



Metro Nashville
DISTRICT ENERGY SYSTEM

DES Customer Meeting

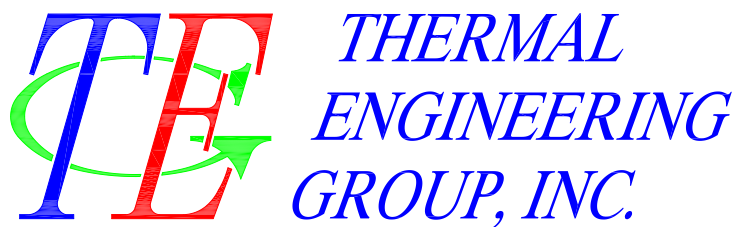
Spring FY17

May 25, 2017

Agenda

1. Welcome!
2. Historic Customer Expenses
3. Historic Customer Consumption
4. Historic System Efficiency
5. Natural Gas Pricing
6. DES FY17 and FY18 Budgets
7. Chilled Water Leak
8. Chilled Water Chemistry
9. DES Projects
10. Questions and Answers
11. Adjourn

1. *Welcome DES Customers!*



2. Historic Customer Expenses

- ❖ Figure 2A. Historic CHW Expenses
- ❖ Figure 2B. Historic Steam Expenses
- ❖ Table 2. Rolling Twelve Month Expenses

Figure 2A. Historic CHW Expenses

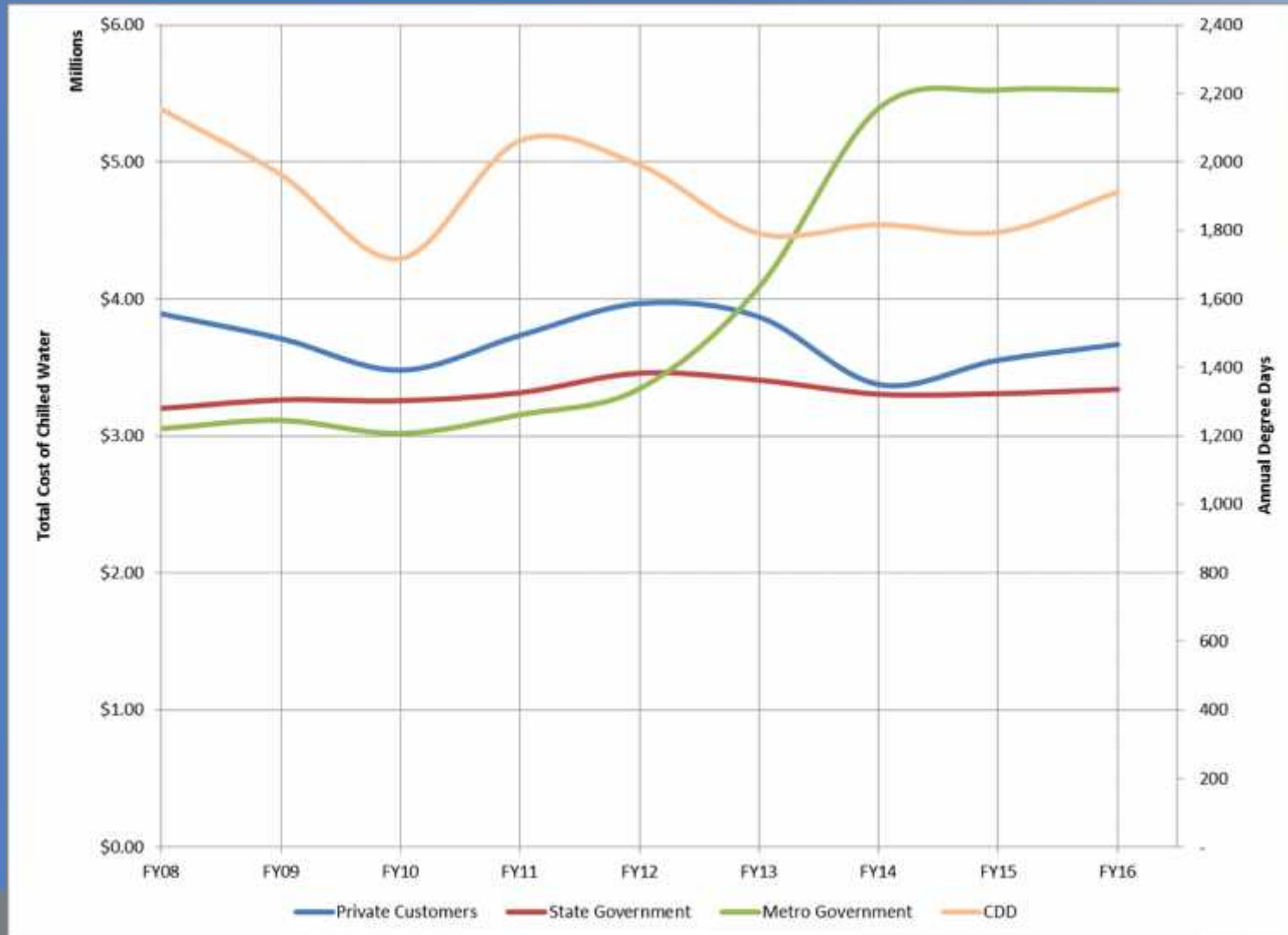


Figure 2B. Historic Steam Expenses

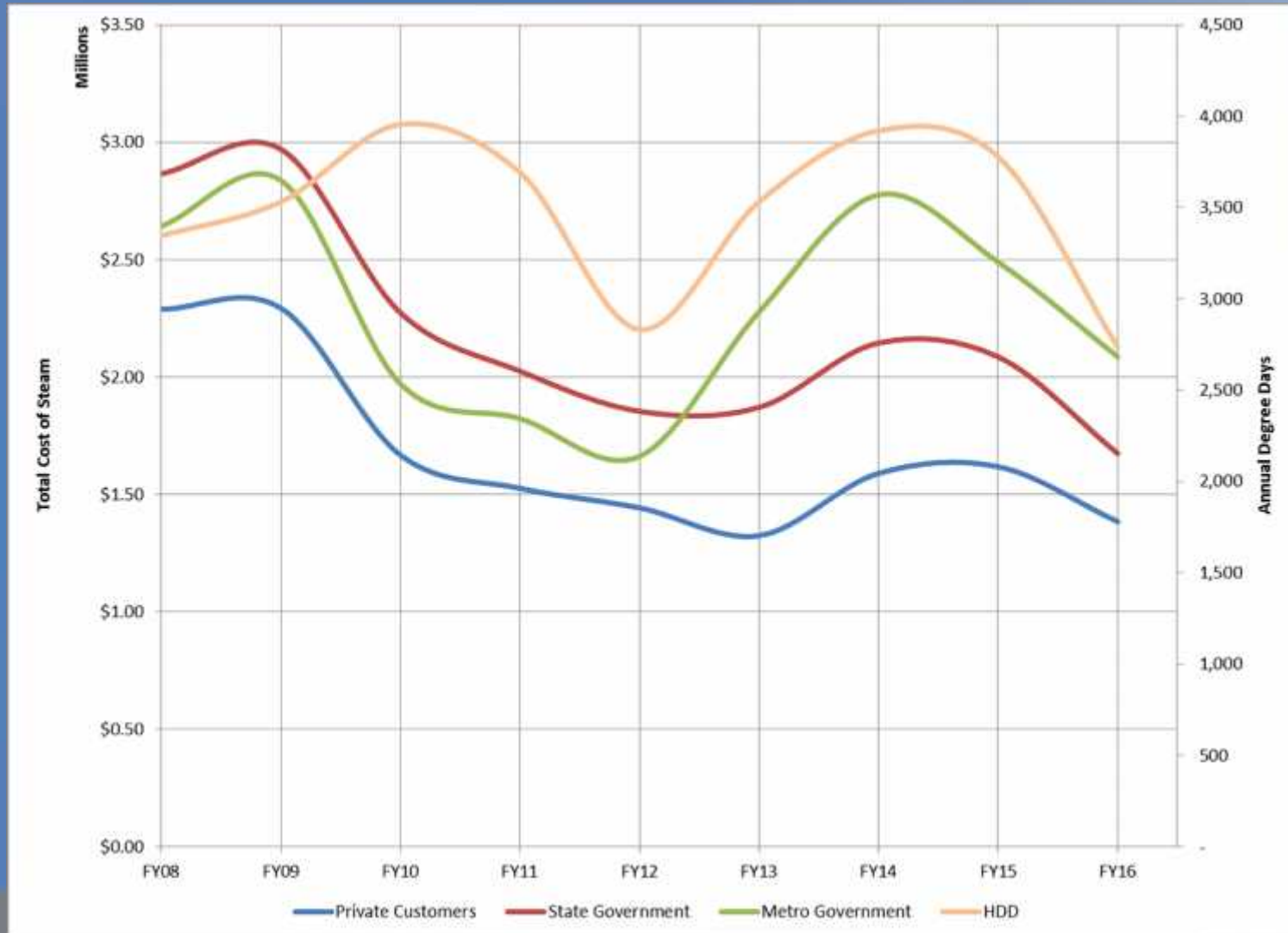


Table 2. Rolling Twelve Month Expenses

		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.
Private	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%
State	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%
Metro	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%
Aggregate	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

3. Historic Customer Consumption

- ❖ Figure 3A. Historic CHW Consumptions
- ❖ Figure 3B. Historic Steam Consumptions

Figure 3A. Historic CHW Consumptions

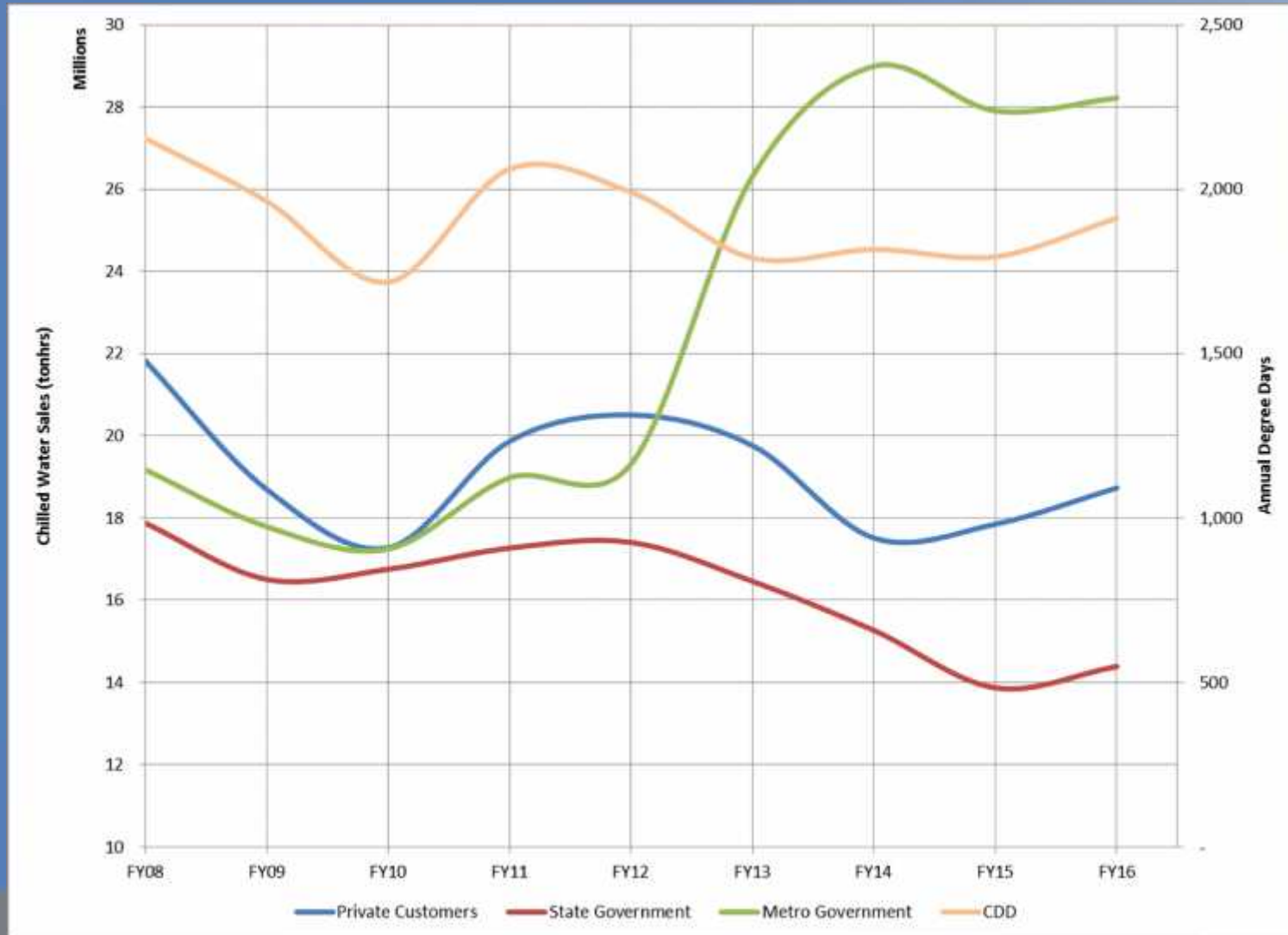
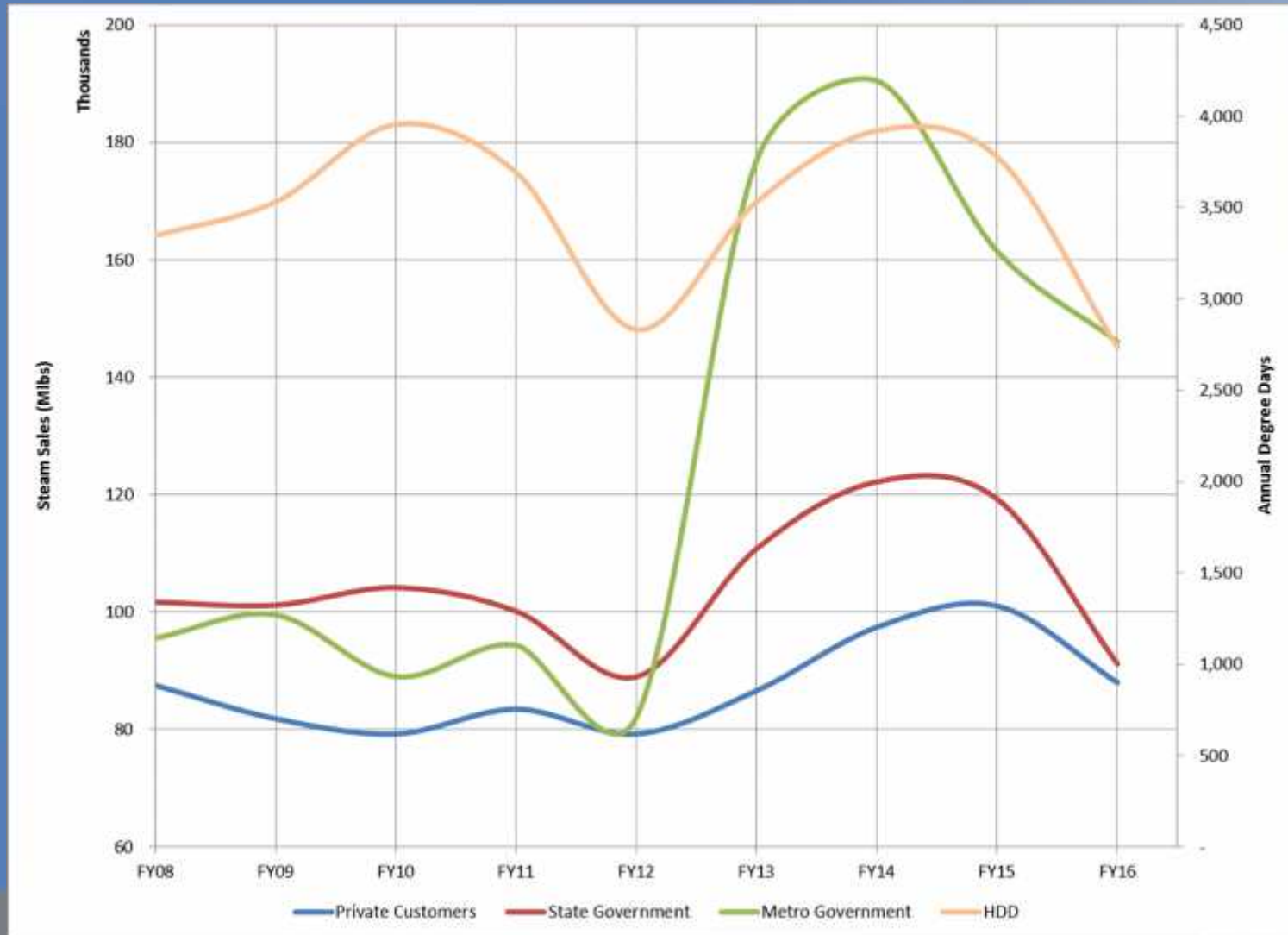


Figure 3B. Historic Steam Consumptions



4. Historic System Efficiency

- ❖ Figure 4A. Historic CHW Water Costs and Usages
- ❖ Figure 4B. Historic CHW Electric Costs and Usages

- ❖ Figure 4C. Historic Steam Water Costs and Usages
- ❖ Figure 4D. Historic Steam Electric Costs and Usages
- ❖ Figure 4E. Historic Steam Fuel Costs and Usages

- ❖ Figure 4F. Historic Chemical Costs

Figure 4A. Historic CHW Water Costs and Usages

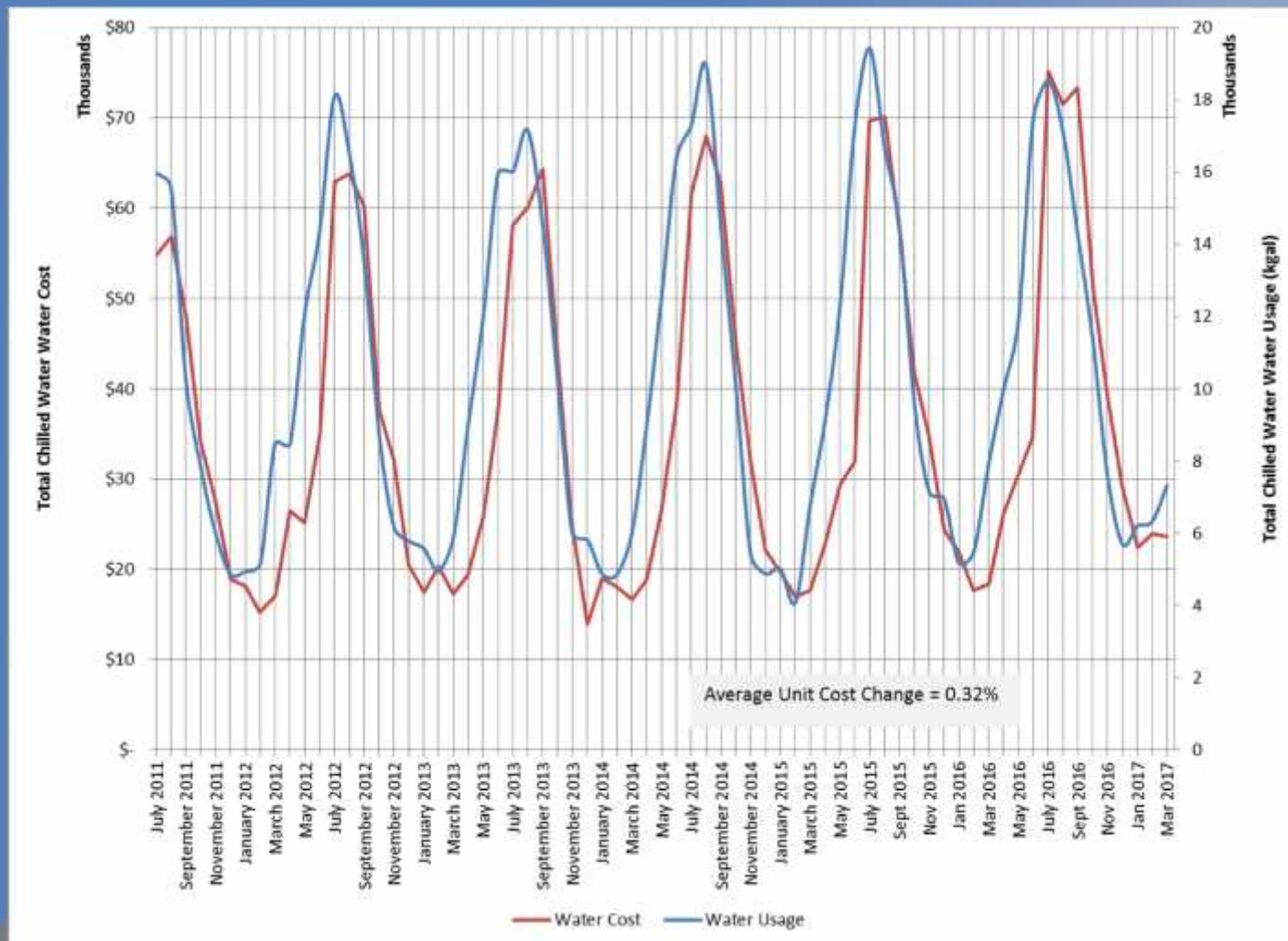


Figure 4B. Historic CHW Electric Costs and Usages

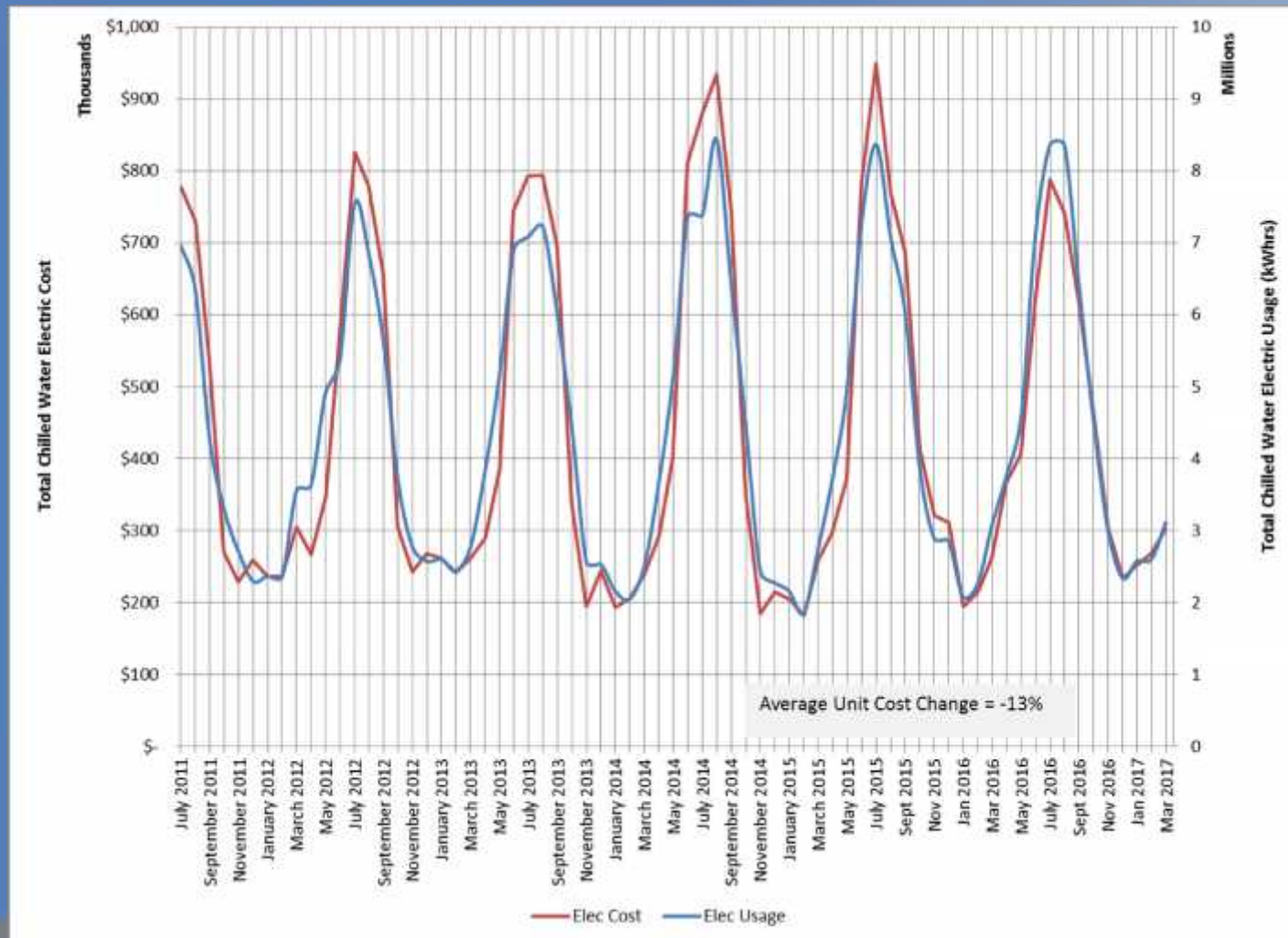


Figure 4C. Historic Steam Water Costs and Usages

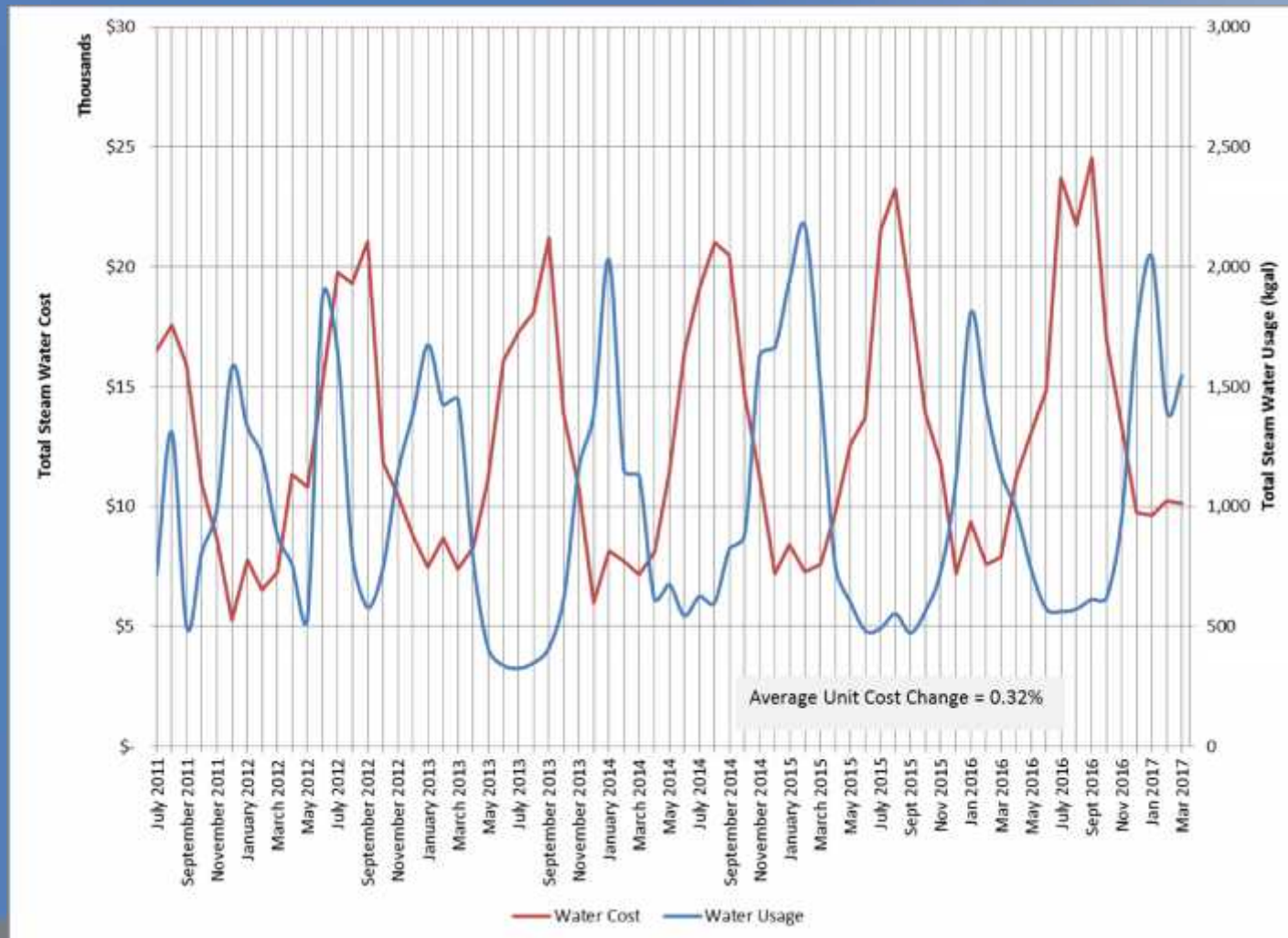


Figure 4D. Historic Steam Electric Costs and Usages

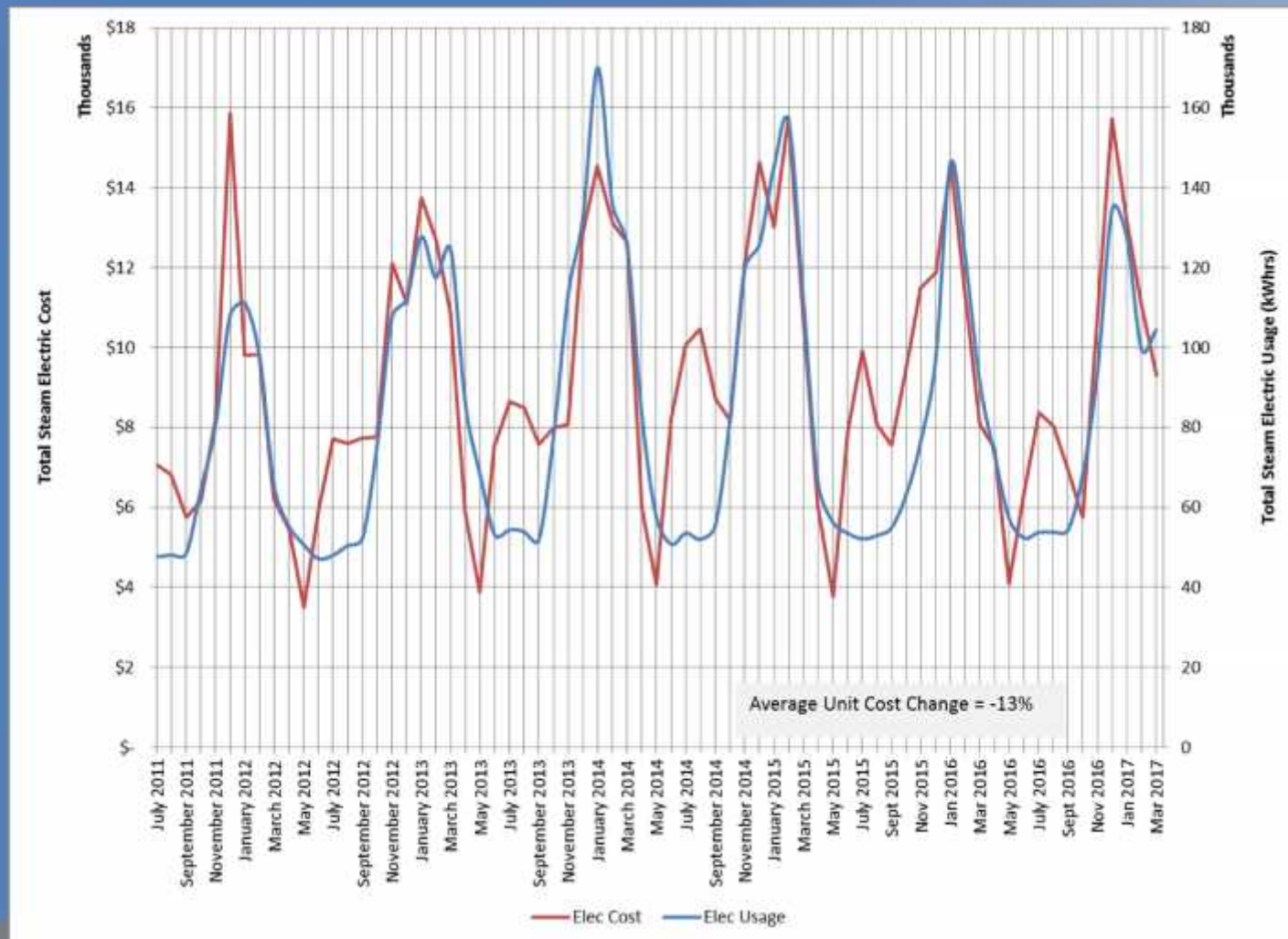


Figure 4E. Historic Steam Fuel Costs and Usages

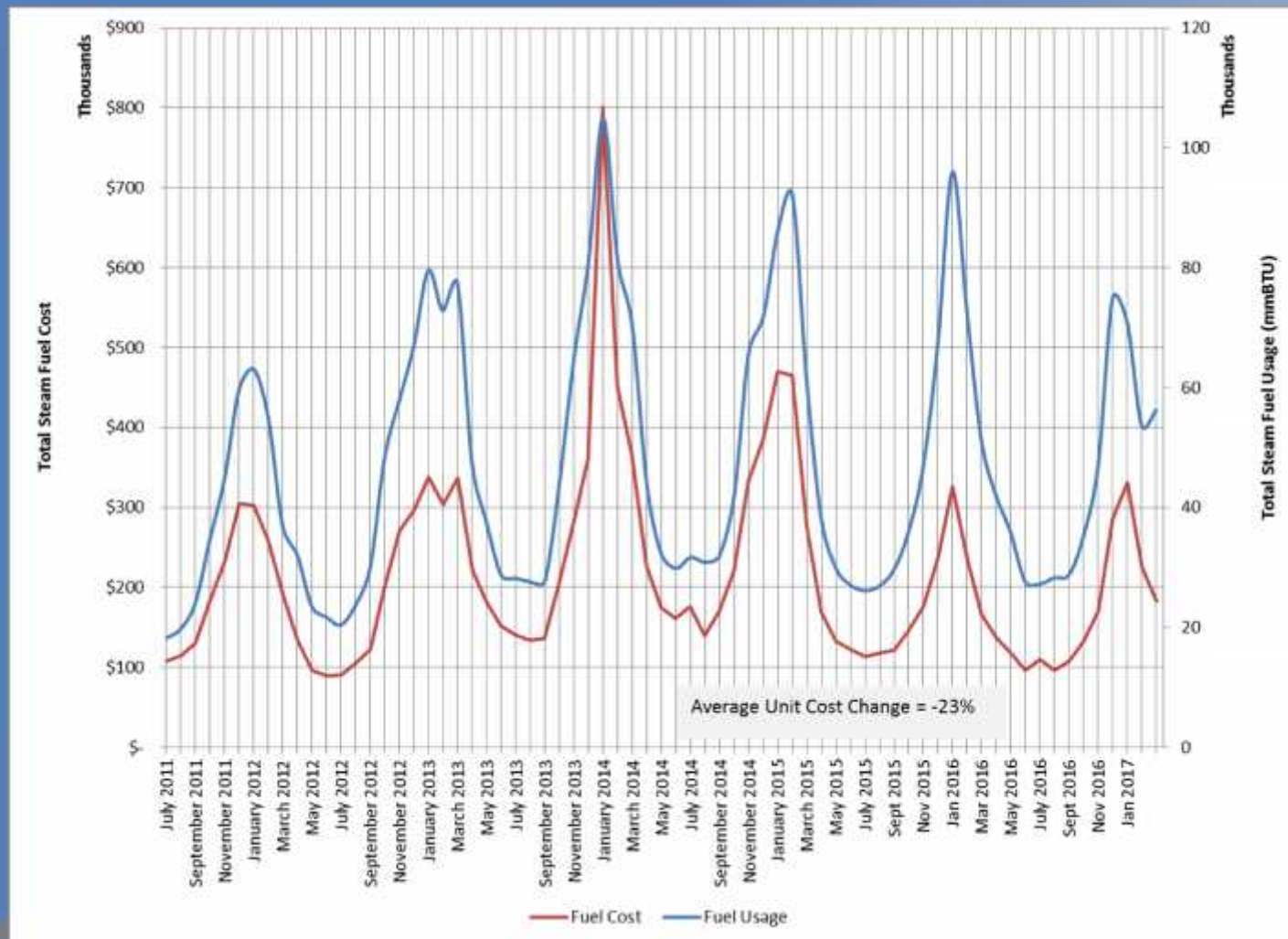
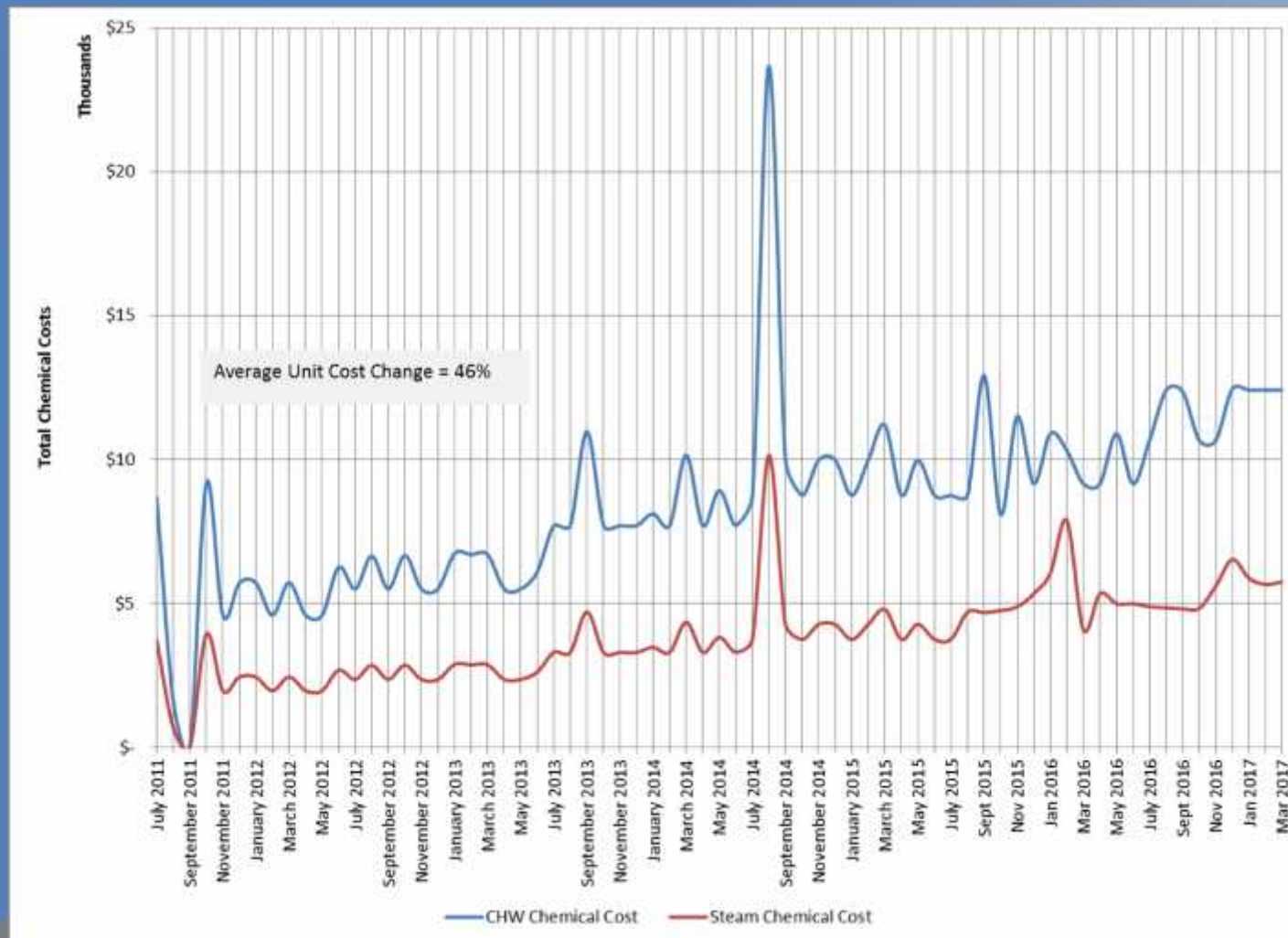


Figure 4F. Historic Chemical Costs



5. Natural Gas Pricing



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

6. *DES FY17 and FY18 Budgets*

- ❖ Table 6A. DES FY17 Costs to Date
- ❖ Table 6B. DES FY18 Budget

Table 6A. DES 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%
Total Expenses	\$ 19,583,600	\$ 20,757,000	\$ 15,185,100	73.16%
Total Revenues	\$ 17,774,500	\$ 19,035,200	\$ 13,265,900	69.69%
Metro Funding Amount	\$ 1,809,100	\$ 1,721,800	\$ 1,291,350	75.00%

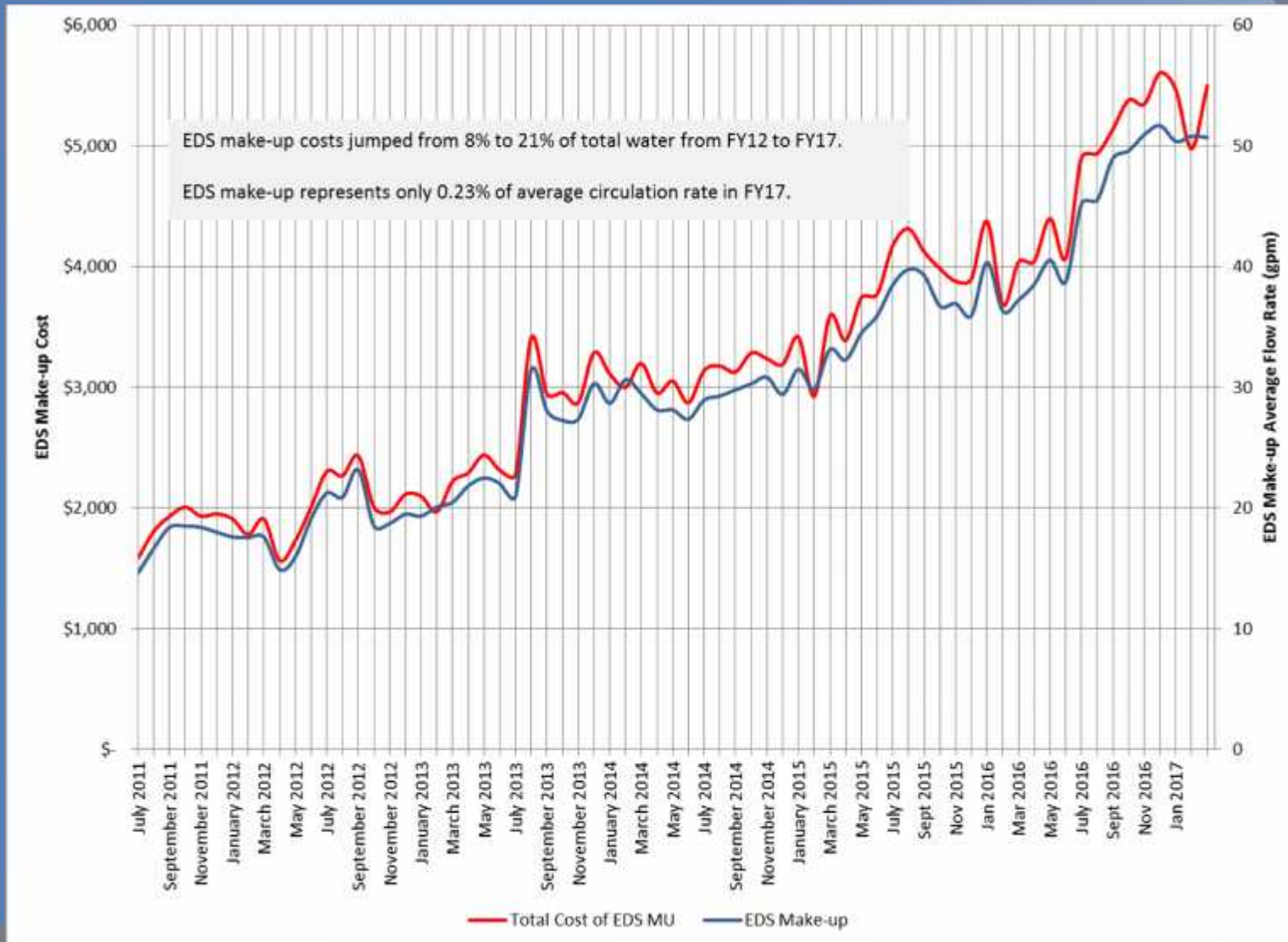
Table 6B. DES FY18 Budget

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%
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%

7. Chilled Water Leak

- ❖ Excavations at 1st Ave (Ft Nashboro), 3rd Ave (JR to Gay), 5th Ave (Union to Deaderick), Union St (5th to 6th)
- ❖ Approximately \$150,000 in Capital Costs Incurred in FY16/FY17
- ❖ Approximately \$50,000 in Total EDS Water Cost for FY17

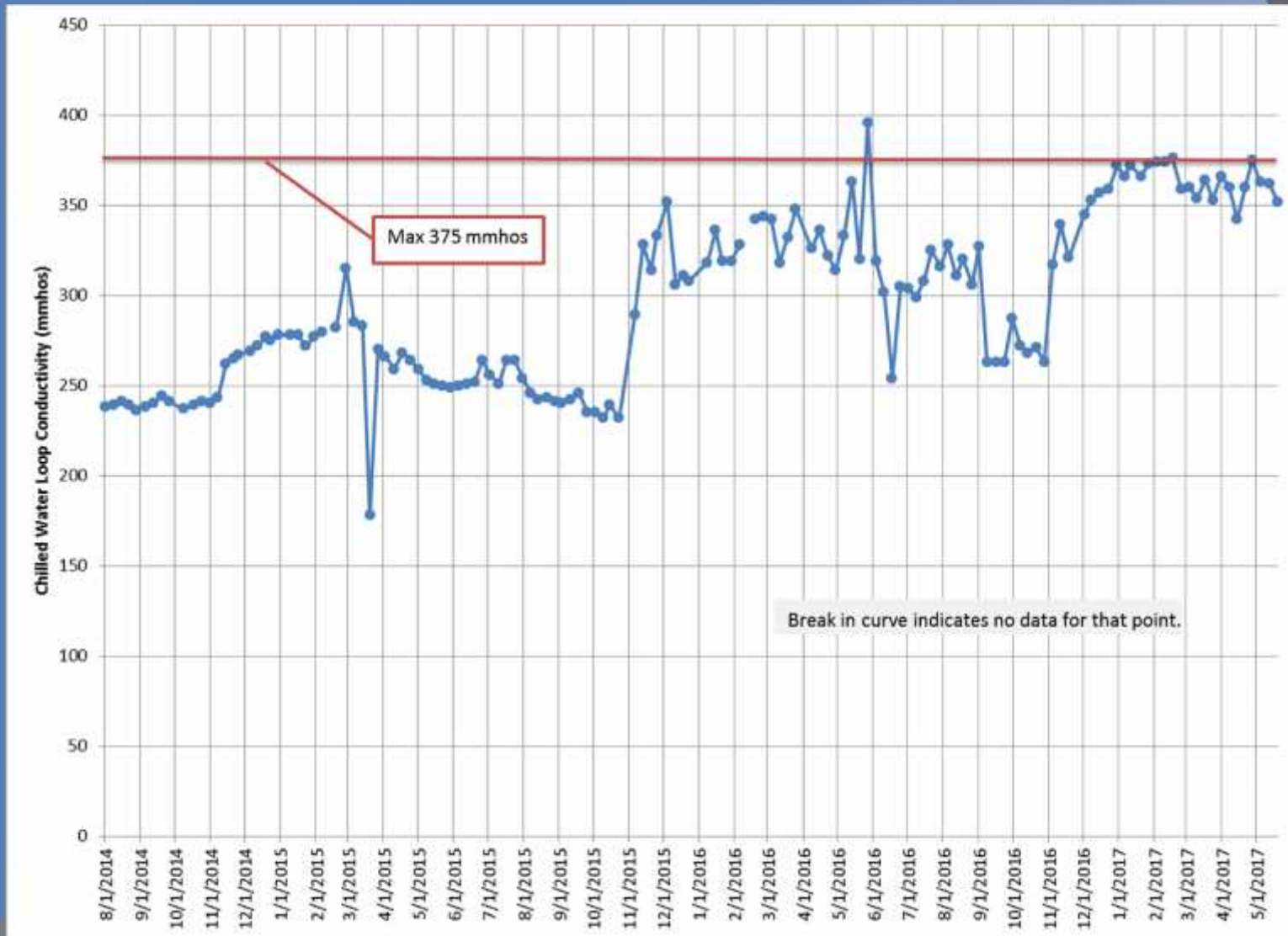
Historic Cost of Chilled Water Leak



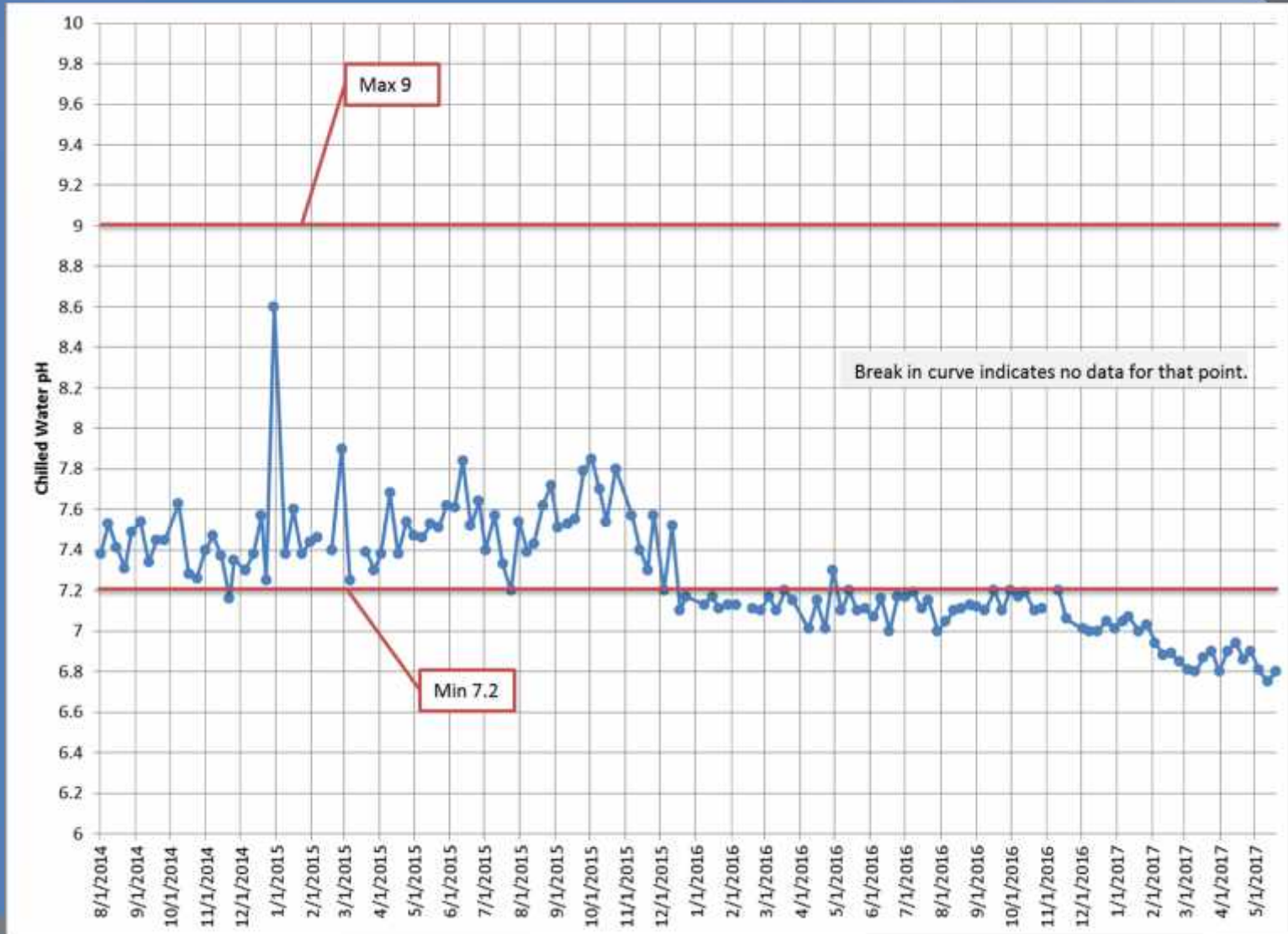
8. *Chilled Water Chemistry*

- ❖ Nashville Chemical is CNE's Chemical Vendor
 - ❖ Conductivity
 - ❖ pH
 - ❖ Phosphate
 - ❖ Tolyltriazole
 - ❖ Microbiological Growth at EGF
 - ❖ Microbiological Growth at Select Customers

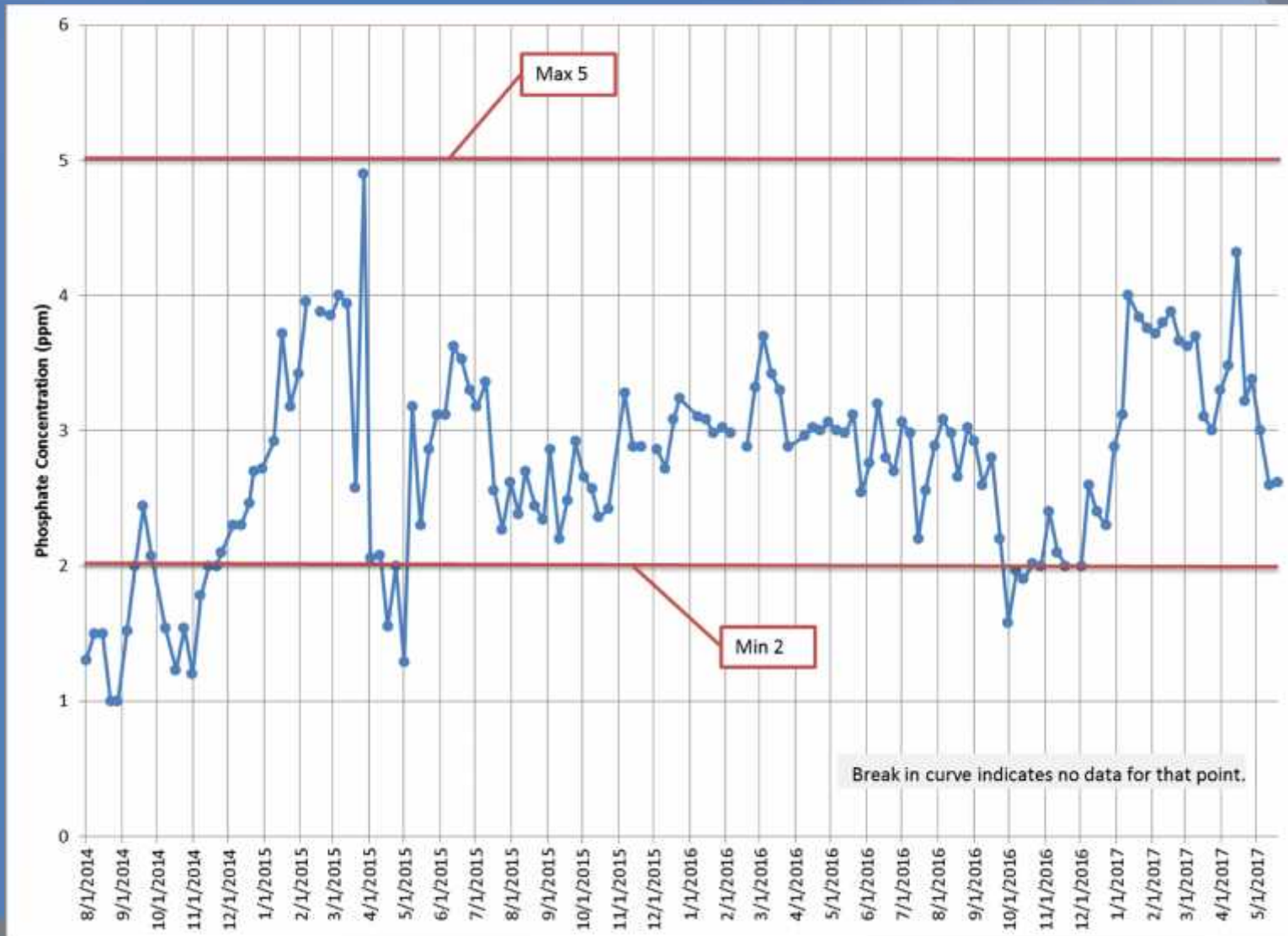
CHW Conductivity



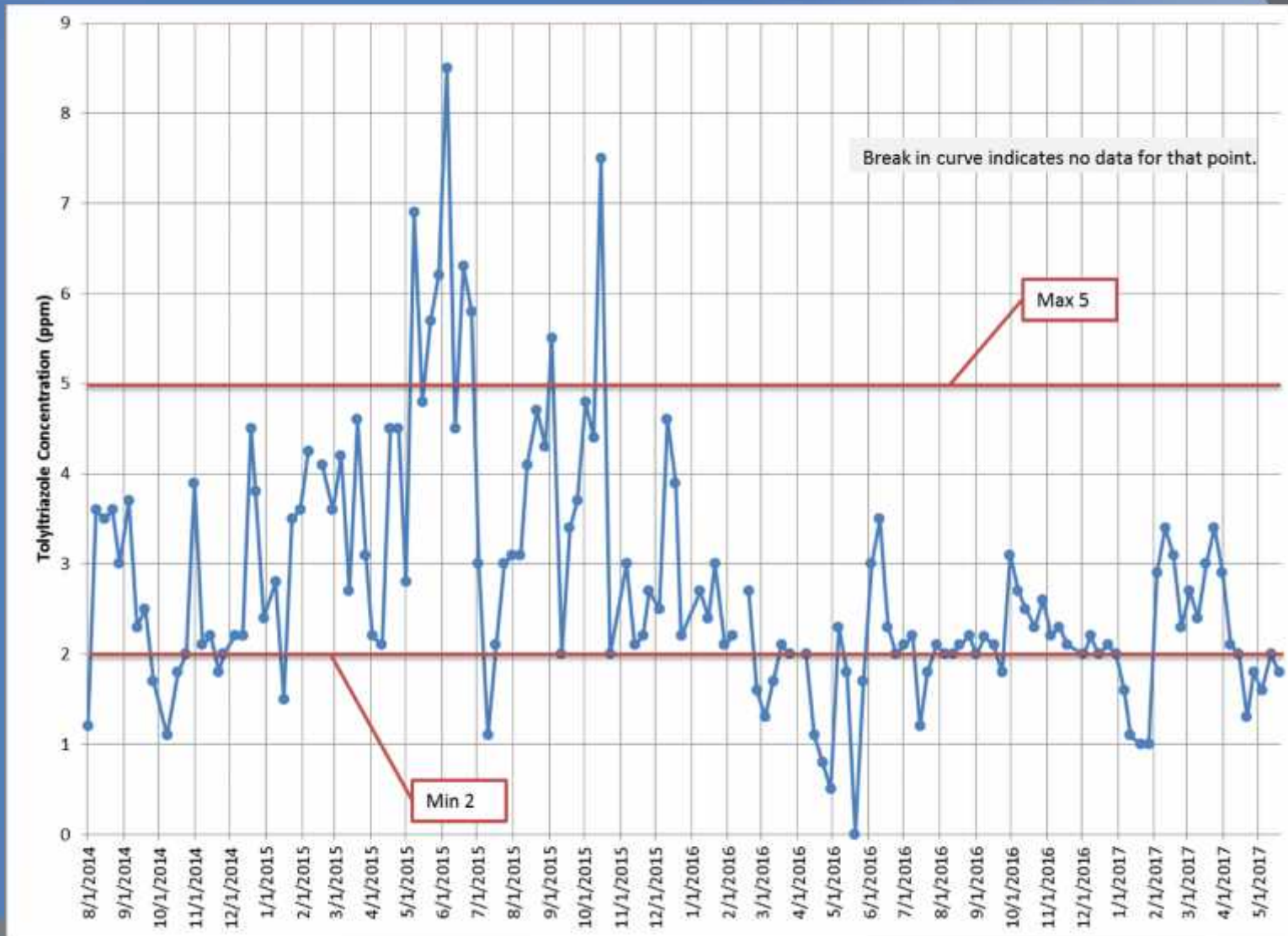
CHW pH



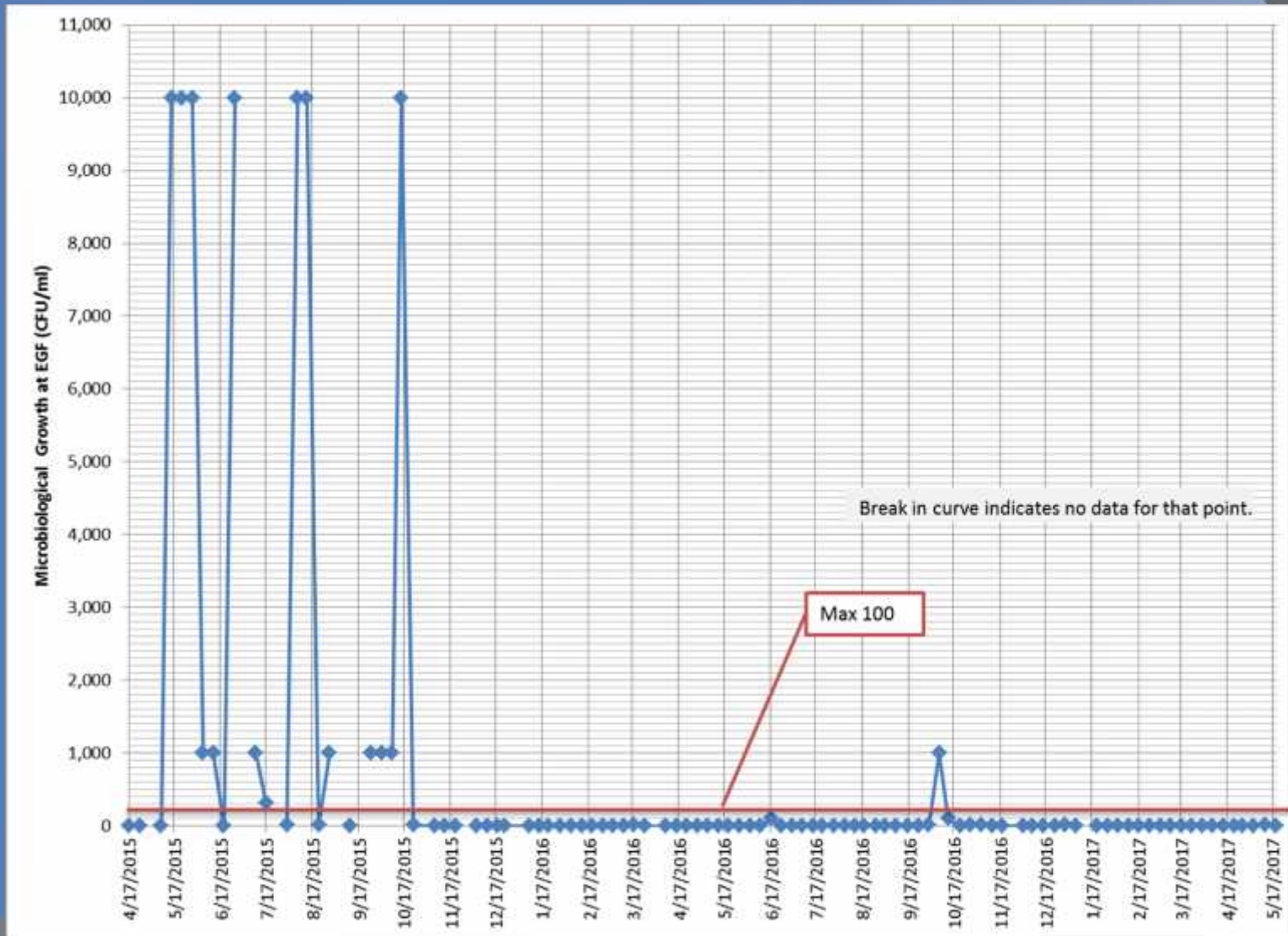
CHW Phosphate



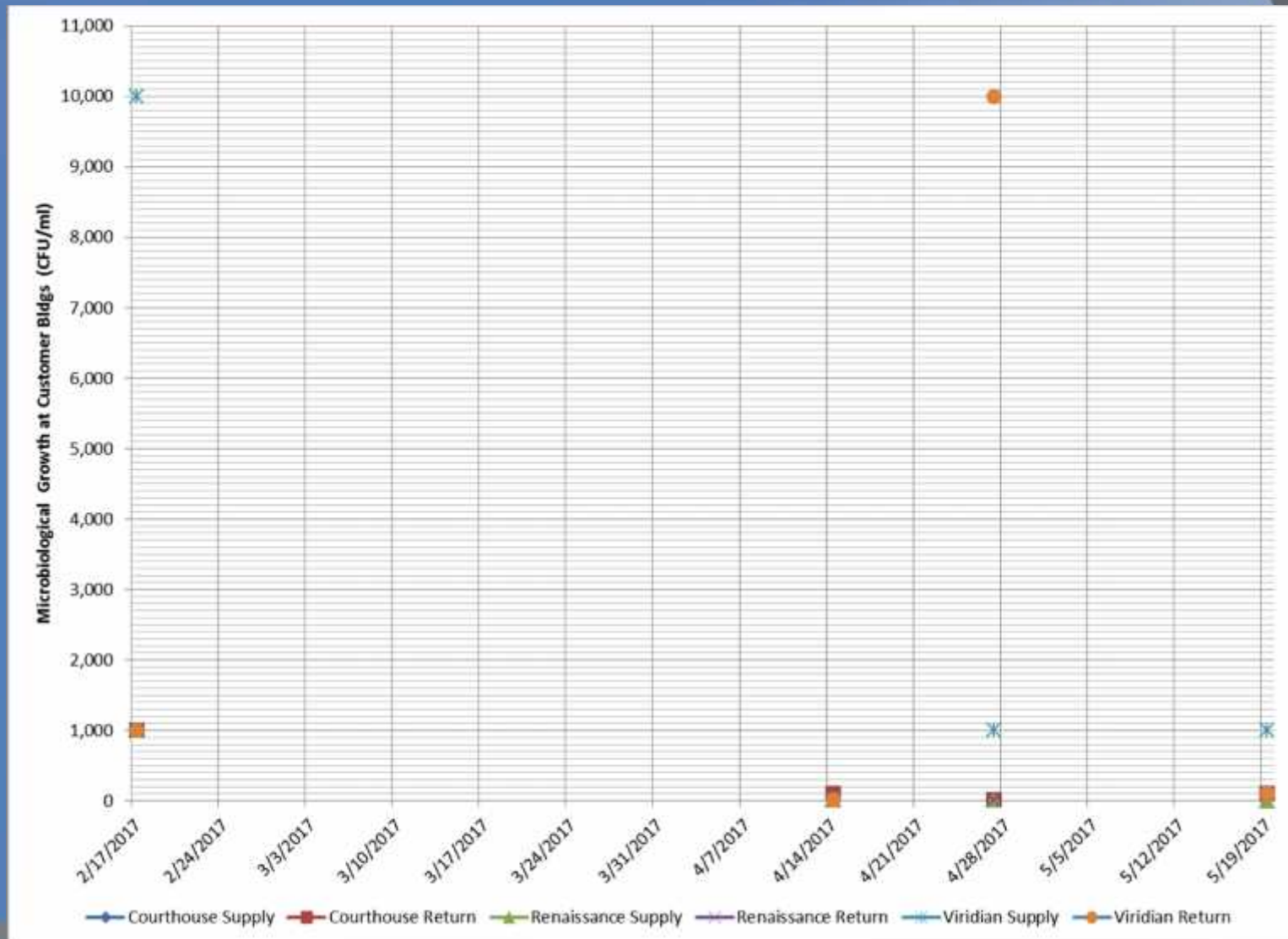
CHW Tolyltriazole



CHW Microbiological Growth at EGF



CHW Microbiological Growth at Select Customers



9. *DES Projects*

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 4th Quarter FY17
- ❖ DES 134: 401 Union Reconnection – construction completed; review of in-building connections in process
- ❖ DES 135: CHW Leak at 5th Ave and Union (at JKP/TPAC) – in construction
- ❖ DES 137: Addition of CHW Valves at Cordell Hull – construction completed; anticipated to be closed during 4th Quarter FY17
- ❖ DES 138: Manhole D Repairs – to be bid, awarded and construction to start in 4th Quarter FY17

Capital Expenditures

	Spent to End of FY16	FY17 Spending	Balance to Date (04/19/17)
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
Total	\$12,271,953	\$698,278	\$27,281,137
Available			\$1,449,843

10. Questions and Answers

Please complete and submit survey

11. Adjourn