



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

*DES Advisory Board Meeting*  
*Fourth Quarter FY17*  
*August 17, 2017*

# *Agenda*

1. Call to Order
2. Recognition of Harry Ragsdale
3. Recognition of New Board Members
4. Review & Approval of Previous Meeting Minutes
5. Customer Sales
6. Review of DES Contractor Performance
7. Natural Gas Purchasing Status
8. FY17 Costs to Date
9. FY18 Budget
10. DES Options Review
11. Capital Projects Review & Status
12. Other Board Member Items
13. Adjourn

# 1. Call to Order

## 2. Recognition of Harry Ragsdale

- Harry Ragsdale passed away suddenly the morning of May 31. He was 68 years old.
- Served as the MNDES Contract Administrator from 2007, more than 10 years.
- President of Thermal Engineering Group, Inc.
- Harry worked in private industry for over 45 years.
- Harry and Dan worked together for over 34 years:
- Harry's career included:
  - Manager of Facilities Engineering; Dow Chemical Indianapolis, IN
  - Proj. Mgr. Electrical Construction; Fleming Electric, Indianapolis, IN
  - Construction manager; Geupel DeMars Inc., Indianapolis, IN
  - Senior Project Manager, corporate engineering department Catalyst Thermal, Nashville, TN
  - President of TEG since 1991, over 26 years.



### 3. Recognition of New Board Members

- Nick Woollen – Renaissance Hotel
- Eric Swartz – Schermerhorn Symphony

### 4. Review & Approval of Previous Meeting Minutes

## 5. *Customer Sales*

- ❖ Table 5: Customer Cost Comparison
- ❖ Figure 5A: Historic Total Chilled Water Revenues and Usages
- ❖ Figure 5B: Historic Total Steam Revenues and Usages

## Summary Table 5: Customer Cost Comparison for the Previous 12 Months

		Steam - Rolling 12 Month			Chilled Water - Rolling 12 Month		
		July 2015- June 2016	July 2016 - June 2017	% Diff.	July 2015- June 2016	July 2016 - June 2017	% Diff.
<b>Private</b>	Cost	\$ 1,383,869	\$ 1,385,324	0.11%	\$ 3,557,977	\$ 3,615,050	1.60%
	Usage (lbs or tonhrs)	88,005,025	86,694,269	-1.49%	18,160,533	19,335,114	6.47%
<b>State</b>	Cost	\$ 1,674,108	\$ 1,660,055	-0.84%	\$ 3,339,342	\$ 3,271,609	-2.03%
	Usage (lbs or tonhrs)	91,179,510	86,279,888	-5.37%	14,385,583	13,650,178	-5.11%
<b>Metro</b>	Cost	\$ 2,086,459	\$ 2,129,976	2.09%	\$ 5,524,644	\$ 5,558,851	0.62%
	Usage (lbs or tonhrs)	146,063,445	148,645,352	1.77%	28,221,823	31,130,545	10.31%
<b>Aggregate</b>	Cost	\$ 5,144,436	\$ 5,175,355	0.60%	\$ 12,421,963	\$ 12,445,509	0.19%
	Usage (lbs or tonhrs)	325,247,980	321,619,509	-1.12%	60,767,939	64,115,837	5.51%
	Unit Cost	\$ 15.82	\$ 16.09	1.7%	\$ 0.204	\$ 0.194	-5.04%

MFA not included in values shown

Figure 5A: Historic Total Chilled Water Revenues and Usages

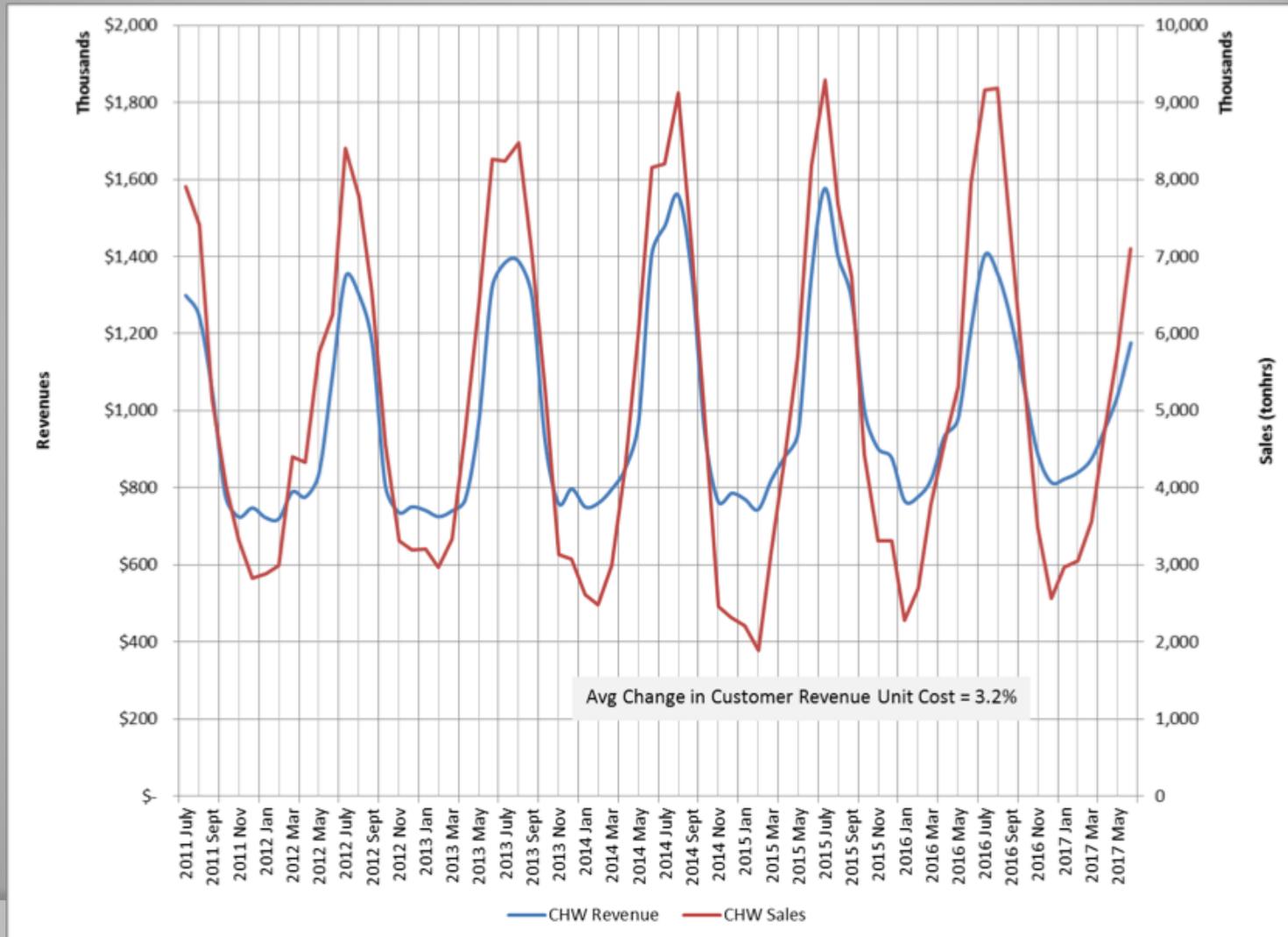
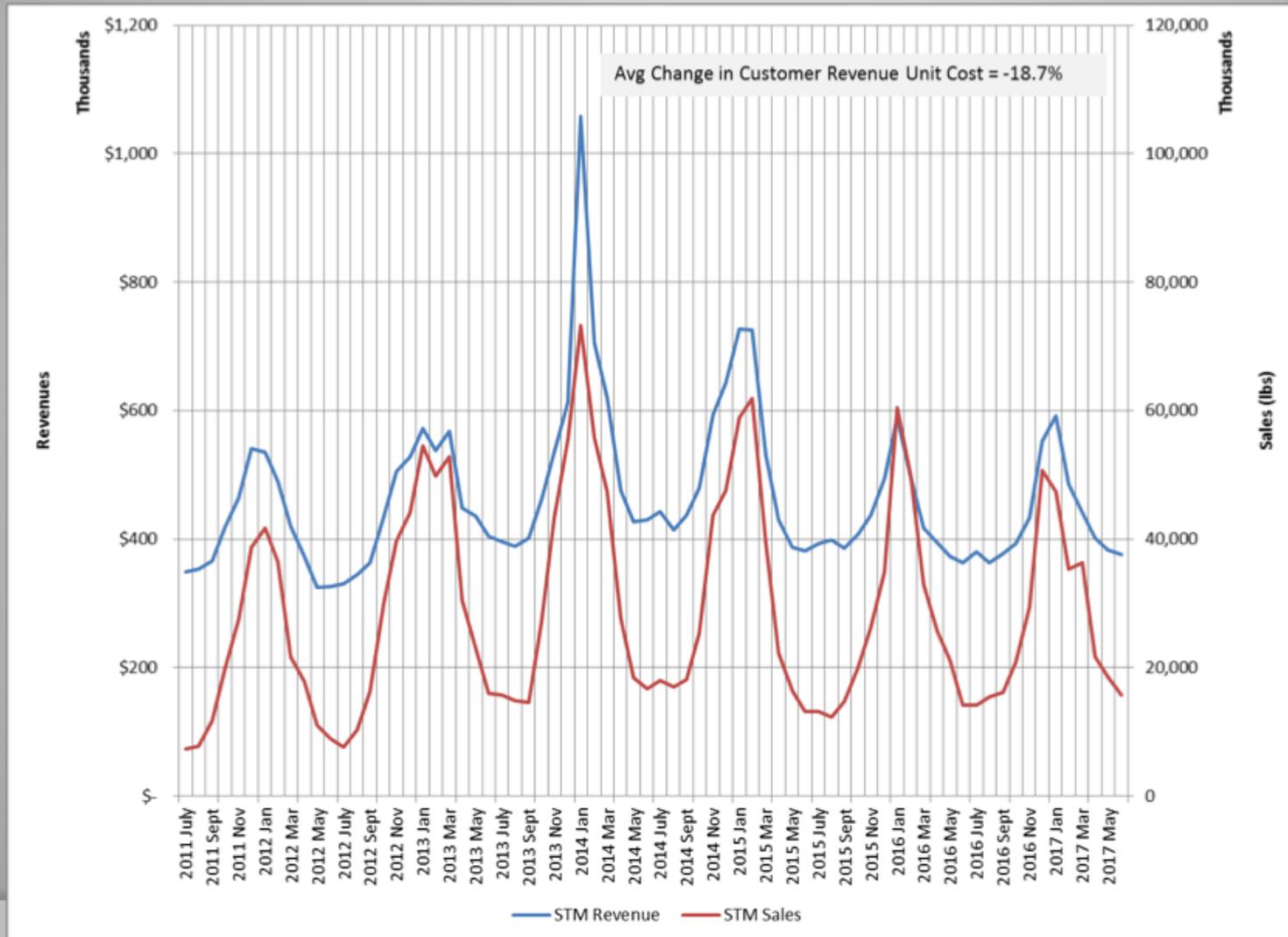


Figure 5B: Historic Total Steam Revenues and Usages

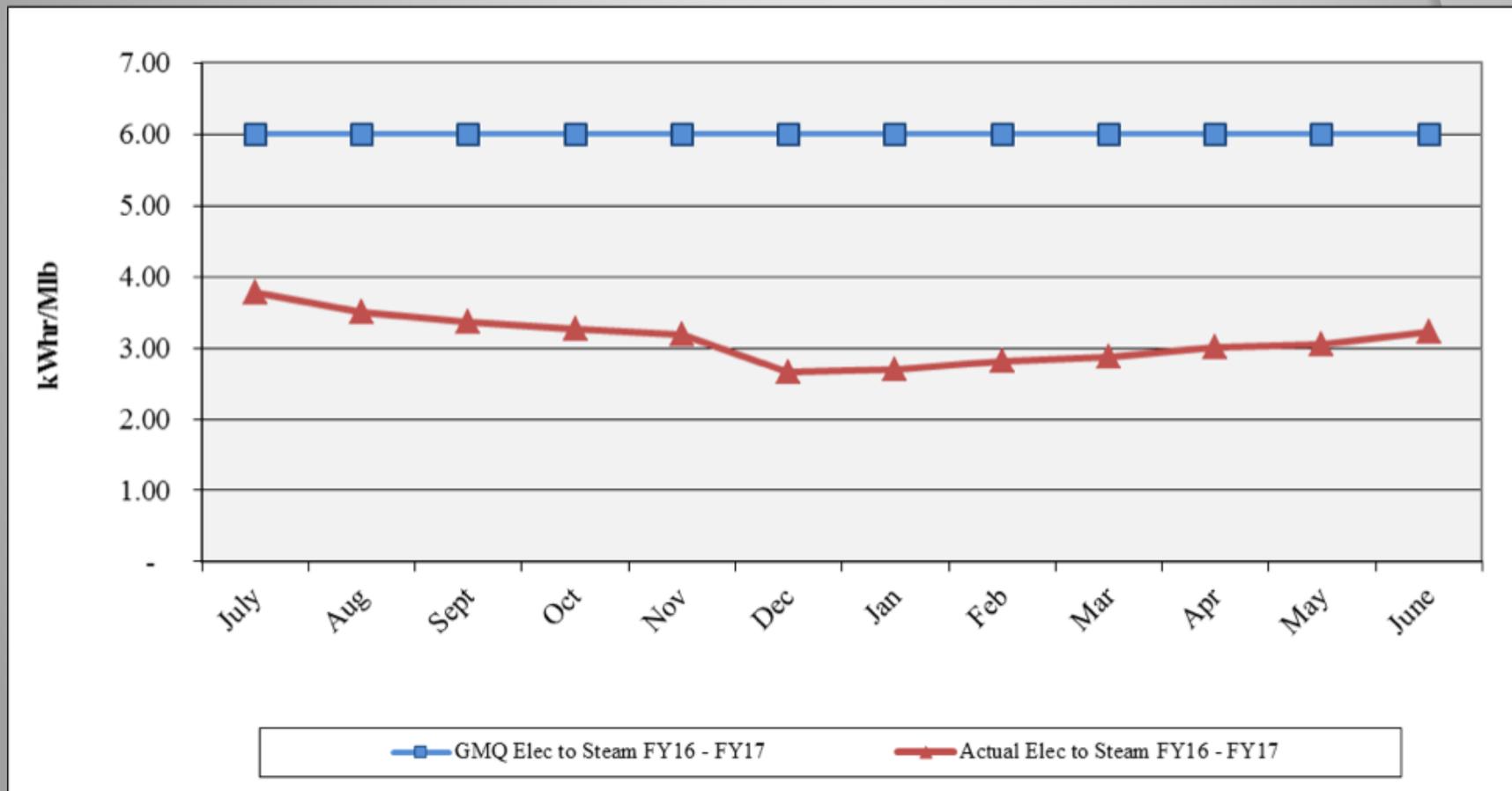


## 6. *Review of DES Contractor Performance*

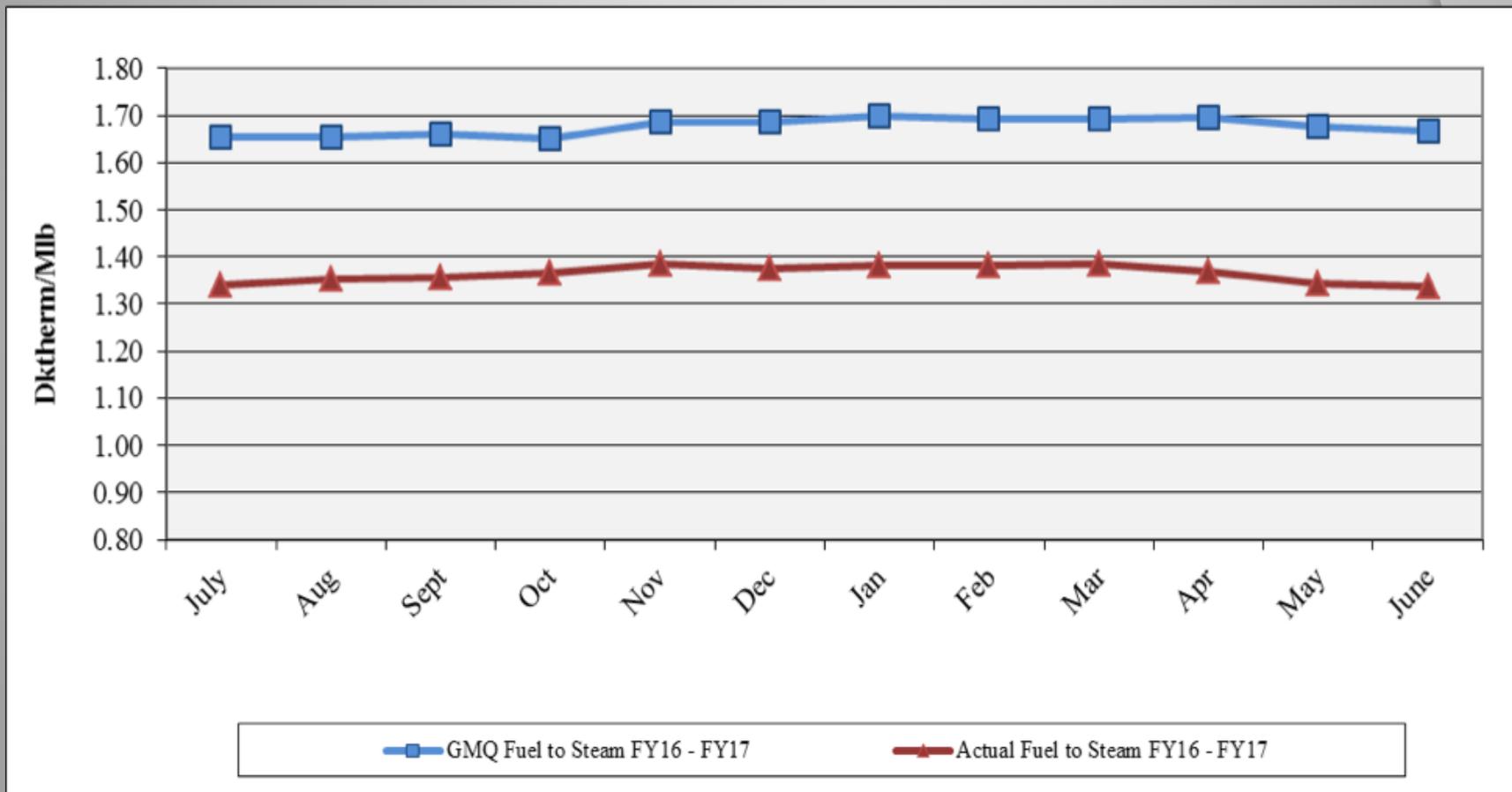
Contractor (CNE) is in compliance with their contractual obligations for FY17.

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

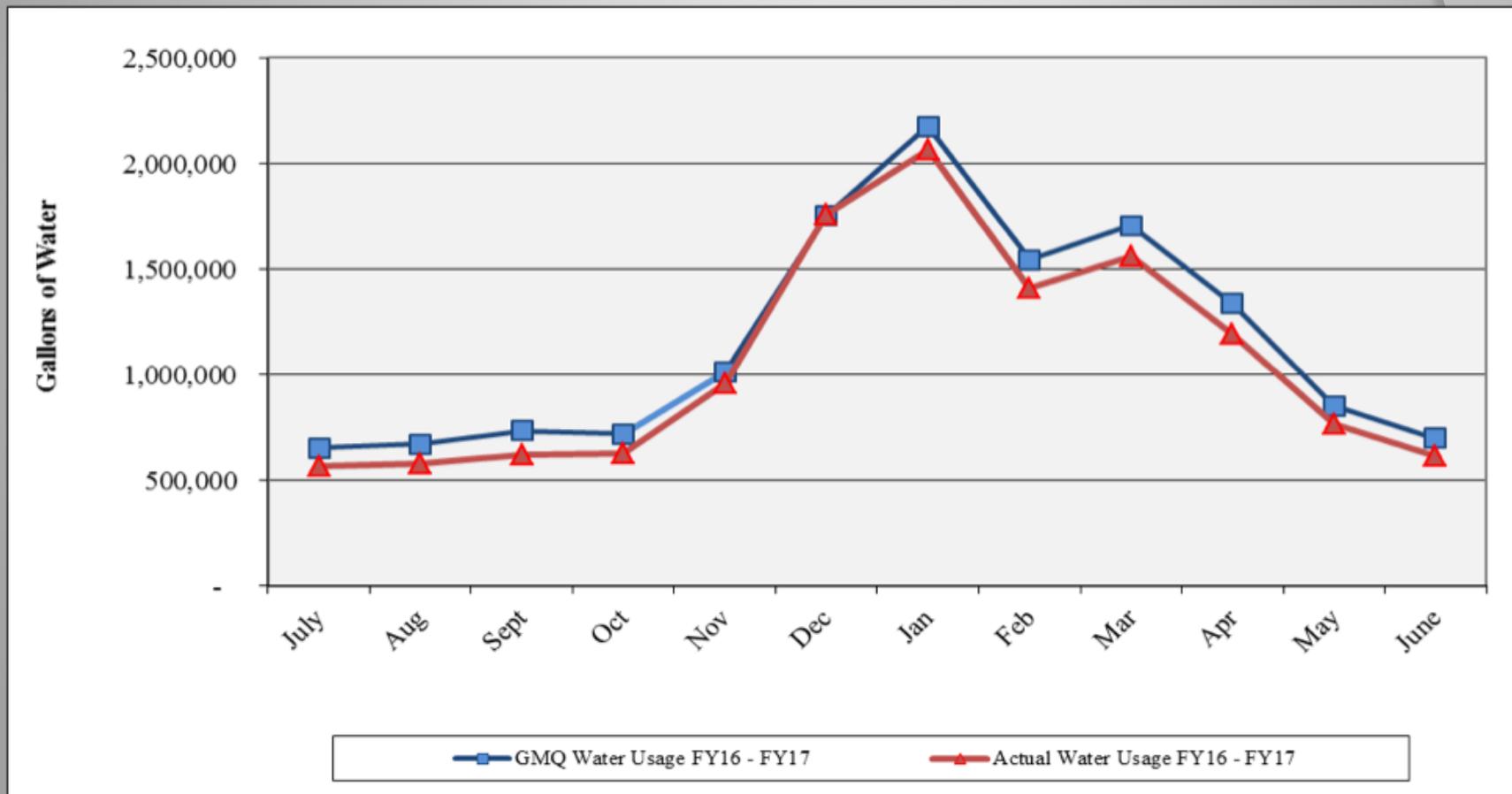
# Performance Measurement FY17: Steam Electric Conversion ●



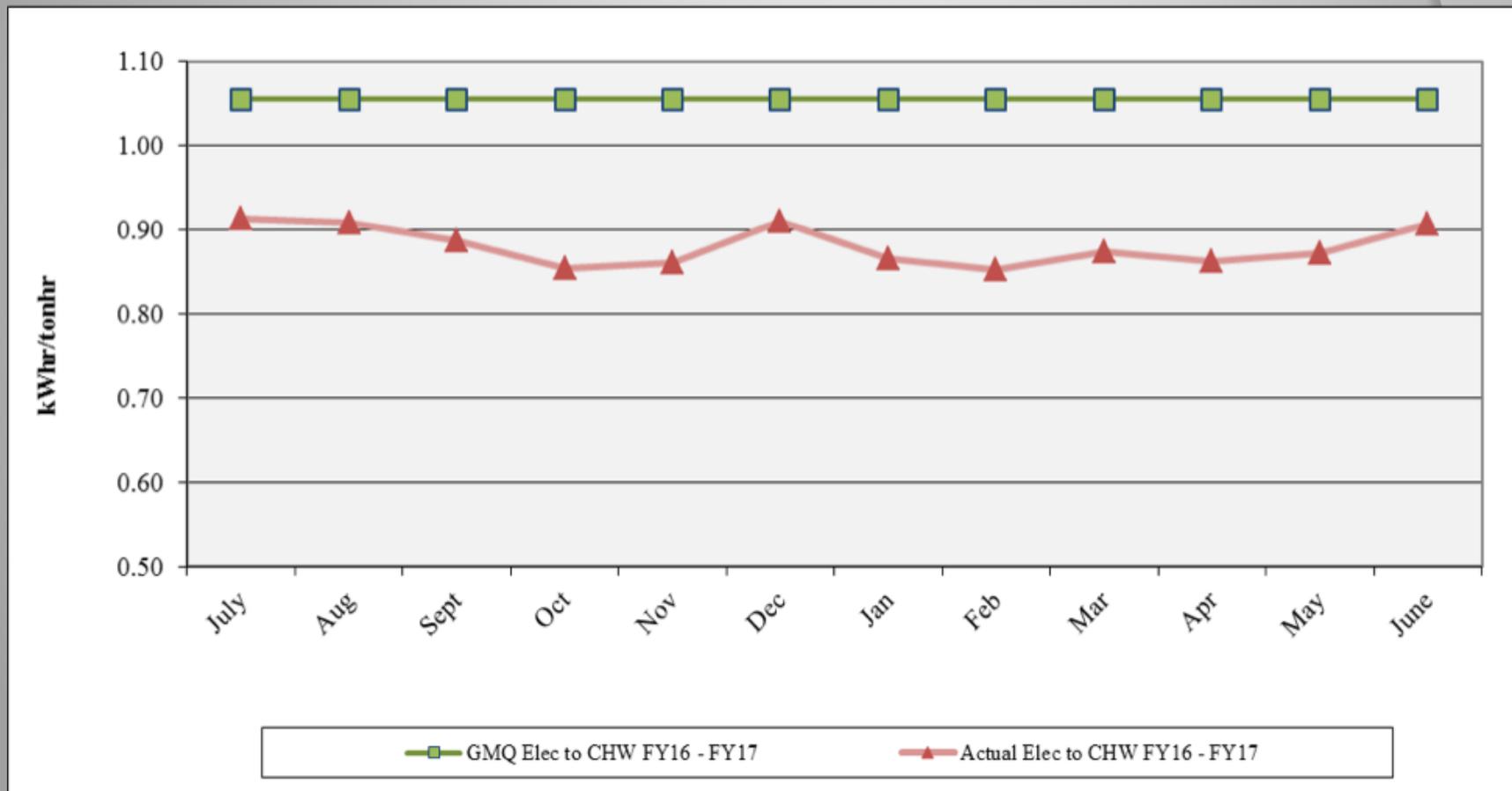
# Performance Measurement FY17: Steam Plant Efficiency



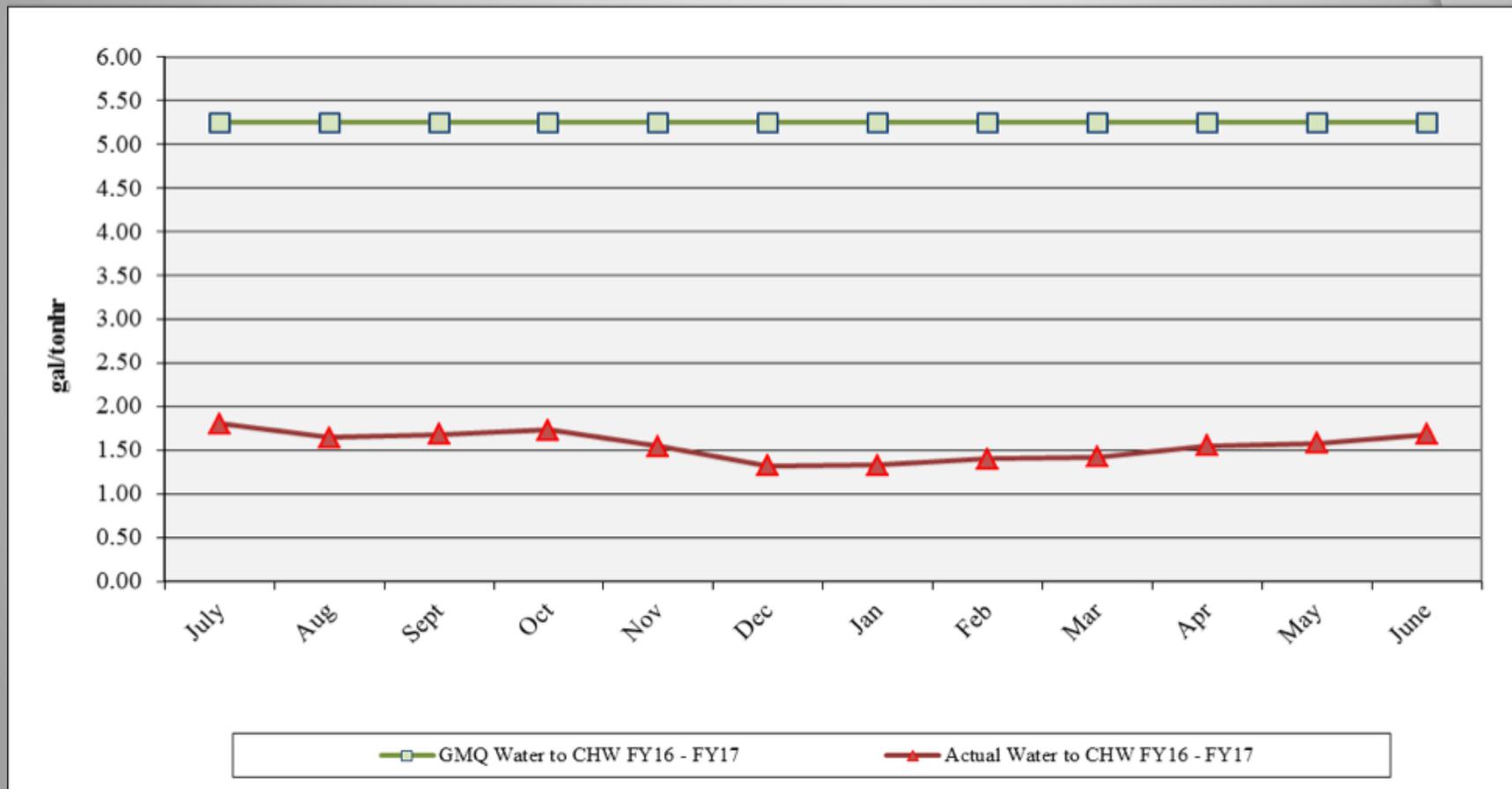
# Performance Measurement FY17: Steam Water Conversion ●



# 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 ●

## *7. Natural Gas Purchasing*

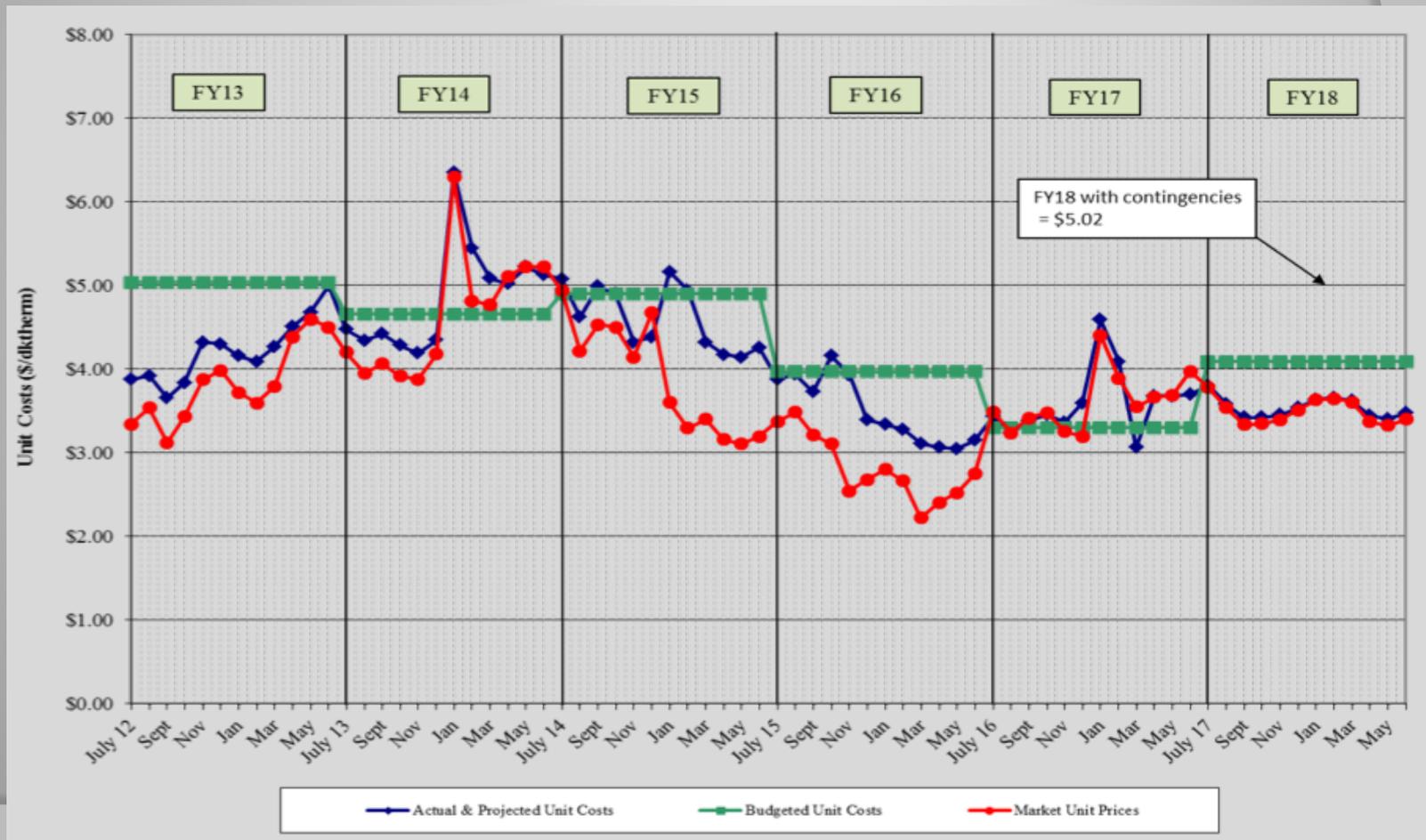
- ❖ Natural Gas Purchasing Review
  - ❖ Table 7: FY17 Gas Spending & Budget Comparison
  - ❖ Figure 7: Actual and Projected Gas Cost Comparison

## Table 7: FY17 Gas Spending & Budget Comparison

		Actual FY17 To date (Jun 30)	Budget FY17	Percent Difference
Steam Sendout (Mlbs)		380,071	433,803	-12.4%
Fuel Use (Dth) (includes propane)	●	520,454	627,635	-17.1%
Plant Eff (Dth/Mlb)	●	1.369	1.447	-5.4%
Total Gas Cost (includes propane)	●	\$1,857,131	\$2,071,641	-10.4%
Unit Cost of Fuel (\$/Dth)	●	\$3.568	\$3.301	8.1%

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

# Figure 7. Actual and Projected Gas Cost Comparison History



## 8. 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	\$ 4,559,300	97.67%
Pass Throughs				
Non-Energy	\$ 1,450,800	\$ 1,103,454	\$ 937,500	84.96%
Water/Sewer	\$ 533,100	\$ 640,200	\$ 685,500	107.08%
Natural Gas Base	\$ 1,971,200	\$ 2,155,700	\$ 2,092,600	97.07%
Natural Gas Contingency	\$ -	\$ 570,846	\$ -	0.00%
Electricity	\$ 5,530,500	\$ 6,093,800	\$ 5,534,970	90.83%
ORF Deposit	\$ -	\$ -	\$ -	
Debt Service	\$ 5,565,900	\$ 5,525,000	\$ 5,525,000	100.00%
<b>Total Expenses</b>	<b>\$ 19,583,600</b>	<b>\$ 20,757,000</b>	<b>\$ 19,334,900</b>	<b>93.15%</b>
<b>Total Revenues</b>	<b>\$ 17,774,500</b>	<b>\$ 19,035,200</b>	<b>\$ 17,568,100</b>	<b>92.29%</b>
<b>Metro Funding Amount</b>	<b>\$ 1,809,100</b>	<b>\$ 1,721,800</b>	<b>\$ 1,721,800</b>	<b>100.00%</b>

## *FY17 Cost and Budget Comparison*

- ❖ FY17 to Date Actuals,
  - ❖ Water was over budget \$45,300
  - ❖ Electric was under budget \$558,830
  - ❖ Fuel will be under budget \$633,946
  - ❖ Net utilities under budget \$1,147,476

FY17 CHW Sales 1.3% above 5-yr Average

FY17 Steam Sales 14.6% below 5-yr Average

(Includes FEA, EDS Electric and EDS Water Costs)

## 9. 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>

# 10. *DES Options Review*

## DES-139

- FVB retained by Metro to review the options for the DES moving into the future.
- Options include:
  - Status Quo
  - Expanding system (new boilers chillers/CHP or combination)
  - Privatizing or Public/Private Partnership
- DES has met with FVB and provided historic data
- FVB to provide report and recommendations October 2017

# 11. Capital Expenditure Update

	<b>Spent to End of FY16</b>	<b>FY17 Spending</b>	<b>Balance to Date (06/30/17)</b>
R&I Projects	\$2,903,301	\$252,507	\$26,261
49109-2010 Bond	\$2,480,531	\$10,759	\$114,626
49107-Customer Connection Fund	\$6,760,435	\$627,367	\$1,121,198
49116-DES CHP	\$127,686	\$41,020	\$25,831,294
Total	\$12,271,953	\$931,654	\$27,281,137
Available			\$1,262,084

# *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 –Bldg under construction; AA Birch Tunnel repairs needed – postpone until bldg roof is constructed
- DES 130: Manhole B3 Repair – construction completed; pursuing reimbursement from contractor responsible for damage
- DES 133: NCC Redevelopment – Increased demands at Renaissance Hotel; no contract yet with 5<sup>th</sup> and Broadway Development
- DES 134: 401 Union Reconnection – distribution piping work closed Q4 FY17; review of in-building connections in process
- DES 135: CHW Leak at 5<sup>th</sup> Ave and Union (at JKP/TPAC) – leak not located; monitoring area to determine next action
- DES 138: Manhole D Repairs – bid and awarded during Q4 FY17; work starts Q1 FY18
- DES 139: FVB selected by Metro – reviewing data
- DES 140: Manhole N2 Fence – bids received Q4 FY17; construction to start in 1<sup>st</sup> Quarter FY18
- DES 141: EGF Security Cameras – bids received FY17; CNE proposal under review

# *Capital Projects Review*

## Capital Projects in Close-out/Closed

- DES 134: 401 Union St Steam and Chilled Water Service – distribution piping Closed
- DES 137: Cordell Hull CHW Valves – Closed

## *12. Other Board Member Items*

## *13. Adjourn*

- *Advisory Board Meeting Schedule*
- 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
- FY18 – 4<sup>th</sup> Quarter Meeting – August 16, 2018