



Metro Nashville
DISTRICT ENERGY SYSTEM

DES Advisory Board Meeting
First Quarter FY18
November 16, 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. FY18 Costs to Date
7. FY18 Budget Update
8. DES Options Review Update
9. Capital Projects Review & Status
10. Other Board Member Items
11. Adjourn

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

3. *Customer Sales*

- ❖ Table 3: Customer Cost Comparison
- ❖ Figure 3A: Aggregate Average CHW Delta T
- ❖ Figure 3B: Metro Average CHW Delta T
- ❖ Figure 3C: Private Average CHW Delta T
- ❖ Figure 3D: State Average CHW Delta T

Exclusions on Graphs: Fairlane Hotel and St Mary's are not included in all graphs; Bobby Hotel is excluded in 2017 data; CJC was offline in 2017; Nashville Convention Center remaining loads for July, Aug and Sept are included with the Renaissance Hotel; Nashville Convention Center is no longer a customer after July 1, 2017.

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

	Steam - Rolling 12 Month			Chilled Water - Rolling 12 Month		
	Oct 2015 - Sept 2016	Oct 2016 - Sept 2017	% Diff.	Oct 2015 - Sept 2016	Oct 2016 - Sept 2017	% Diff.
Private Cost	\$ 1,358,354	\$ 1,391,221	2.42%	\$ 3,454,356	\$ 3,630,318	5.09%
Usage (lbs or tonhrs)	88,718,930	87,122,782	-1.80%	18,634,626	18,946,197	1.67%
State Cost	\$ 1,645,308	\$ 1,667,876	1.37%	\$ 3,262,206	\$ 3,259,444	-0.08%
Usage (lbs or tonhrs)	90,488,847	88,079,341	-2.66%	14,259,604	13,195,480	-7.46%
Metro Cost	\$ 2,083,754	\$ 2,053,747	-1.44%	\$ 5,429,598	\$ 5,316,659	-2.08%
Usage (lbs or tonhrs)	151,616,245	147,764,615	-2.54%	29,719,981	28,834,145	-2.98%
Aggregate Cost	\$ 5,087,415	\$ 5,112,844	0.50%	\$ 12,146,161	\$ 12,206,421	0.50%
Usage (lbs or tonhrs)	330,824,022	322,966,738	-2.38%	62,614,211	60,975,822	-2.62%
Unit Cost	\$ 15.38	\$ 15.83	2.9%	\$ 0.194	\$ 0.200	3.20%

MFA not included in values shown

Figure 3A: Aggregate Average CHW Delta T

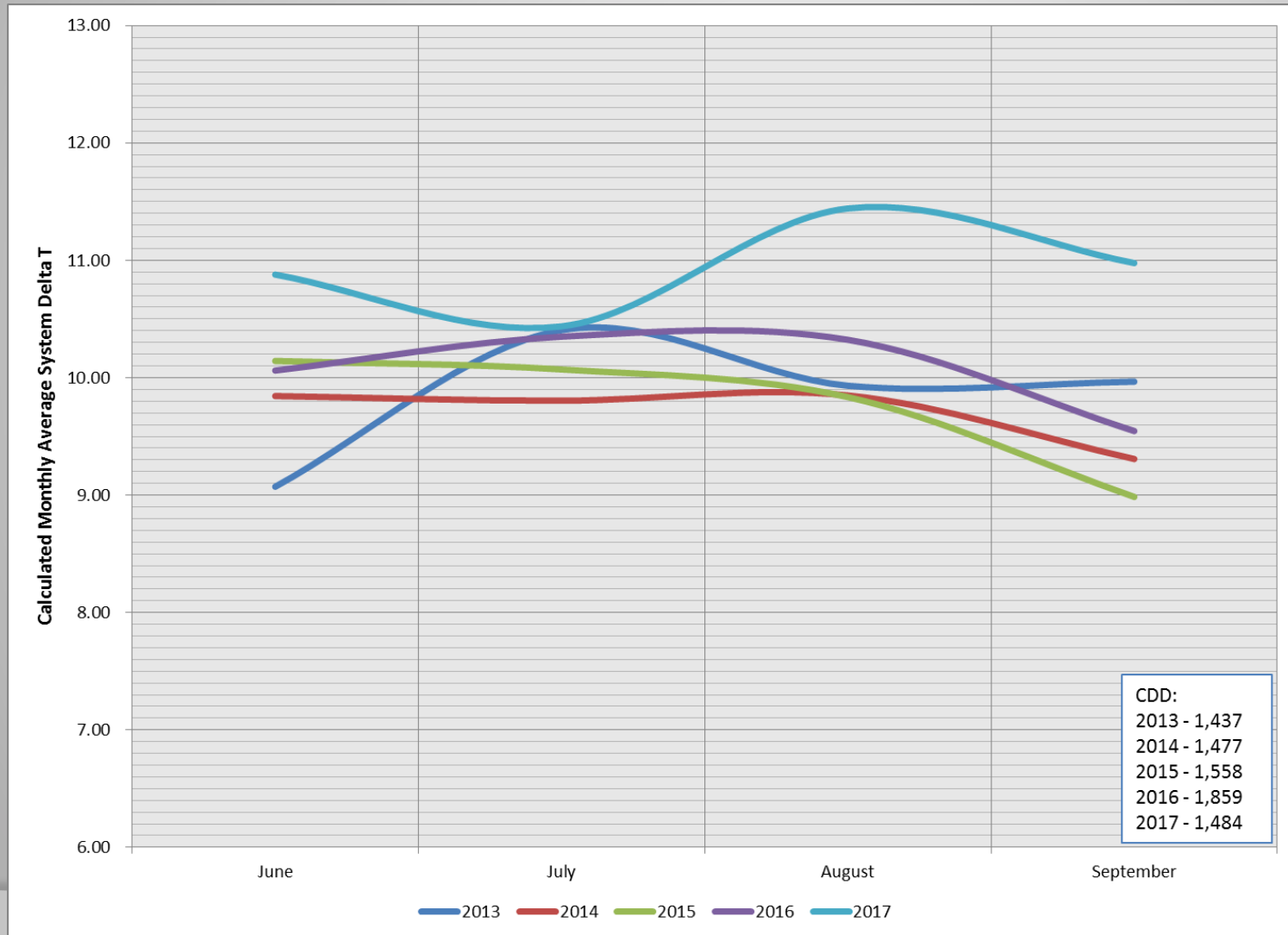


Figure 3B: Metro Average CHW Delta T

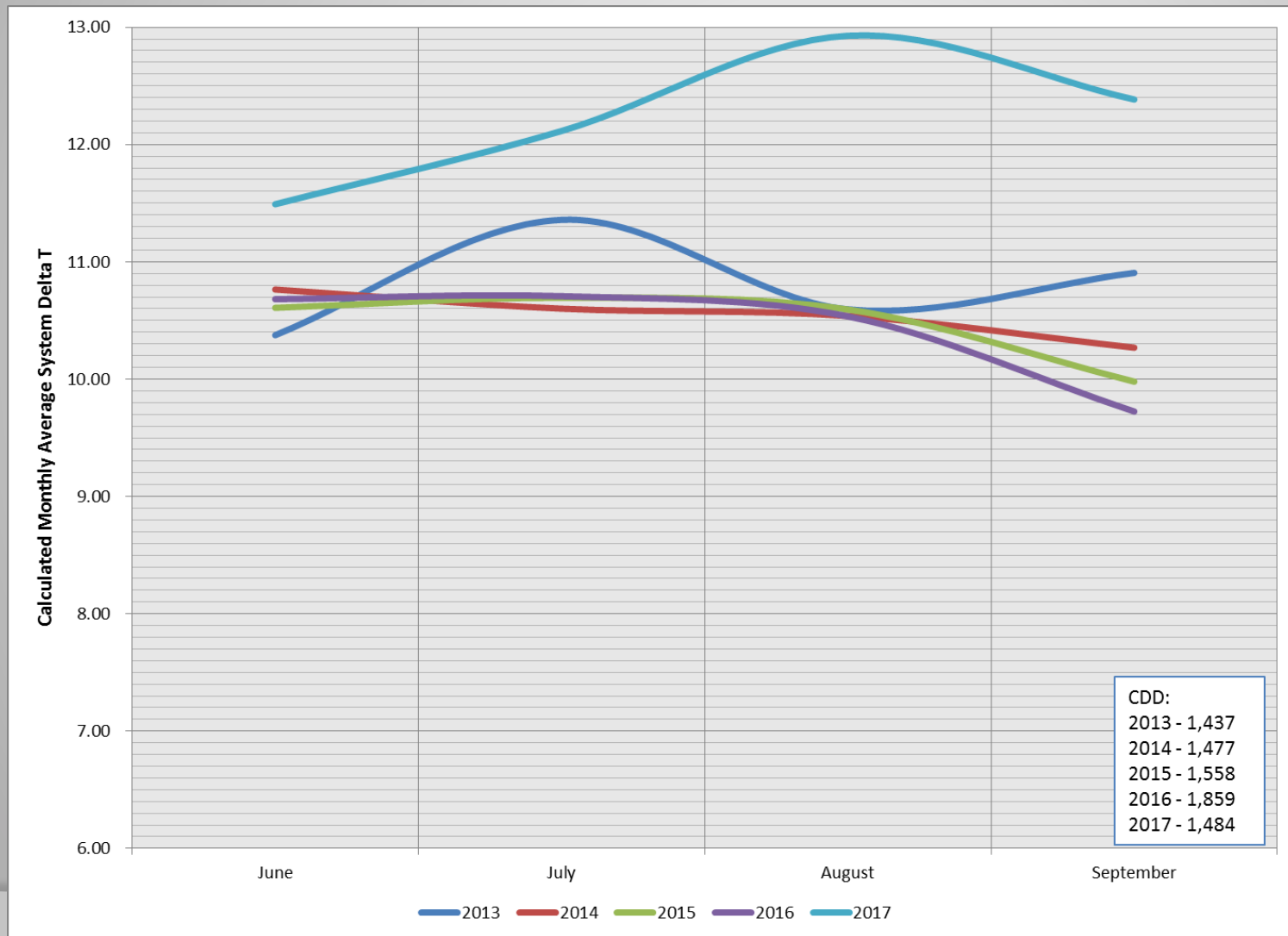


Figure 3C: Private Average CHW Delta T

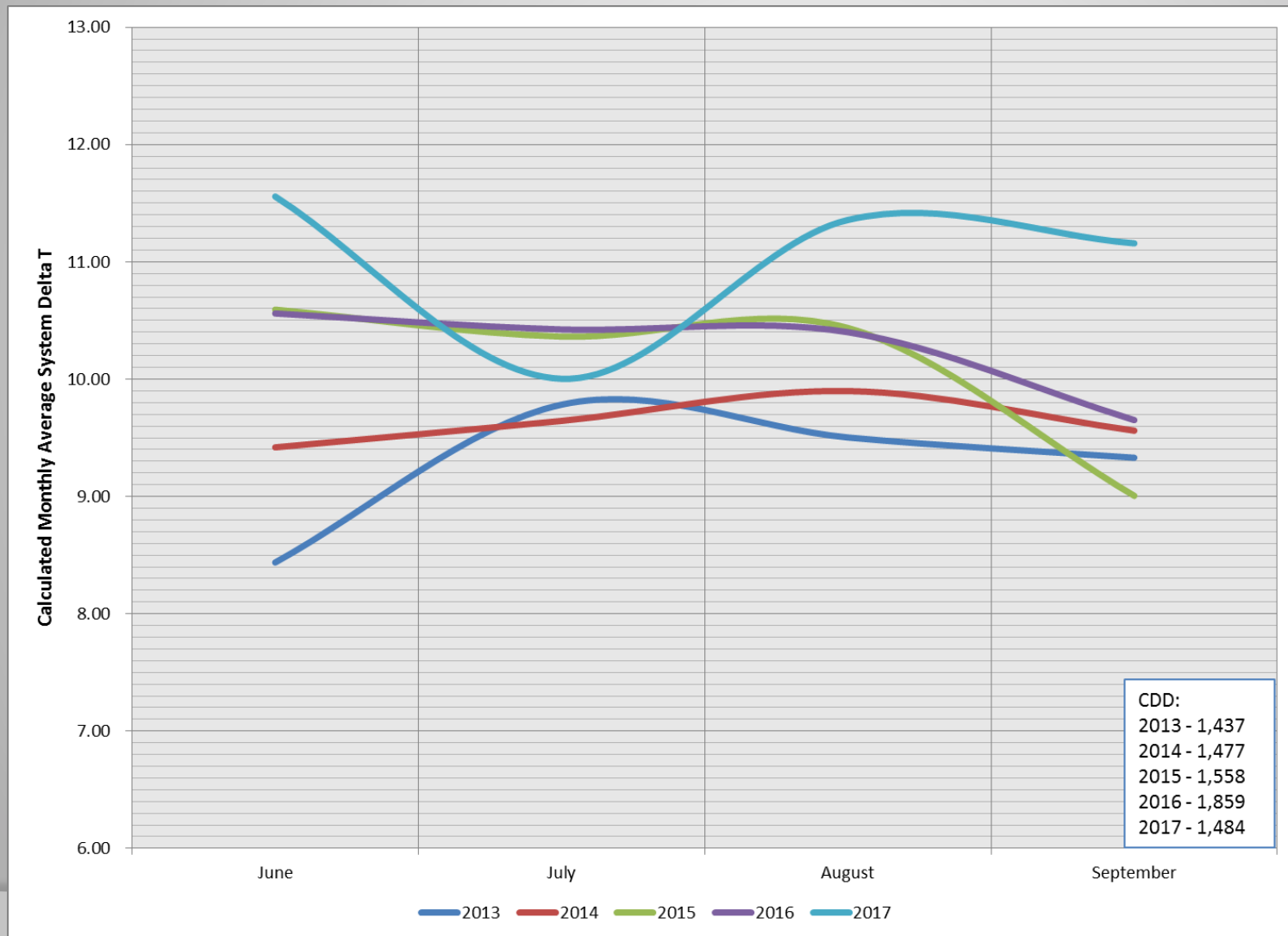
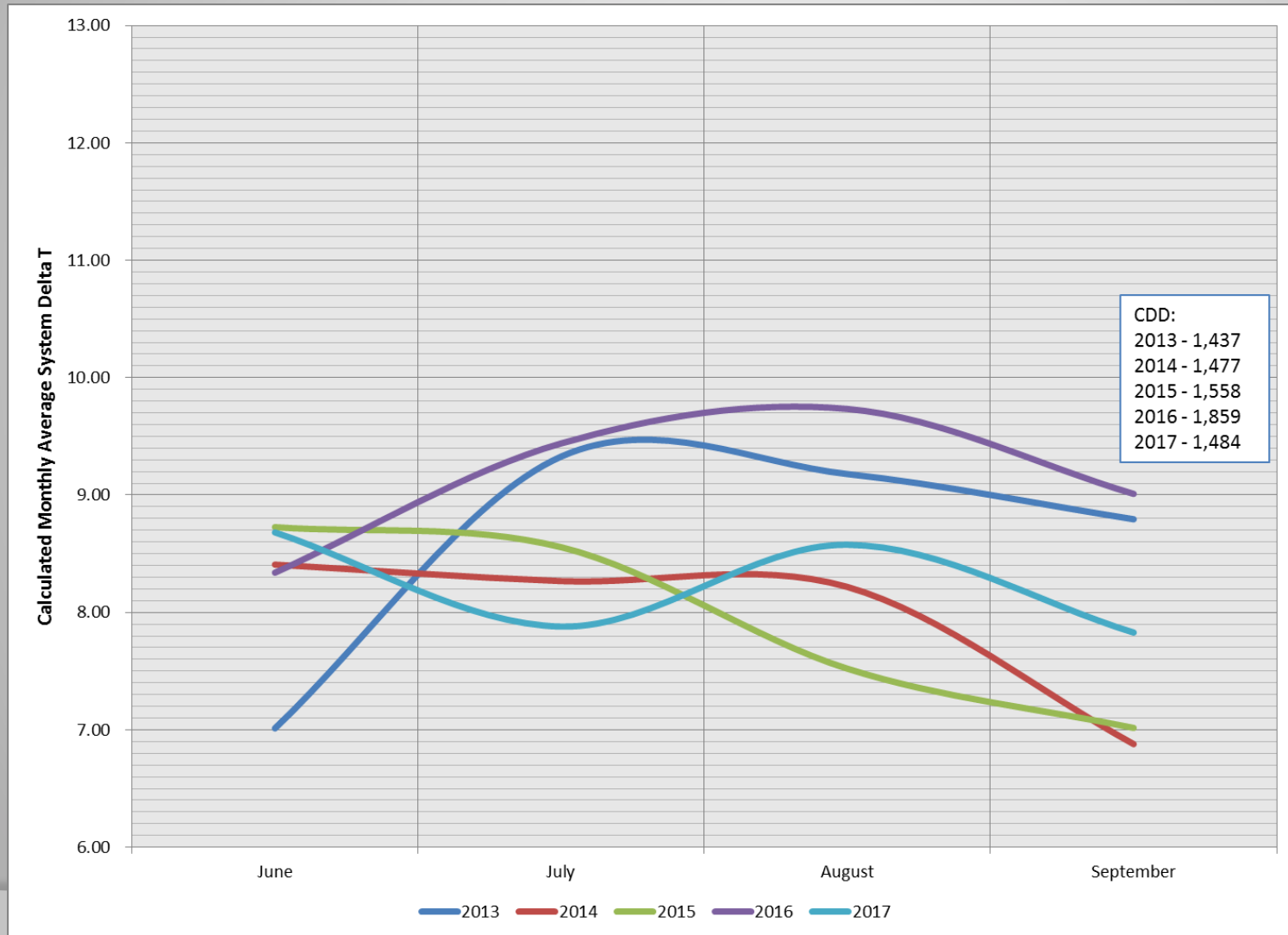





Figure 3D: State Average CHW Delta T

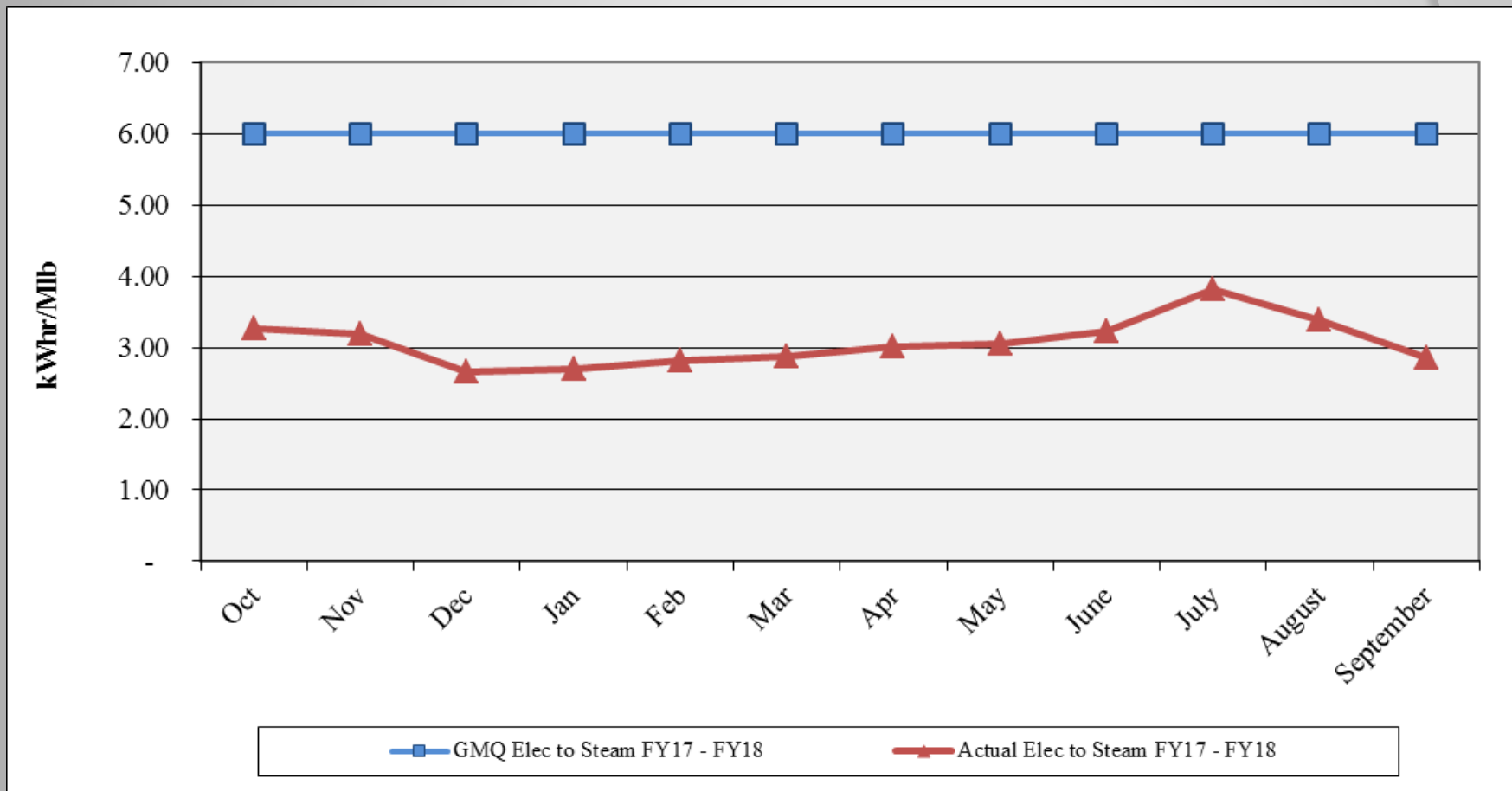


4. *Review of DES Contractor Performance*

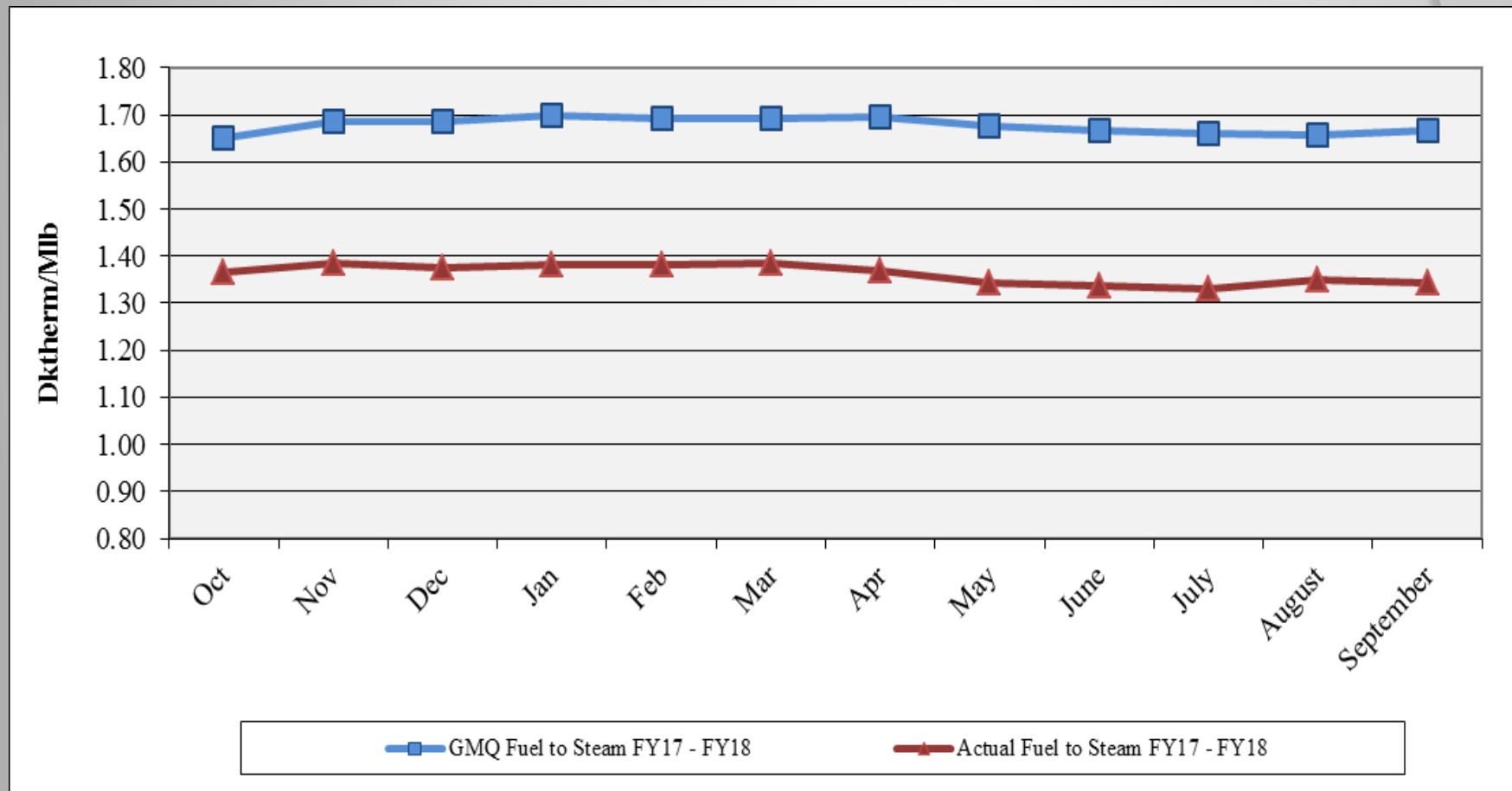
Contractor (CNE) is in compliance with their contractual obligations for FY18 to date.

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

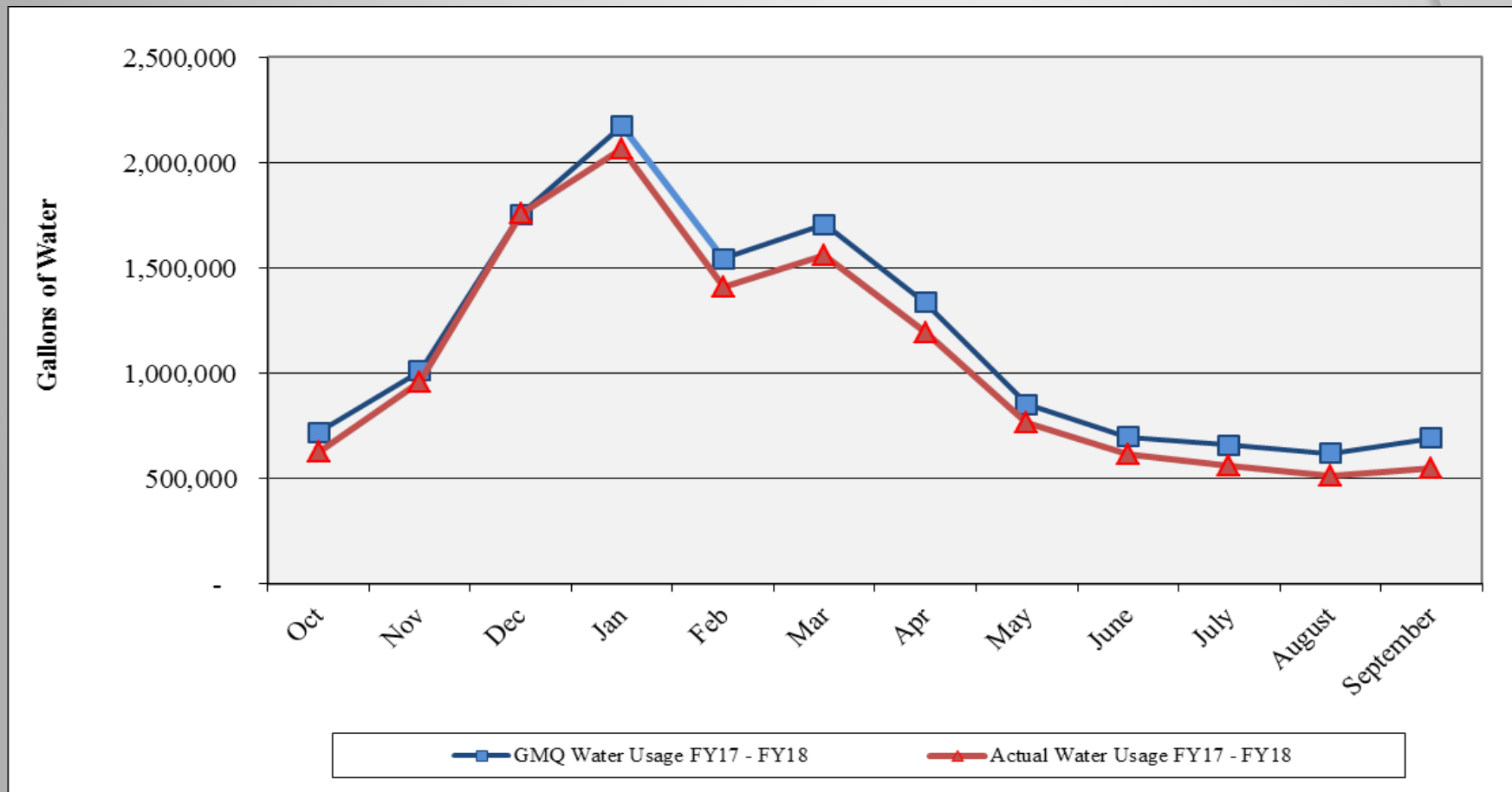
Performance Measurement FY18: Steam Electric Conversion ●



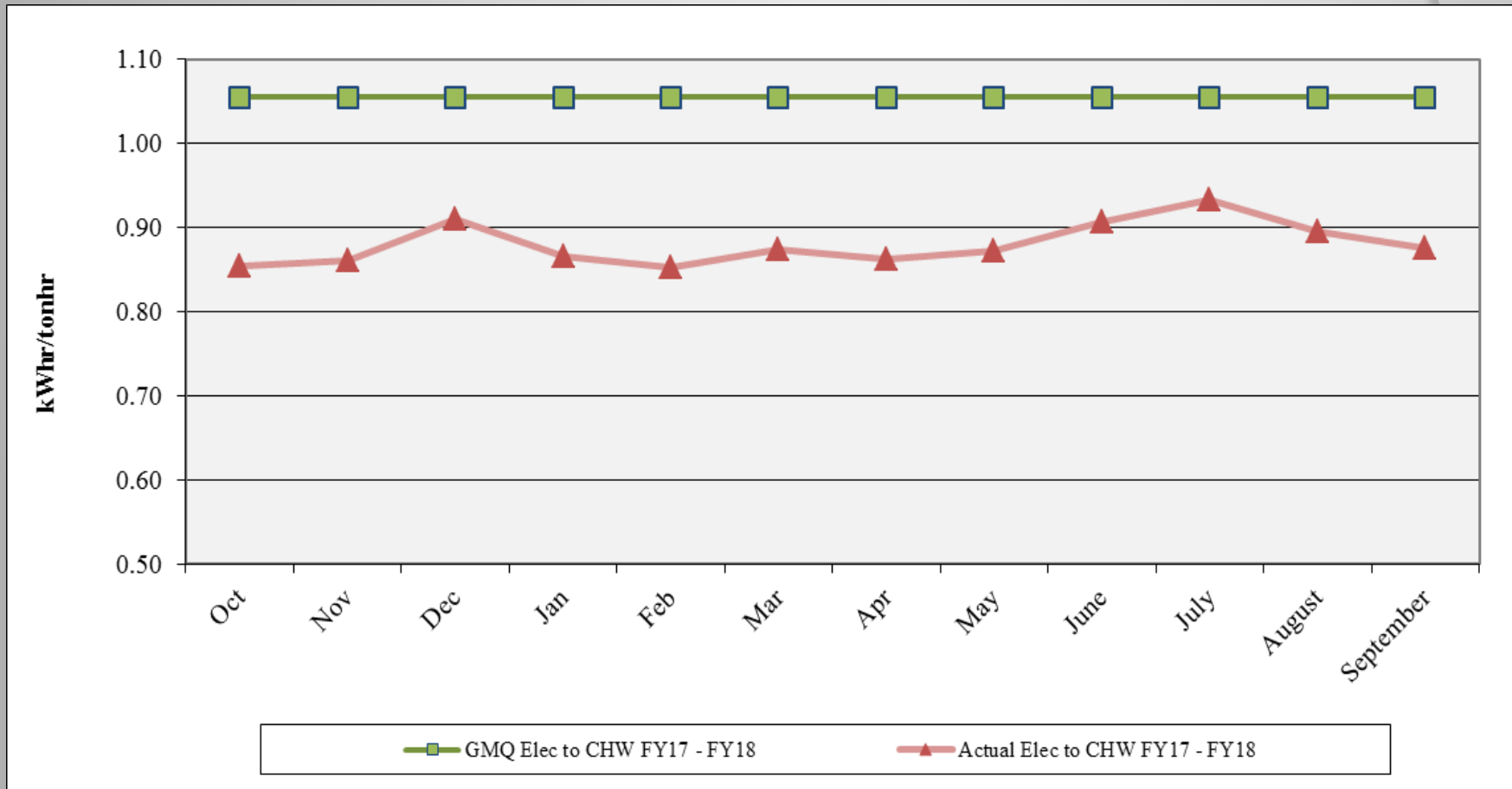
Performance Measurement FY18: Steam Plant Efficiency



Performance Measurement FY18: Steam Water Conversion ●

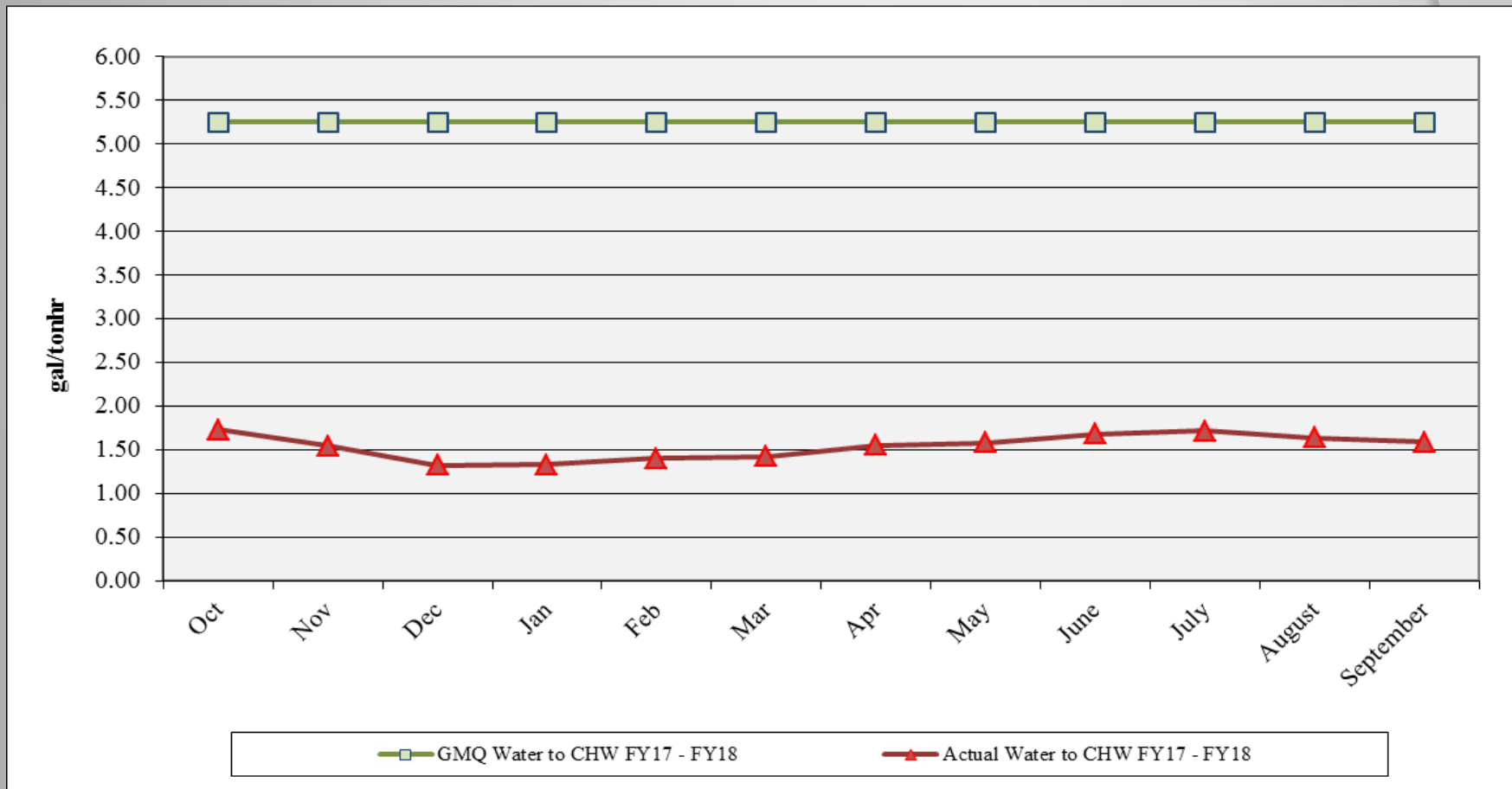


Performance Measurement FY18: CHW Electric Conversion



Performance Measurement FY18: 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 Better
- ❖ Deposits – CNE Added Dispersant



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

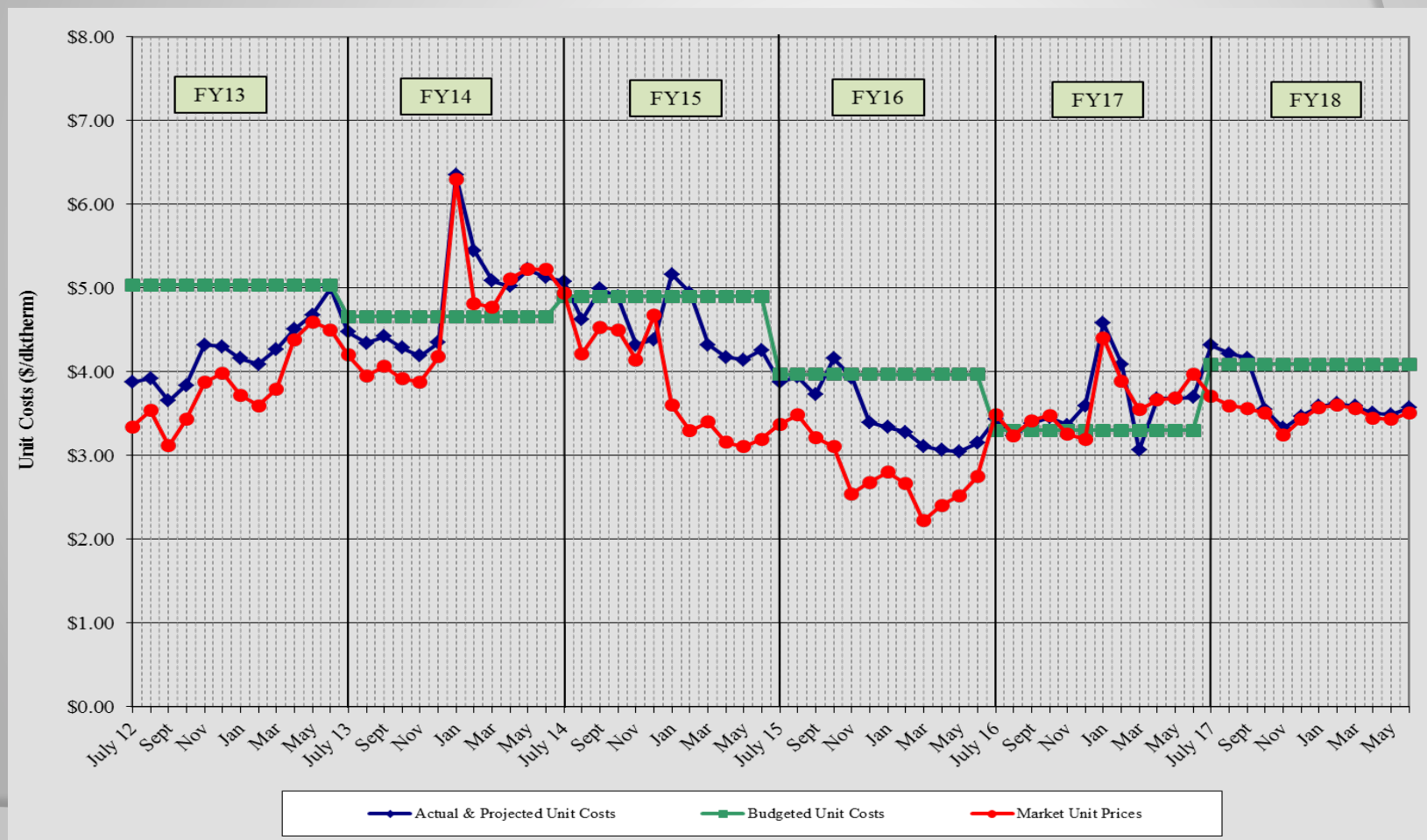
- ❖ Natural Gas Purchasing Review
 - ❖ Table 5: FY18 Gas Spending & Budget Comparison
 - ❖ Figure 5: Actual and Projected Gas Cost Comparison

Table 5: FY18 Gas Spending & Budget Comparison

	Actual FY18 To date (Sept 30)	Budget FY18	Percent Difference
Steam Sendout (Mlbs)	65,286	54,885	19.0%
Fuel Use (Dth) (includes propane) ●	87,584	80,024	9.4%
Plant Eff (Dth/Mlb) ●	1.342	1.458	-8.0%
Total Gas Cost (includes propane) ●	\$315,859	\$312,254	-1.2%
Unit Cost of Fuel (\$/Dth) ●	\$3.606	\$3.902	-7.6%

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

Figure 5. Actual and Projected Gas Cost Comparison History



6. FY18 Costs to Date

Item	FY17 Actual	FY18 Budget	FY18 Actual to date	Percent of FY18 Budget
FOC's	\$ 4,559,300	\$ 4,695,900	\$ 1,166,000	24.83%
Pass Throughs				
Non-Energy	\$ 1,375,000	\$ 1,114,341	\$ 186,800	16.76%
Water/Sewer	\$ 607,200	\$ 649,300	\$ 286,000	44.05%
Natural Gas Base	\$ 1,912,500	\$ 2,565,500	\$ 353,000	13.76%
Natural Gas Contingency	\$ -	\$ 787,159	\$ -	0.00%
Electricity	\$ 5,400,400	\$ 6,002,100	\$ 1,990,770	33.17%
ORF Deposit	\$ -	\$ -	\$ -	
Debt Service	\$ 5,525,000	\$ 5,473,800	\$ 1,858,900	33.96%
Total Expenses	\$ 19,379,400	\$ 21,288,100	\$ 5,841,500	27.44%
Total Revenues	\$ 17,626,400	\$ 19,597,800	\$ 4,837,300	24.68%
Metro Funding Amount	\$ 1,753,000	\$ 1,690,300	\$ 422,575	25.00%

7. FY18 Budget Update

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%
Total Expenses	\$ 20,757,000	\$ 21,288,100	2.56%
Total Revenues	\$ 19,035,200	\$ 19,597,800	2.96%
Metro Funding Amount	\$ 1,721,800	\$ 1,690,300	-1.83%

8. *DES Options Review*

DES-139

- FVB retained by Metro to review the options for the DES moving into the future.
- Options include:
 - No Growth Scenario (Status Quo)
 - Growth Scenario (Expanding EGF or Building Thermal Storage System)
 - Business Exit
- FVB provided Draft report – in process

9. Capital Expenditure Update

	Spent to End of FY17	FY18 Spending	Balance to Date (10/31/17)
R&I Projects	\$3,155,808	\$17,061	\$100,966
49109-2010 Bond	\$2,491,290	\$55,935	\$58,691
49107-Customer Connection Fund	\$7,387,802	\$136,643	\$984,555
49116-DES CHP	\$168,706	\$0	\$25,831,294
Total	\$13,203,606	\$209,639	\$26,975,506
Available			\$1,144,212

Capital Projects Review

Active Capital Projects

- DES 111: EGF Combined Heat and Power – On hold
- DES 124: CJC Redevelopment – Bldg under construction; AA Birch Tunnel repairs needed – postponed until building roof is constructed
- DES 124.4: CJC Reconnection – Reconnection design/bid/construction Q2FY18
- 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 5th and Broadway Development
- DES 133.1: Site excavation includes blasting; some fallen rock has occurred in Broadway Tunnel; added steam division valve in Broadway Tunnel to facilitate isolation of Renaissance Hotel from affected tunnel section if required
- DES 133.2: Establishing rental chillers and boiler on-site at Bridgestone Arena
- DES 133.3: Procuring pricing to reinforce sections of Broadway Tunnel
- DES 135: CHW Leak at 5th Ave and Union (at JKP/TPAC) – leak not located; make-up has increased; developing action plan for additional exploratory excavations
- DES 138: Manhole D Repairs – work completed Q1FY18; anticipated closure during Q2FY18
- DES 139: DES Options Review – Draft report issued
- DES 140: Manhole N2 Fence – work completed Q1FY18; anticipated closure during Q2FY18
- DES 141: EGF Security Cameras – CNE proposal approved; Install Q2FY18
- DES 142: Bobby Hotel Steam Valve – Project completed Q1FY18

Capital Projects Review

Capital Projects in Close-out/Closed

- DES 142: Bobby Hotel Steam Valve – Closed and awaiting final invoicing from CNE

10. Other Board Member Items

11. Adjourn

- *Advisory Board Meeting Schedule*
- FY18 – 2nd Quarter Meeting – February 15, 2018
- FY18 – 3rd Quarter Meeting – May 17, 2018
- FY18 – 4th Quarter Meeting – August 16, 2018
- FY19 – 1st Quarter Meeting – November 15, 2018