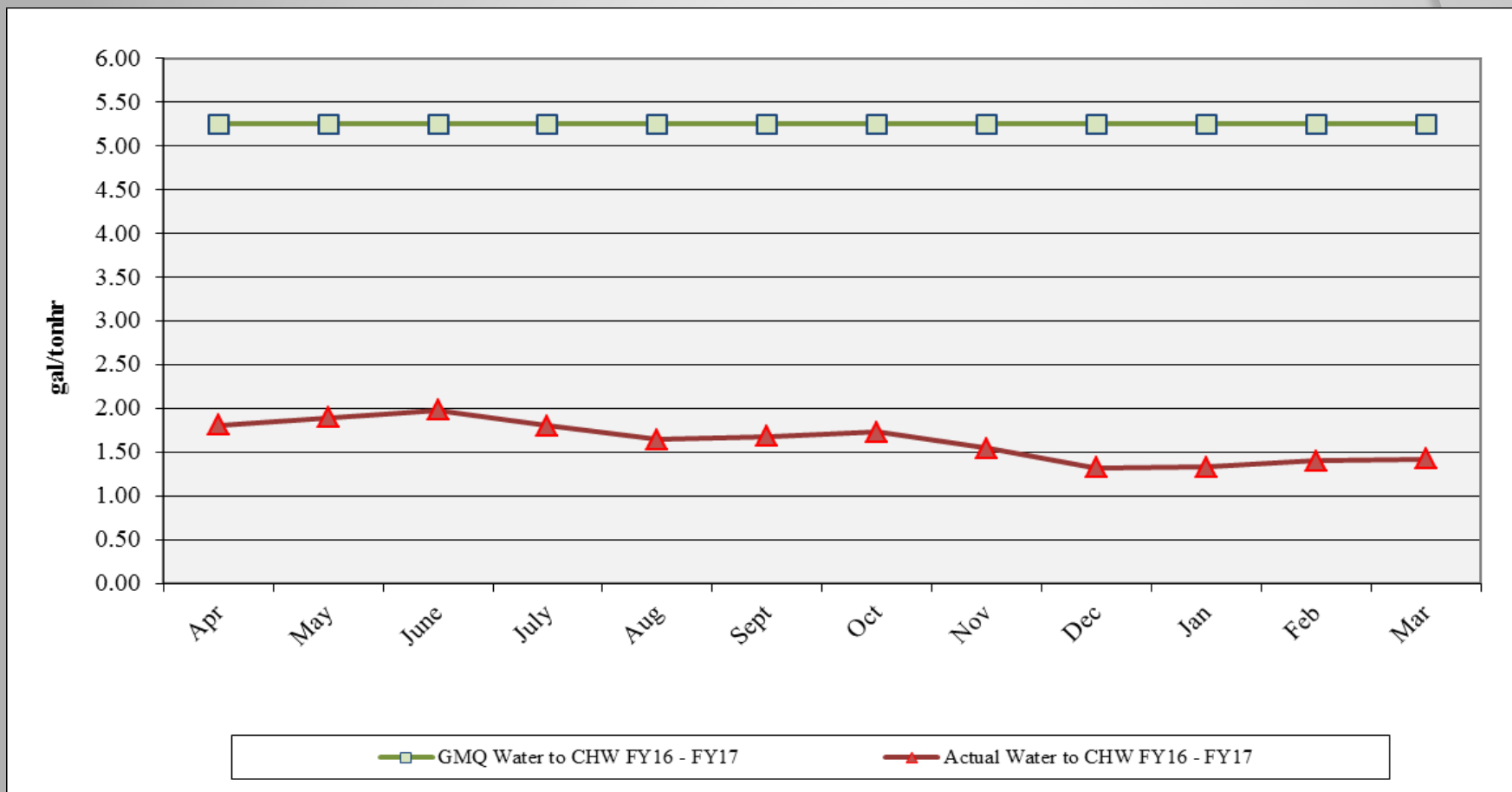
## Electric Conversion ●





# Performance Measurement FY17: CHW

## Water Conversion ●





# *Water Treatment*

- ❖ Steam and Condensate ●
  - ❖ Corrosion
  - ❖ Iron
  - ❖ Hardness
  - ❖ Chlorine/Sulfite
- ❖ Condensing Water ●
  - ❖ Conductivity
  - ❖ Biologicals
- ❖ Chilled Water ●
  - ❖ Hardness
  - ❖ Corrosion
  - ❖ EGF Biologicals Good
  - ❖ Customer Biologicals Greater than Desired



## *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*

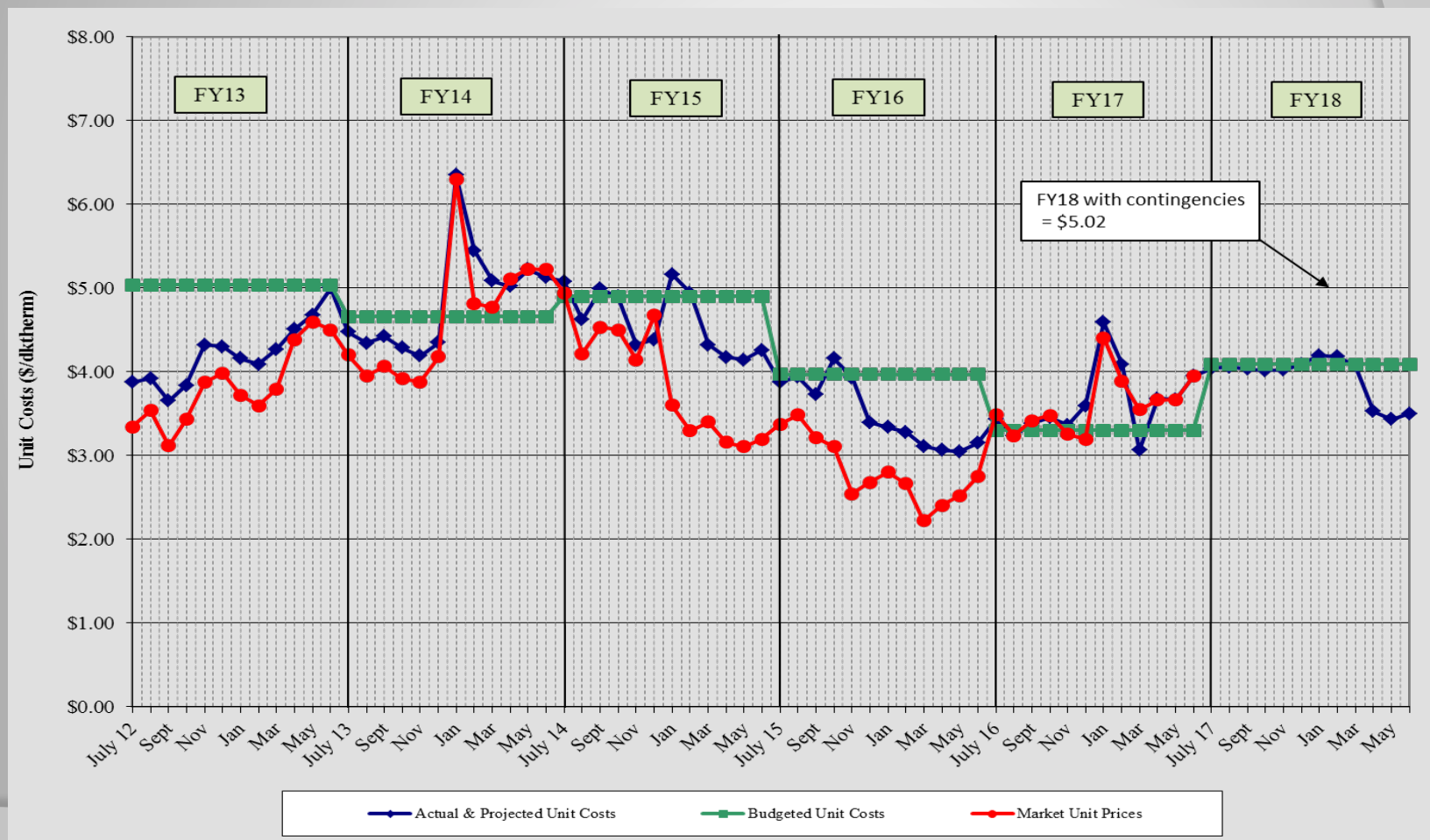
- ❖ Natural Gas Purchasing Review
  - ❖ Table 5: FY17 Gas Spending & Budget Comparison
  - ❖ Figure 5: Actual and Projected Gas Cost Comparison

## Table 5: FY17 Gas Spending & Budget Comparison

		Actual FY17 To date (Mar 31)	Budget FY17	Percent Difference
Steam Sendout (Mlbs)		307,096	363,974	-15.6%
Fuel Use (Dth) (includes propane)	●	421,817	526,671	-19.9%
Plant Eff (Dth/Mlb)	●	1.374	1.447	-5.0%
Total Gas Cost (includes propane)	●	\$1,490,500	\$2,131,711	-30.1%
Unit Cost of Fuel (\$/Dth)	●	\$3.534	\$4.048	-12.7%

Excludes consultant fees and FEA and budget contingency; Includes transportation and propane costs

# Figure 5. Actual and Projected Gas Cost Comparison History

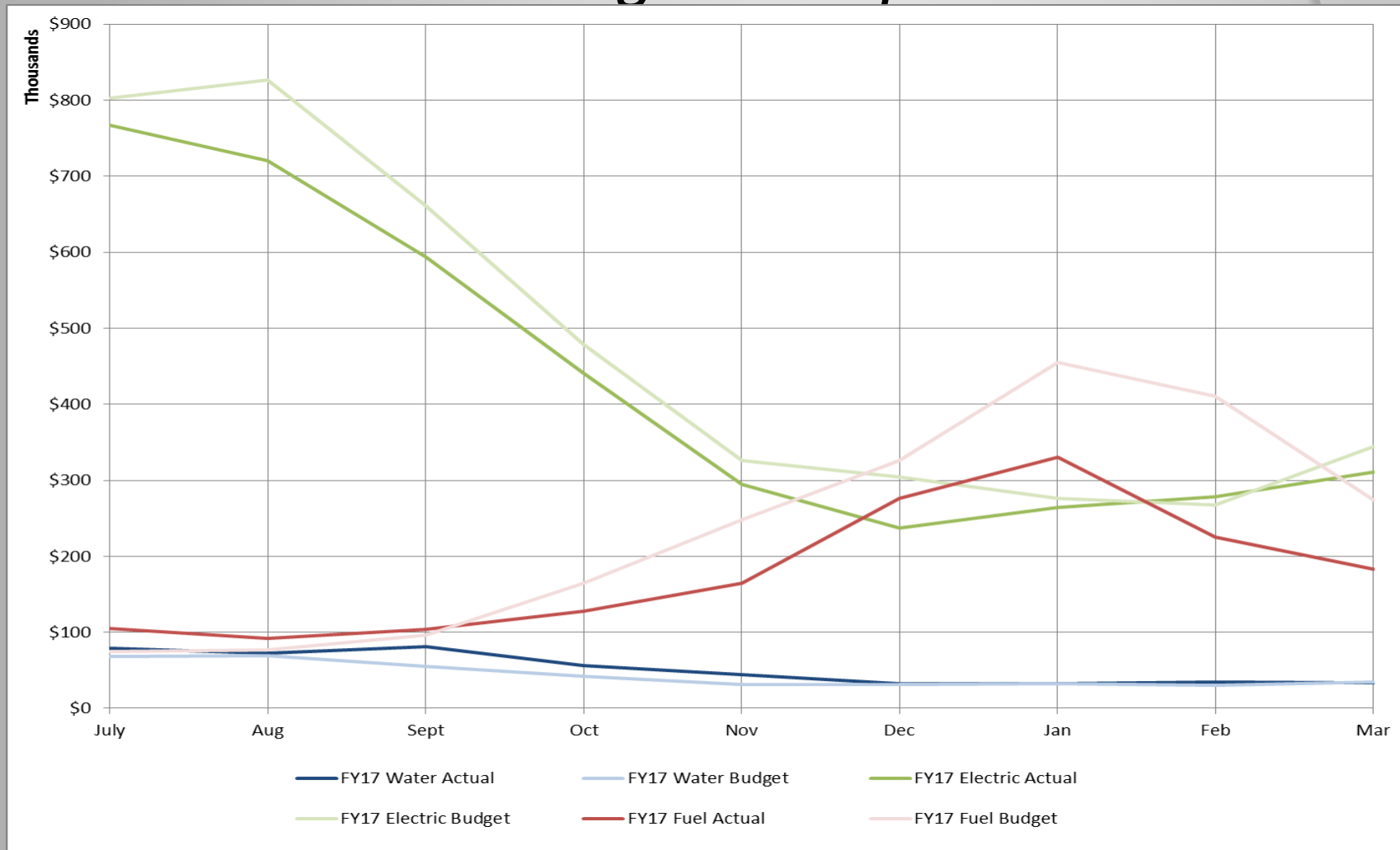


## 6. FY17 Costs to Date

Item	FY16 Actual	FY17 Budget	FY17 Actual to date	Percent of FY17 Budget
FOC's	\$ 4,532,100	\$ 4,668,000	\$ 3,419,500	73.25%
Pass Throughs				
Non-Energy	\$ 1,450,800	\$ 1,103,454	\$ 946,200	85.75%
Water/Sewer	\$ 533,100	\$ 640,200	\$ 466,400	72.85%
Natural Gas Base	\$ 1,971,200	\$ 2,155,700	\$ 1,686,100	78.22%
Natural Gas Contingency	\$ -	\$ 570,846	\$ -	0.00%
Electricity	\$ 5,530,500	\$ 6,093,800	\$ 4,012,400	65.84%
ORF Deposit	\$ -	\$ -	\$ -	
Debt Service	\$ 5,565,900	\$ 5,525,000	\$ 4,654,500	84.24%
<b>Total Expenses</b>	<b>\$ 19,583,600</b>	<b>\$ 20,757,000</b>	<b>\$ 15,185,100</b>	<b>73.16%</b>
<b>Total Revenues</b>	<b>\$ 17,774,500</b>	<b>\$ 19,035,200</b>	<b>\$ 13,265,900</b>	<b>69.69%</b>
<b>Metro Funding Amount</b>	<b>\$ 1,809,100</b>	<b>\$ 1,721,800</b>	<b>\$ 1,291,350</b>	<b>75.00%</b>



# FY17 Cost and Budget Comparison



Excludes consultant fees and FEA

## *FY17 Cost and Budget Comparison*

- ❖ If 4<sup>th</sup> Quarter meets budget,
  - ❖ Water will be over budget \$69,627
  - ❖ Electric will be under budget \$380,308
  - ❖ Fuel will be under budget \$517,029
  - ❖ Total remaining contingency thru March \$827,709
- ❖ However compared to FY16,
  - ❖ CHW Sales up 5.4% thru Q2 and 4.2% for FY
  - ❖ Total water up 3.0% thru Q2 and 3.0% for FY
  - ❖ Steam water up 3.0% thru Q2 and 22% for FY

## 7. FY18 Budget

Item	FY17 Budget	FY18 Budget	Percent Change From FY17 Budget
FOC's	\$ 4,668,000	\$ 4,695,900	0.60%
Pass Throughs			
Non-Energy	\$ 1,103,454	\$ 1,114,341	0.99%
Water/Sewer	\$ 640,200	\$ 649,300	1.42%
Natural Gas Base	\$ 2,155,700	\$ 2,565,500	19.01%
Natural Gas Contingency	\$ 570,846	\$ 787,159	37.89%
Electricity	\$ 6,093,800	\$ 6,002,100	-1.50%
ORF Deposit	\$ -	\$ -	n.a.
Debt Service	\$ 5,525,000	\$ 5,473,800	-0.93%
<b>Total Expenses</b>	<b>\$ 20,757,000</b>	<b>\$ 21,288,100</b>	<b>2.56%</b>
<b>Total Revenues</b>	<b>\$ 19,035,200</b>	<b>\$ 19,597,800</b>	<b>2.96%</b>
<b>Metro Funding Amount</b>	<b>\$ 1,721,800</b>	<b>\$ 1,690,300</b>	<b>-1.83%</b>

## 8. Capital Expenditure Update

	<b>Spent to End of FY16</b>	<b>FY17 Spending</b>	<b>Balance to Date (04/19/17)</b>
R&I Projects	\$2,903,301	\$213,382	\$19,769
49109-2010 Bond	\$2,480,531	\$6,221	\$119,164
49107-Customer Connection Fund	\$6,760,435	\$437,655	\$1,310,910
49116-DES CHP	\$127,686	\$41,020	\$25,831,294
<b>Total</b>	<b>\$12,271,953</b>	<b>\$698,278</b>	<b>\$27,281,137</b>
<b>Available</b>			<b>\$1,449,843</b>

# *Capital Projects Review*

## Active Capital Projects

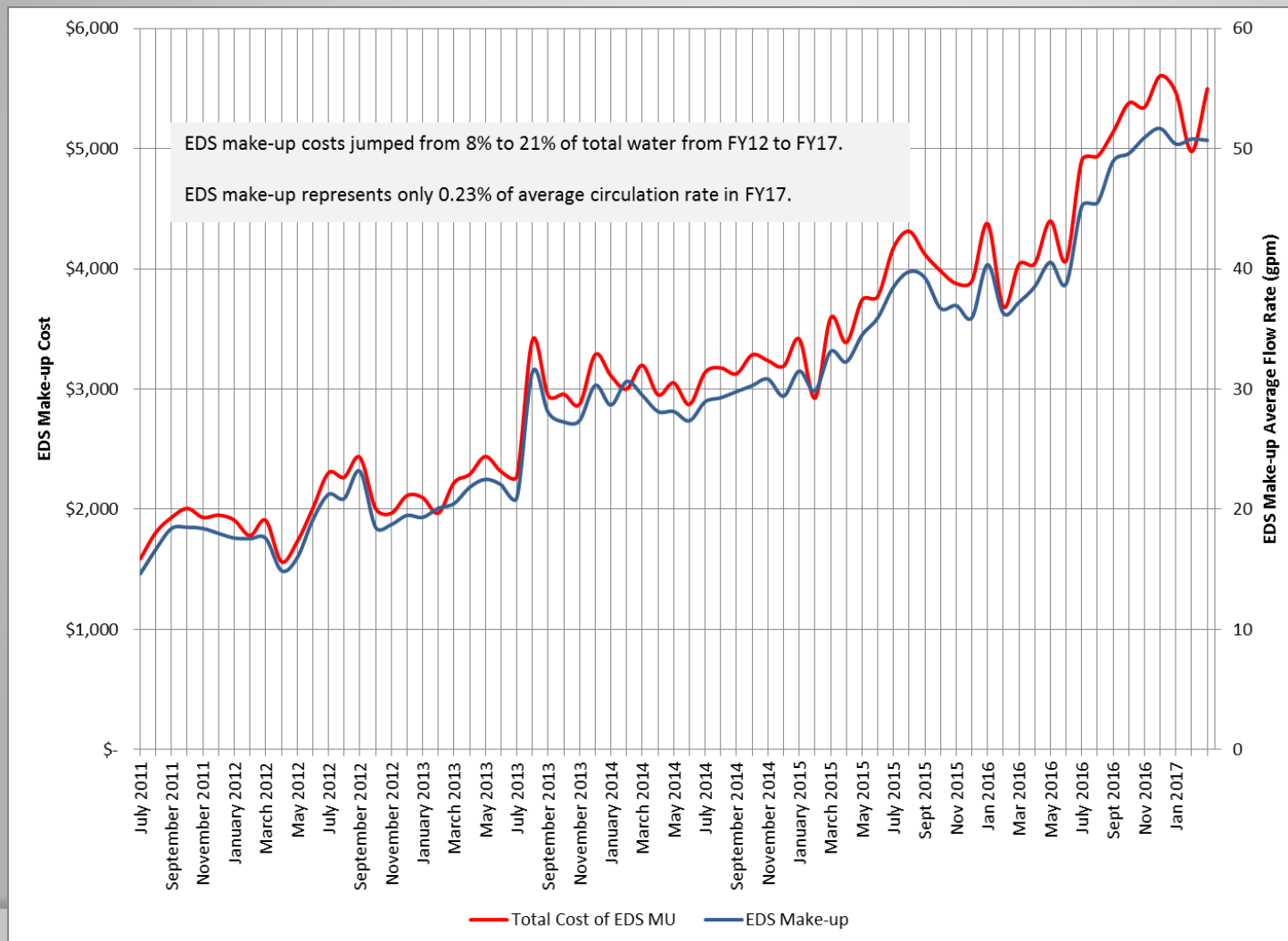
- DES 061: MH & Tunnel Steel Corrosion Repair & Prevention – Ongoing
- DES 111: EGF Combined Heat and Power – On hold
- DES 124: CJC Redevelopment – Demolition Phase Complete; Bldg Under Design by Others; Monitoring AA Birch Tunnel Status
- DES 130: Manhole B3 Repair – construction completed; anticipated to be closed during 4<sup>th</sup> Quarter FY17
- DES 134: 401 Union Reconnection – construction completed; review of in-building connections in process
- DES 135: CHW Leak at 5<sup>th</sup> Ave and Union (at JKP/TPAC) – in construction
- DES 137: Addition of CHW Valves at Cordell Hull – construction completed; anticipated to be closed during 4<sup>th</sup> Quarter FY17
- DES 138: Manhole D Repairs – to be bid, awarded and construction to start in 4<sup>th</sup> Quarter FY17

# *Capital Projects Review*

## Capital Projects in Close-out/Closed

- DES 121: Misc. Manhole Repairs – Closed
- DES 122: Manhole 13 Structural Repairs – Closed
- DES 128: Manhole 12 Steam Anchor Repair - Closed
- DES 129: Manhole 22B Repair – Closed

# 9. EDS Make-up



## *10. Other Board Member Items*

- TEG Contract Renewed as Project Administrator for Another Term
- Update on 3<sup>rd</sup> Party Review RFQ of DES Options
- Update on Executive Order 105
- DES/Sports Authority MOU



# 11. Adjourn

- *Advisory Board Meeting Schedule*
- FY17 – 4<sup>th</sup> Quarter Meeting – August 17, 2017
- FY18 – 1<sup>st</sup> Quarter Meeting – November 16, 2017
- FY18 – 2<sup>nd</sup> Quarter Meeting – February 15, 2018
- FY18 – 3<sup>rd</sup> Quarter Meeting – May 17, 2018