



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

*DES Advisory Board Meeting*  
*Fourth Quarter FY16*  
*September 1, 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 3: Summary TOU Cost Comparison

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

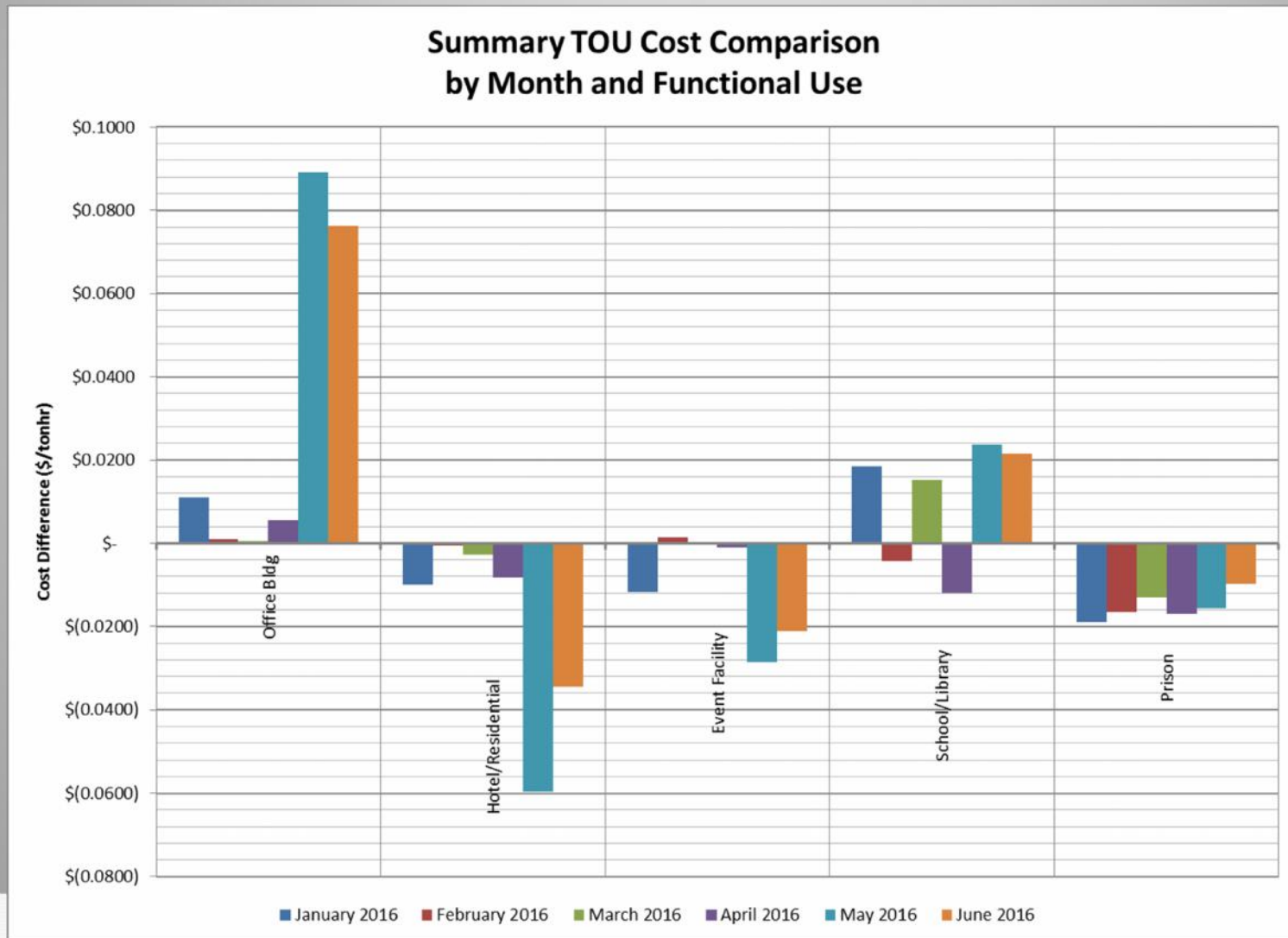
		Steam - Rolling 12 Month			Chilled Water - Rolling 12 Month		
		July 2014 - June 2015	July 2015 - June 2016	% Diff.	July 2014 - June 2015	July 2015 - June 2016	% Diff.
<b>Private</b>	Cost	\$ 1,628,978	\$ 1,383,869	-15.05%	\$ 3,470,158	\$ 3,667,009	5.67%
	Usage (lbs or tonhrs)	101,027,748	88,005,025	-12.89%	17,281,059	18,730,590	8.39%
<b>State</b>	Cost	\$ 2,085,856	\$ 1,674,108	-19.74%	\$ 3,308,638	\$ 3,339,342	0.93%
	Usage (lbs or tonhrs)	119,251,395	91,179,510	-23.54%	13,869,881	14,385,583	3.72%
<b>Metro</b>	Cost	\$ 2,479,075	\$ 2,086,459	-15.84%	\$ 5,498,511	\$ 5,524,644	0.48%
	Usage (lbs or tonhrs)	161,476,275	146,063,445	-9.54%	27,908,434	28,221,823	1.12%
<b>Aggregate</b>	Cost	\$ 6,193,909	\$ 5,144,436	-16.94%	\$ 12,277,307	\$ 12,530,995	2.07%
	Usage (lbs or tonhrs)	381,755,418	325,247,980	-14.80%	59,059,374	61,337,996	3.86%
	Unit Cost	\$ 16.22	\$ 15.82	-2.5%	\$ 0.208	\$ 0.204	-1.73%

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
- Officially Implementing TOU with July 2016 Customer  
Invoice

# Figure 3: Summary TOU Cost Comparison



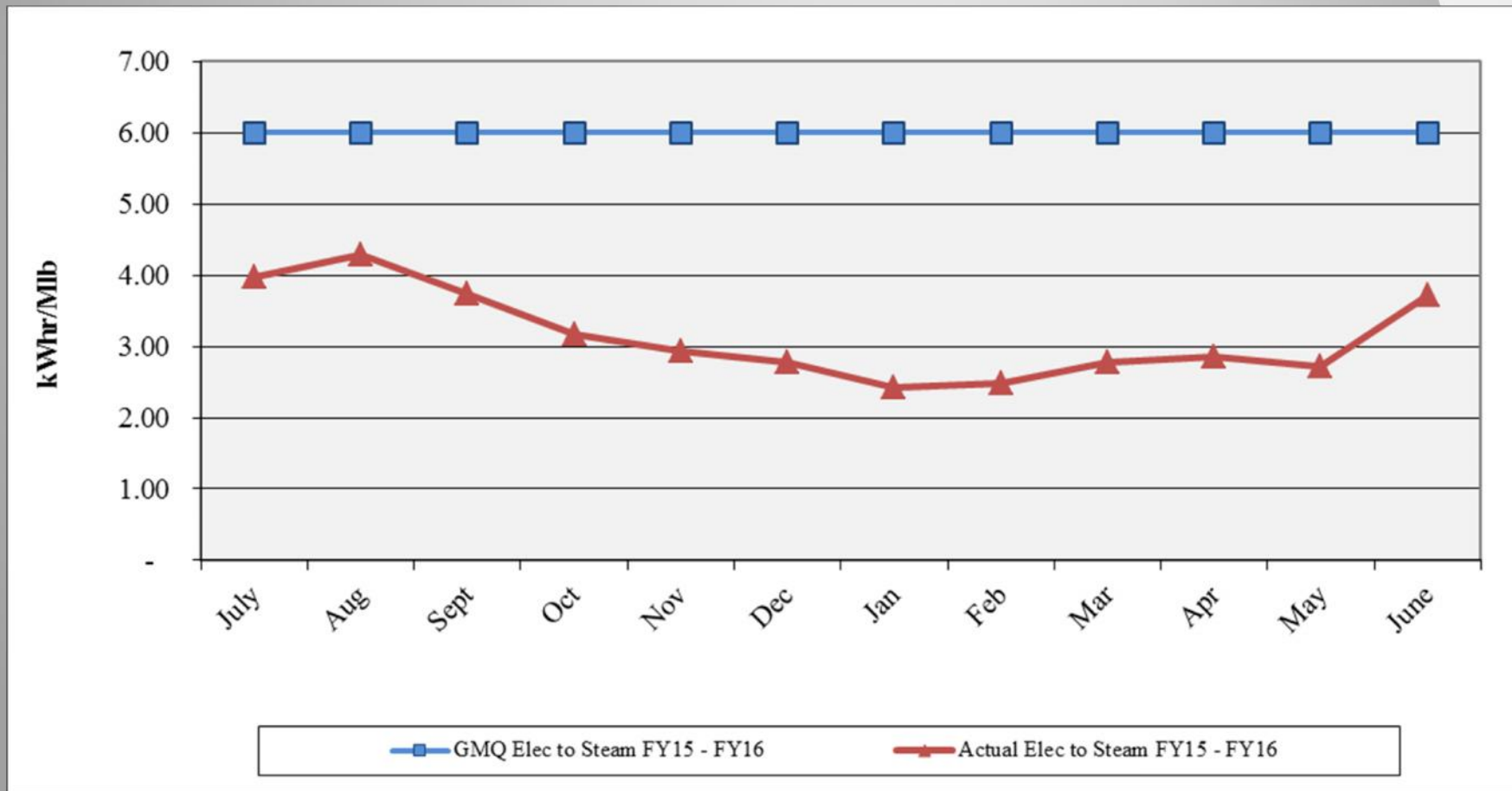
## 4. *Review of DES Contractor Performance*

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

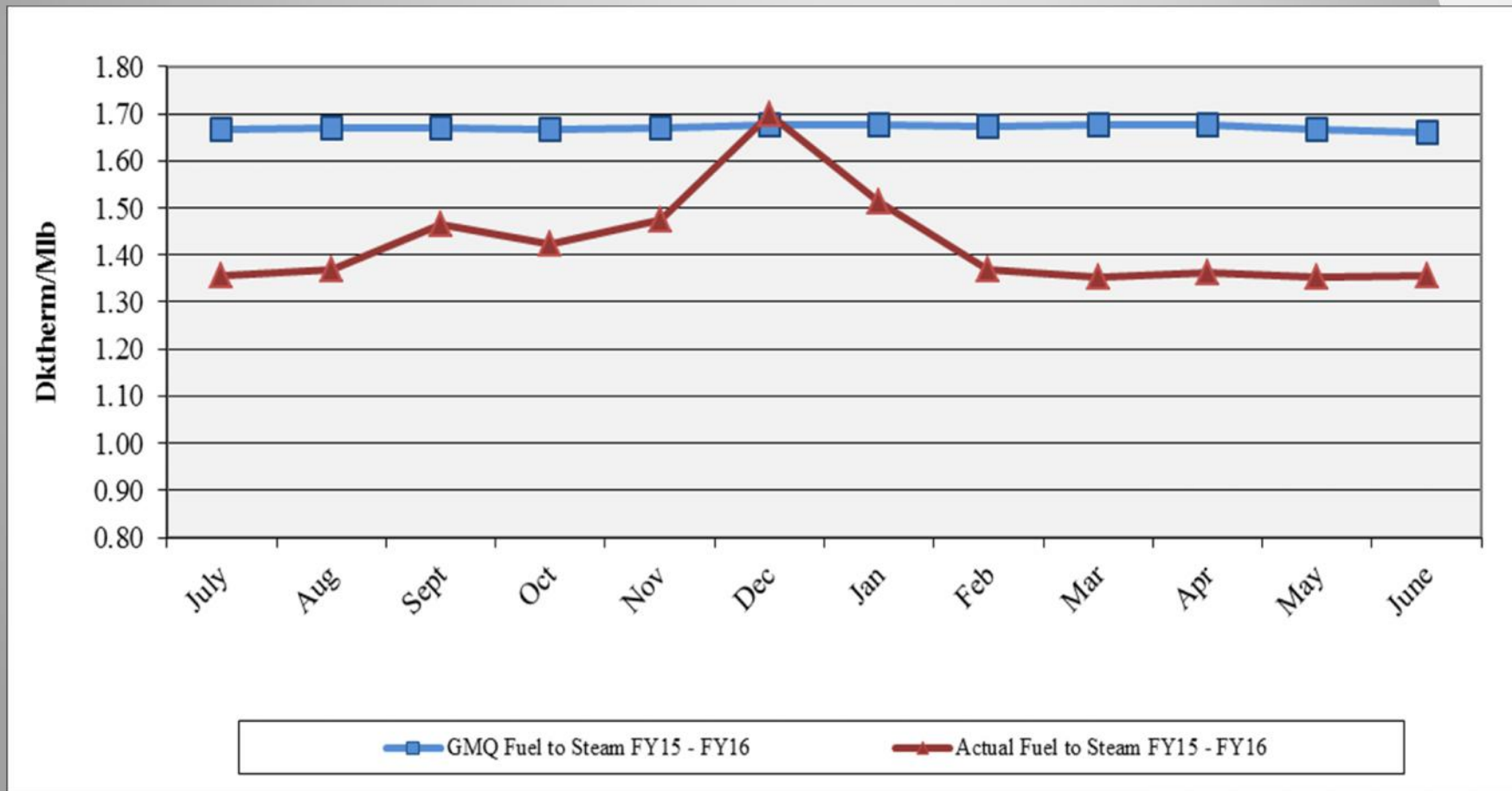
-  Excellent Performance – No Improvement Necessary
-  Satisfactory Performance – Some Improvement Could Be Made
-  Poor Performance – Much Improvement Necessary



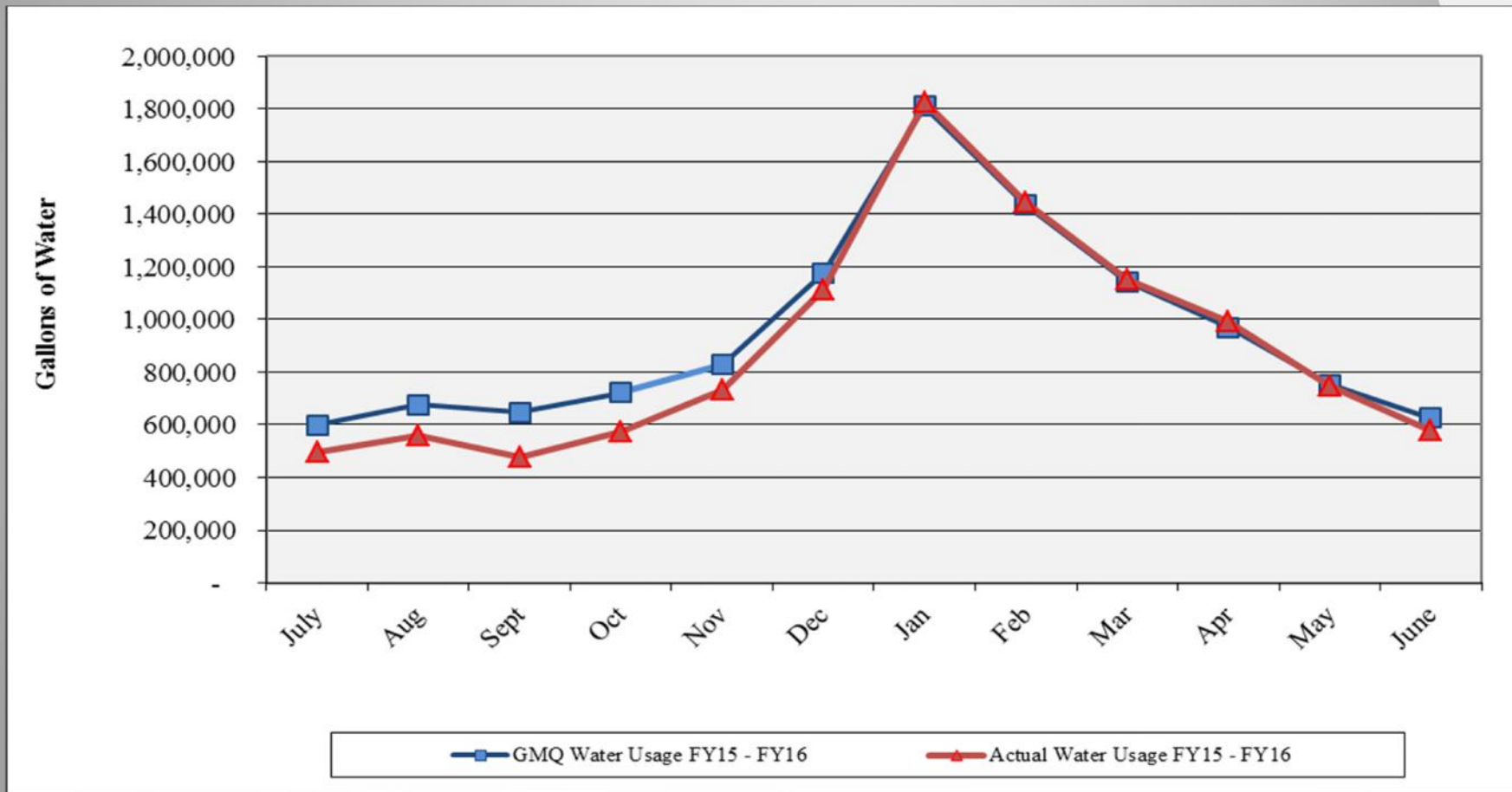
# Performance Measurement FY16: Steam Electric Conversion ●



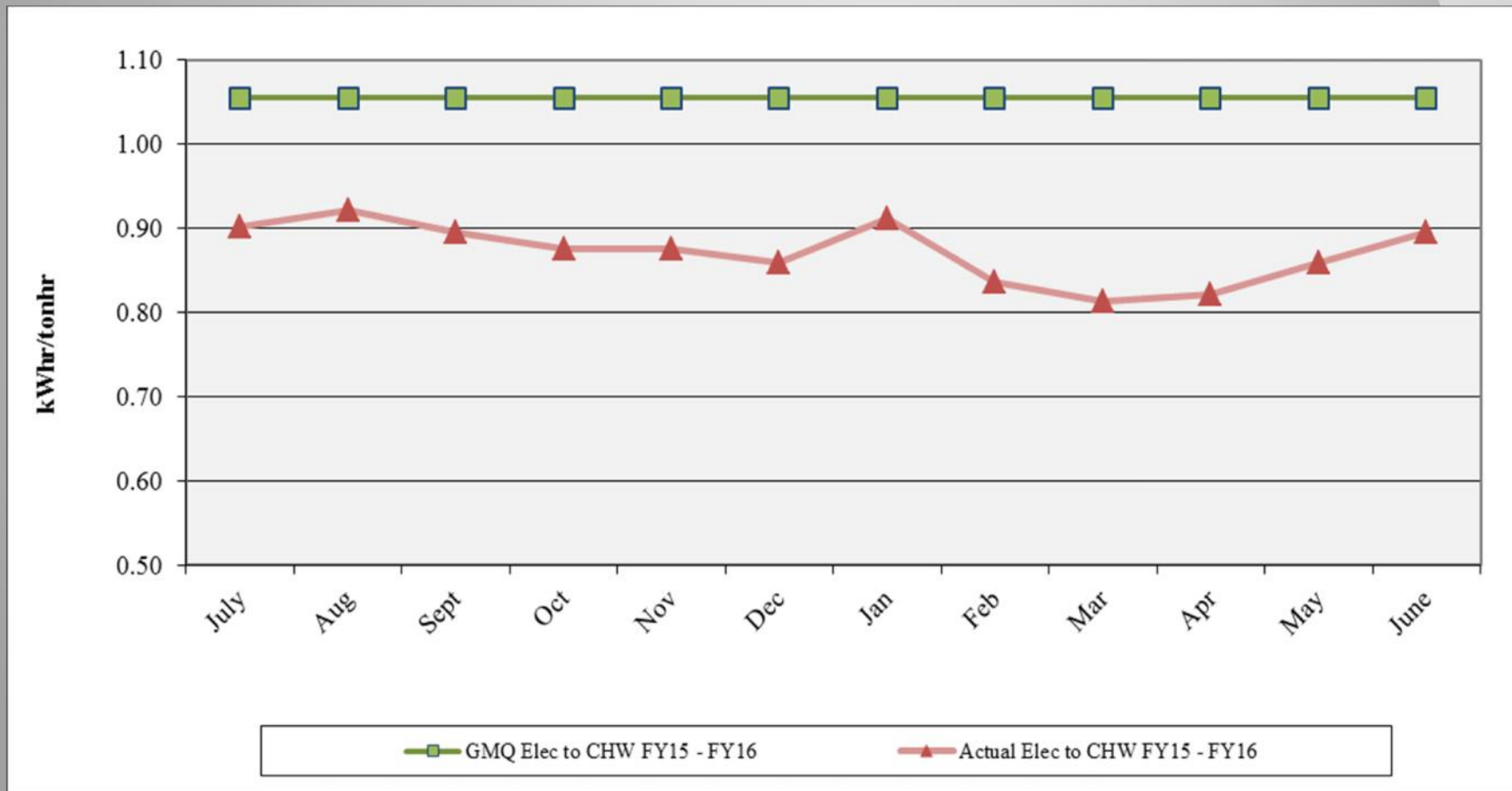
# Performance Measurement FY16: Steam Plant Efficiency



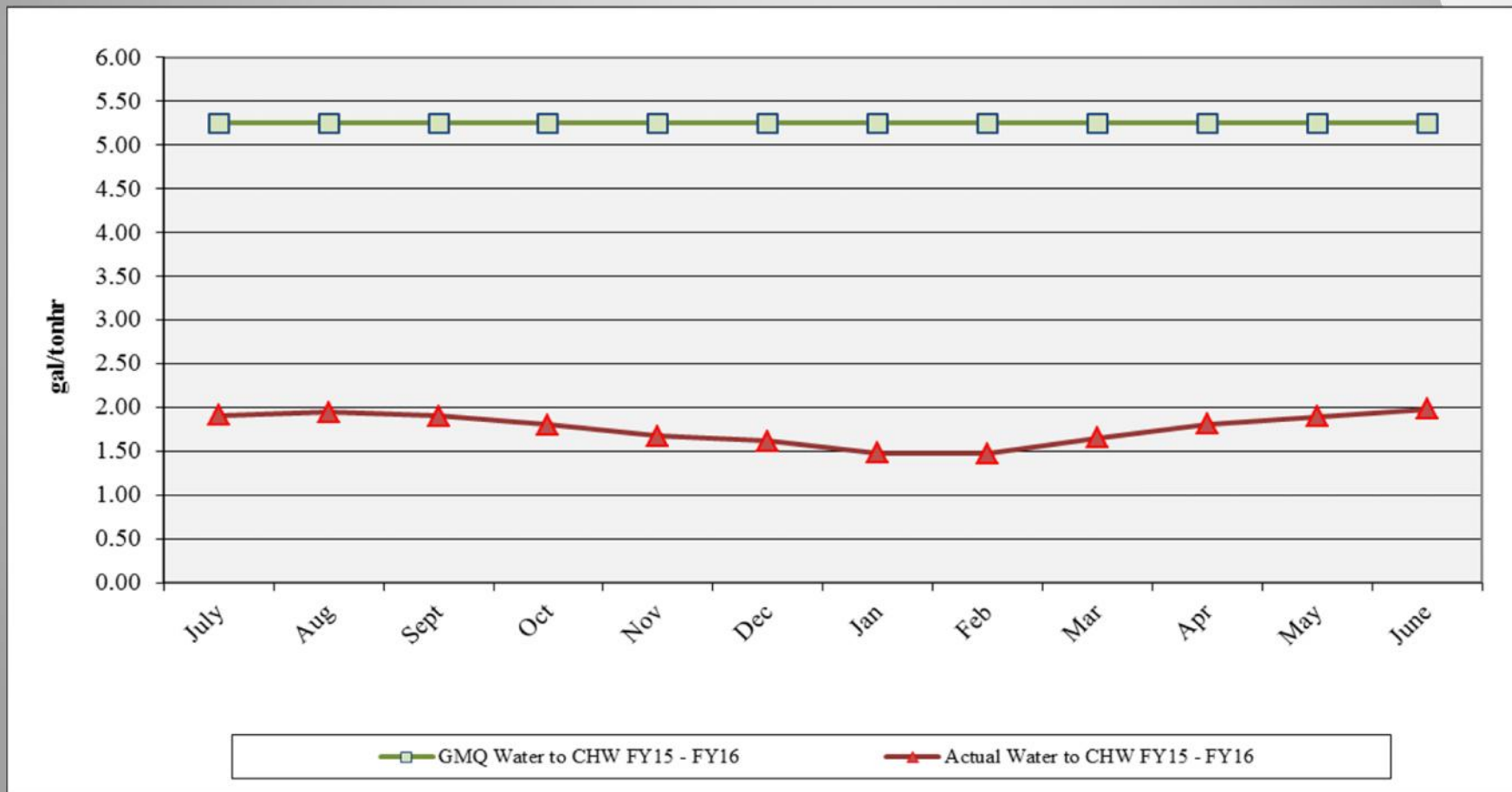
# Performance Measurement FY16: Steam Water Conversion ●



# 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*

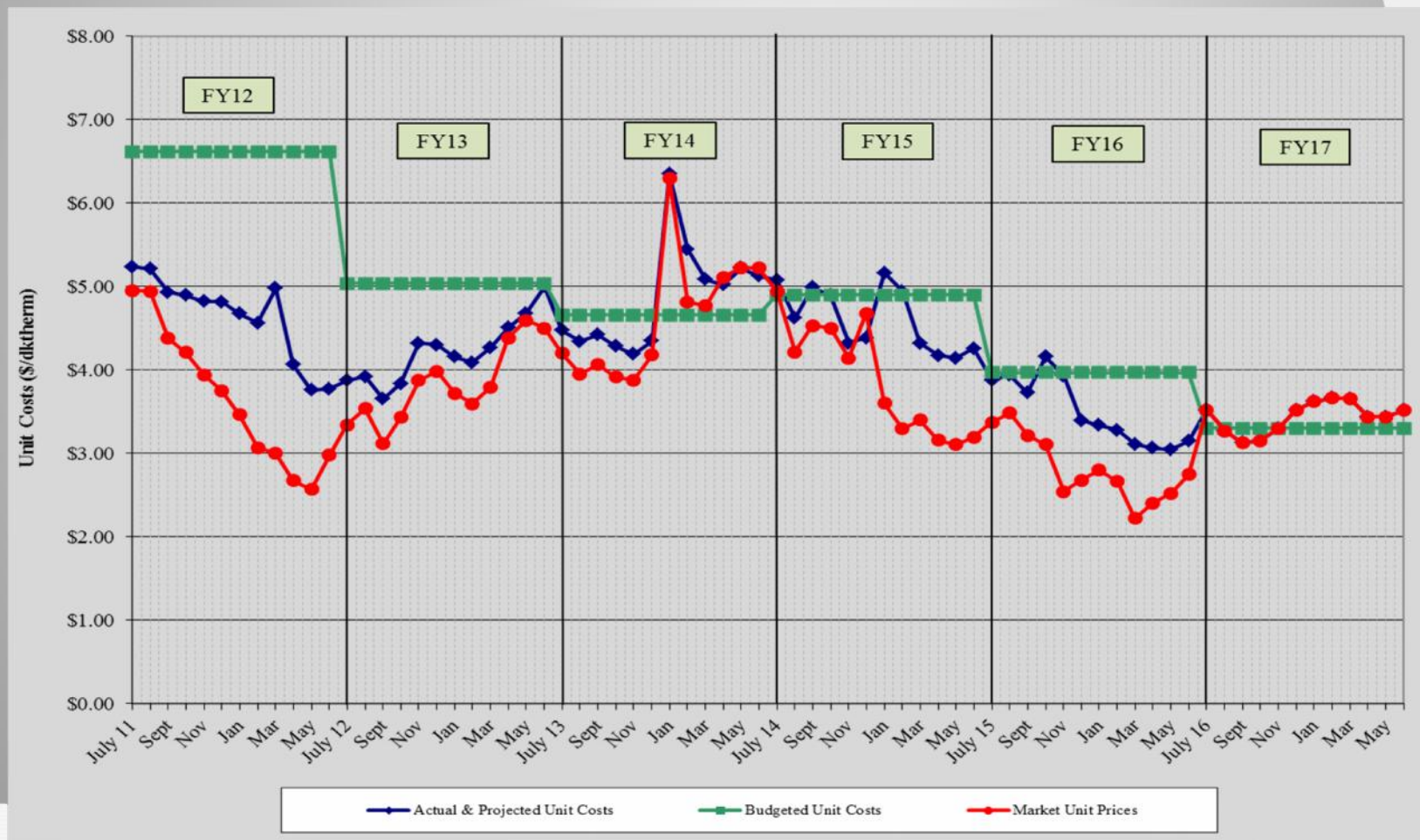
- ❖ Natural Gas Purchasing Review
  - ❖ Table 5: FY16 Gas Spending & Budget Comparison
  - ❖ Figure 5: Actual and Projected Gas Cost Comparison

## Table 5: FY16 Gas Spending & Budget Comparison

		Actual FY16 To date (June 30)	Budget FY16	Percent Difference
Steam Sendout (Mlbs)		387,718	465,160	-16.6%
Fuel Use (Dth) (includes propane)	●	557,860	638,200	-12.6%
Plant Eff (Dth/Mlb)	●	1.439	1.372	4.9%
Total Gas Cost (includes propane)	●	\$1,919,162	\$2,663,847	-28.0%
Unit Cost of Fuel (\$/Dth)	●	\$3.440	\$4.174	-17.6%

Excludes consultant fees and FEA and budget contingency; Includes transportation and propane costs (\$70,000 pre-purchased propane and \$52,000 propane sell-back credit)

# 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	\$ 4,532,100	97.08%
Pass Throughs				
Non-Energy	\$ 1,249,000	\$ 1,069,500	\$ 1,033,000	96.59%
Water/Sewer	\$ 509,000	\$ 745,400	\$ 533,100	71.52%
Natural Gas Base	\$ 2,897,000	\$ 2,832,858	\$ 1,985,400	70.08%
Natural Gas Contingency	\$ -	\$ 555,142	\$ -	0.00%
Electricity	\$ 5,459,700	\$ 6,545,700	\$ 5,530,500	84.49%
ORF Deposit	\$ 600	\$ -	\$ -	
Debt Service	\$ 5,646,000	\$ 5,565,900	\$ 5,565,900	100.00%
<b>Total Expenses</b>	<b>\$ 20,293,400</b>	<b>\$ 21,982,700</b>	<b>\$ 19,180,000</b>	<b>87.25%</b>
<b>Total Revenues</b>	<b>\$ 18,425,800</b>	<b>\$ 20,188,200</b>	<b>\$ 17,616,800</b>	<b>87.26%</b>
<b>Metro Funding Amount</b>	<b>\$ 1,867,600</b>	<b>\$ 1,794,500</b>	<b>\$ 1,794,500</b>	<b>100.00%</b>

## 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%
<b>Total Expenses</b>	<b>\$ 21,982,700</b>	<b>\$ 20,757,000</b>	<b>-5.58%</b>
<b>Total Revenues</b>	<b>\$ 20,188,200</b>	<b>\$ 19,035,200</b>	<b>-5.71%</b>
<b>Metro Funding Amount</b>	<b>\$ 1,794,500</b>	<b>\$ 1,721,800</b>	<b>-4.05%</b>

## 8. *Capital Expenditure Update*

	<b>Spent to End of FY15</b>	<b>FY16 Spending</b>	<b>Balance to Date (06/30/16)</b>
R&I Projects	\$2,579,384	\$323,917	\$5,068
49109-2010 Bond	\$2,309,419	\$169,722	\$125,385
49107-Customer Connection Fund	\$6,711,621	\$48,813	\$1,748,565
49116-DES CHP and EDS Projects	\$0	\$127,656	\$25,872,314
<b>Total</b>	<b>\$11,600,424</b>	<b>\$670,138</b>	<b>\$27,751,332</b>



# *Capital Projects Review*

## Active Capital Projects

- DES 061: MH & Tunnel Steel Corrosion Repair & Prevention – Ongoing
- DES 104: TOU – CNE Implementing Program – Completed
- DES 111: EGF Combined Heat and Power – On hold
- DES 119: Chilled Water System Delta T – Monitoring performance
- DES 121: Misc. Manhole Repairs – Replace Ladders; Insulation, etc.; in construction, to be completed 1<sup>st</sup> Qtr FY17
- DES 122: Manhole 13 Structural Repairs – Concrete Roof Repairs; in design
- DES 123: Condensate Return Piping Replacement John Sevier Bldg – construction complete; in close-out
- DES 124: CJC Redevelopment – DES Services Demolition 09/12/16-9/23/16
- DES 126: Exploratory Excavation 3<sup>rd</sup> Ave – CHW Leak; in close-out
- DES 127: Manhole 12 Steam Anchor Repair – designed & awarded
- DES 128: Manhole A Sparge Tube Addition – designed & awarded
- DES 129: Manhole 22B Repair – designed & awarded
- DES 130: Manhole B3 Repair – designed & awarded
- DES 131: Wildhorse CHW Service Connections Mod – to be completed 08/21/16

# *Capital Projects Review*

## Capital Projects in Close-out

- DES 123: Condensate Return Piping Replacement John Sevier Bldg
- DES 126: Exploratory Excavation 3<sup>rd</sup> Ave – CHW Leak



## 9. *Other Board Member Items*

*Evaluation of DES Future Options*

## 10. *Adjourn*

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