



OFFICE OF THE CITY AUDITOR COLORADO SPRINGS, COLORADO

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19-16 Colorado Springs Utilities Water and Wastewater Forecast and Electric Load Study

August 2019

Purpose

The purpose of this review was to evaluate key inputs used in Colorado Springs Utilities (Utilities) rate development process. We reviewed the 2020 Water and Wastewater Sales and Revenue forecasts for consistency and reasonableness as compared to historical data. Additionally, we reviewed the sample meter data utilized in the Utilities Electric Load Study. This review was performed in preparation and support of our review of future Cost of Service Studies.

Highlights

We conclude that the 2020 Water and Wastewater Revenue Forecast dated May 2019 prepared by Utilities was calculated accurately and consistently, and the methodology was reasonable. The methodology was compared to prior forecasts for consistency and calculations were tested for accuracy. We performed analytical review to ensure units and revenues appeared reasonable as compared to historical data.

We conclude that sample meter data used to produce the 2019 Electric Load Study was adequate to meet Utilities desired confidence level. Our audit scope included review of sample sizes and selection methods for meter data used in the study. We identified one observation and one opportunity to ensure appropriate sample meter data was available for use in the future. See pages three and four of this report for more information on the recommendations.

Water and Wastewater Sales and Revenue Forecast

Utilities water revenue forecast was \$213.5M for 2020. We believe that the 2020 forecast was reasonable as compared to the 2018 Actual water revenue of \$206.6M and 2019 Annual Operating Plan (AOP) water revenue of \$205M. At the time of our review, a rate increase of 3.5% had been included in the 2020 forecast.

See page two of this report for data related to Water and Wastewater, 2010 to current year, forecast to actual revenue and unit sales.

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Management Response

Management was in agreement with our recommendations. Management responses can be found on pages three and four of this report.

Recommendations

1. Utilities should review the electric load study sample meter population for the ETL class at least annually and set additional meters as needed.

Opportunity for Improvement

1. Utilities should consider the cost compared to the potential benefit of updating the load study residential meter sample.

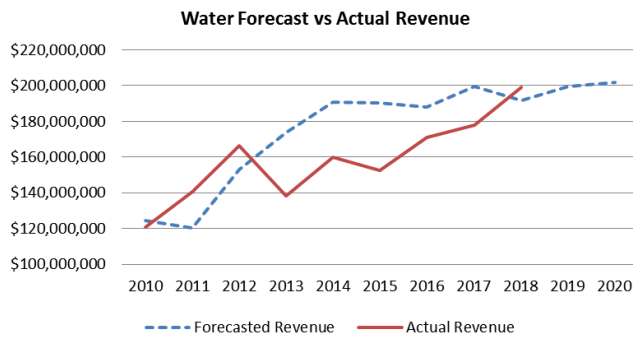
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City Hall, 107 North Nevada Ave. Suite 205, Mail Code 1542, Colorado Springs CO 80901-1575

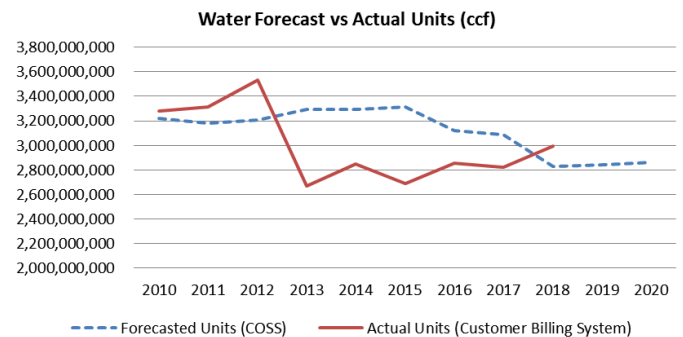
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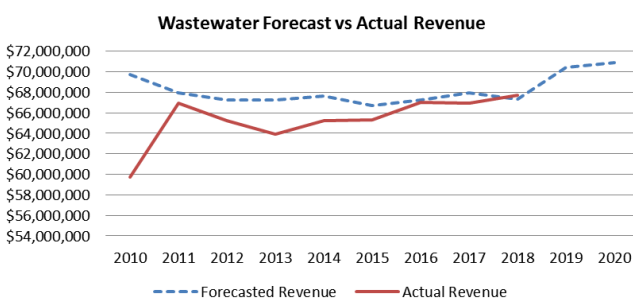


Source: Colorado Springs Utilities General Ledger and Forecast System; COSS data only

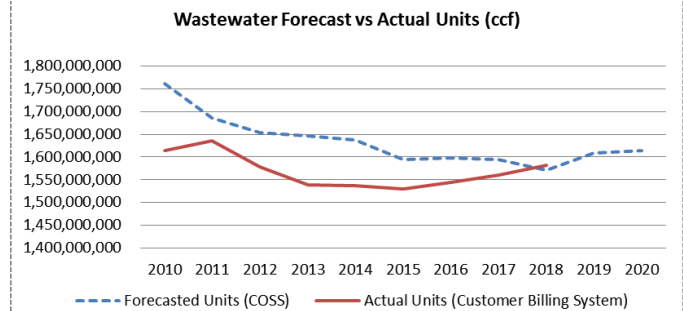


Source: Colorado Springs Utilities General Ledger and Forecast System; COSS data only

Utilities wastewater revenue forecast was \$72.4M for 2020. We believe that the 2020 forecast was reasonable as compared to the 2018 Actual wastewater revenue of \$68.8M and 2019 AOP wastewater revenue of \$70.5M. At the time of our review, a rate increase of 2% had been included in the 2020 forecast.



Source: Colorado Springs Utilities General Ledger and Forecast System; COSS data only



Source: Colorado Springs Utilities General Ledger and Forecast System; COSS data only

Electric Peak Demand Load Study

Colorado Springs Utilities regularly performed an analysis of peak demand by rate class known as an Electric Load Study. The load study was prepared by Utilities personnel using specialized software with assistance from a consultant engaged by Utilities. Our audit scope focused on the sample meter data used to generate the study.

Load Study results were used in the Electric Cost of Service Study to allocate costs to the classes that contribute to peak demand, under the rate principle of cost causation. Utilities Advanced Meter Infrastructure project will provide demand meter data for use in load research. However, that project was not expected to be complete until 2023.

Utilities management indicated electric rate cost of service studies were not expected in the next several years. When rate cases are filed, accurate load data is needed for cost allocations to rate classes. We identified one observation and one opportunity for improvement related to sample meter data to be used in future load studies.

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Observation 1

- Meters providing peak load sample data for the ETL class declined significantly since sample meters were set in 2009 and 2016.

Utilities prepared a load study in 2019 based on 2017 data. Results were within the desired 90% confidence level with 10% accuracy.

Utilities placed 120 sample meters for this rate class in 2009. By 2015, the number of available meters had declined to 80. An additional 120 meters were set in early 2016. The number of meters providing reads was 73 for 2017. If the sample meter population declines further, the results for this class will not meet the desired confidence criteria.

Utilities Advanced Meter Infrastructure project will provide demand meter data for use in load research eliminating the need for sample meters. However, that project was not expected to be complete until 2023. Utilities does not anticipate electric rate increases in the next several years.

Management Response

Colorado Springs Utilities agrees to monitor this rate class and the statistical significance of the sample annually with the first review completed by May 31, 2020. Utilities uses standard statistical calculations to determine sample sizes that provide statistically significant results. Currently, Utilities and our consultant believe that the number of meters (69) and the statistical error provided by this sample are within the parameters of an accurate sample.

Recommendation

Utilities Financial Planning and Analysis Department should :

- Review the sample meter population for the ETL class at least annually.
- Set additional meters as needed.

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Opportunity 1

- The sample meter population for residential (E1R) customers had not been updated since the sample was set in 2009.

Results per Utilities 2019 load study report using 2017 data were within the desired 90% confidence level with 10% accuracy.

Since the sample was set in 2009, the number of residential meters increased by 7% and air conditioning saturation increased from 44% to 56%. Additionally, the original sample was not selected from the total population of residential meters. Updating the sample would help ensure representative load study results for residential customers.

Management Response

Colorado Springs Utilities has considered the cost/benefit of updating the sample meters for E1R and has concluded that the timing and the expense involved are detrimental when compared to the benefit gained. Utilities uses standard statistical calculations to determine sample sizes that provide statistically significant results. Currently, the sample size provides more than adequate statistical significance. Utilities will continue to monitor the relevance of the sample to ensure that it meets the 90% Confidence Interval / 10% margin of error parameters. Monitoring will be performed annually with the first review completed by May 31, 2020.

Utilities agrees that the stratification of E1R needs to be updated so that the sample results can be applied accordingly. E1R load is based mainly on type of residence (single family home vs multifamily residence), household size (people and square footage) and air conditioning (have or do not have). The actual stratification is broken into average monthly usage blocks. Utilities believes that the current sample provides data from each stratum and that the overall sample population provides statistically significant results.

In 2019, Colorado Springs Utilities conducted a complete load study in support of Integrated Resource Planning. The consultant that performed the study was confident in the sampling data that was provided. The consultant also conducted end use sensitivity analysis around residential air conditioning saturation and its impact on peak demands.

Recommendation

Utilities Financial Planning and Analysis Department should consider:

- The cost compared to the potential benefit of updating the residential meter sample.