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Utility Cost Review

September 2024 | Cost Review Tactical Team

Presentation Contributors

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Project Overview

- This team was tasked to analyze budget recommendations to actual costs in 2023 and has subsequently prepared and periodically update material to illustrate the impact on GLWA in light of recent cost increases in non-discretionary purchases of these commodities
  - ***Collectively, the total costs of these commodities in FY 2025 are anticipated to be approximately 55% higher than costs experienced in FY 2020 (base FY for comparison)***
- In each of the exhibits in this Executive Summary;
  - Budget figures represent original budget as adopted by the GLWA Board of Directors
  - FY 2024 "Actuals" represent the unaudited activity through 06/30/2024
  - FY 2025 "Actuals" represent projected FY 2024 "Actuals" with an inflation factor (2.5%)
  - FY 2026 "Actuals" represent projected FY 2025 "Actuals" with an inflation factor (2.5%)
- Each section of this presentation highlights talking points that help explain the specific drivers behind the increases being observed

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Commodity Costs – Usage and Costs

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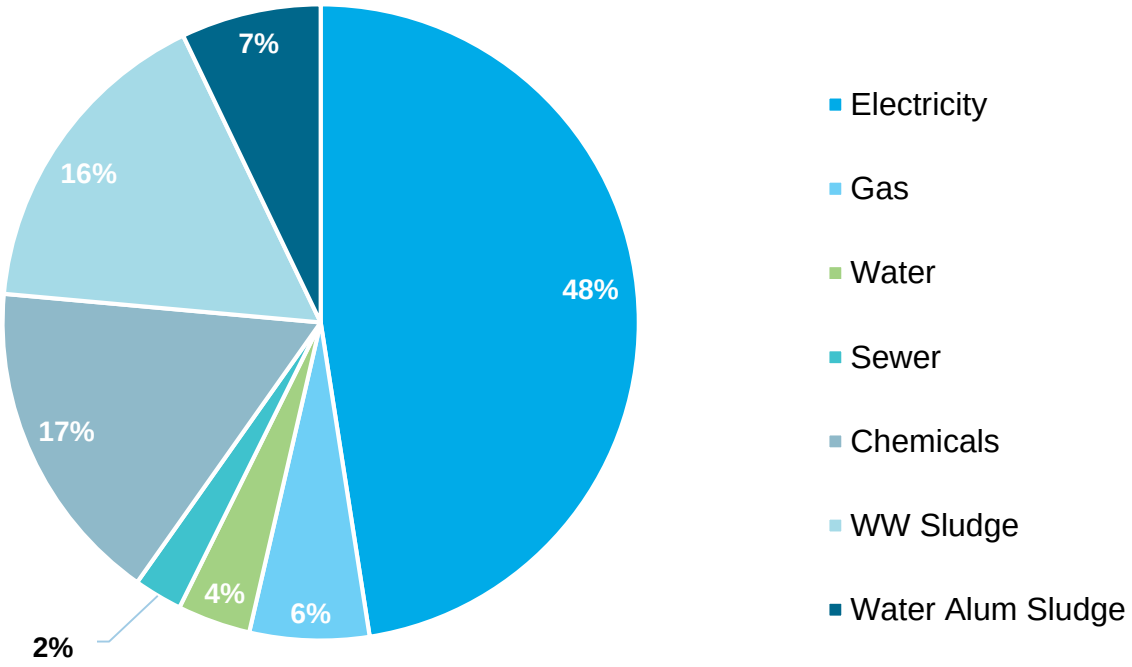
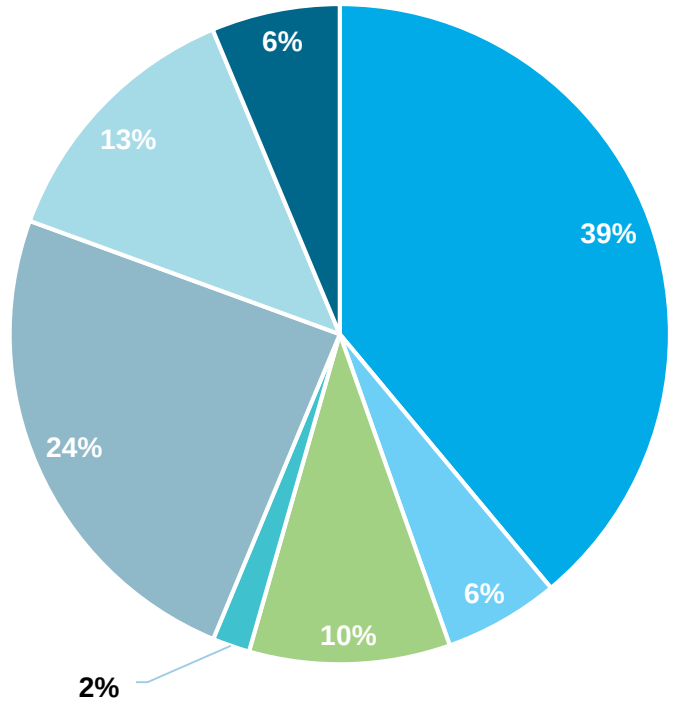
Commodities Overall – Executive Summary

FY 2020 Actuals



FY 2024 Preliminary Actuals



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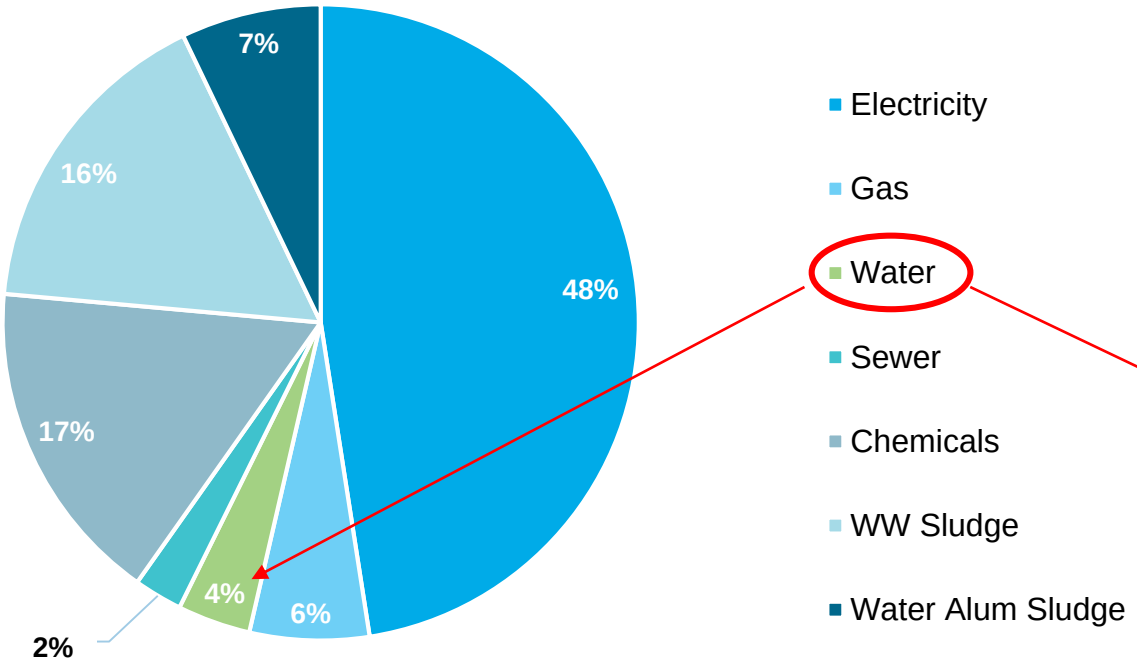
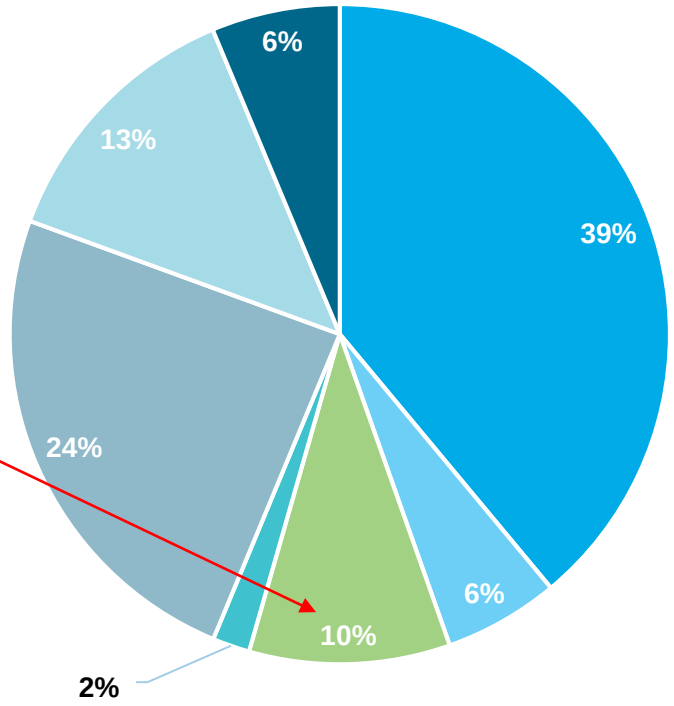
Water – Executive Summary

FY 2020 Actuals



Electricity
Gas
Water
Sewer
Chemicals
WW Sludge
Water Alum Sludge

FY 2024 Preliminary Actuals



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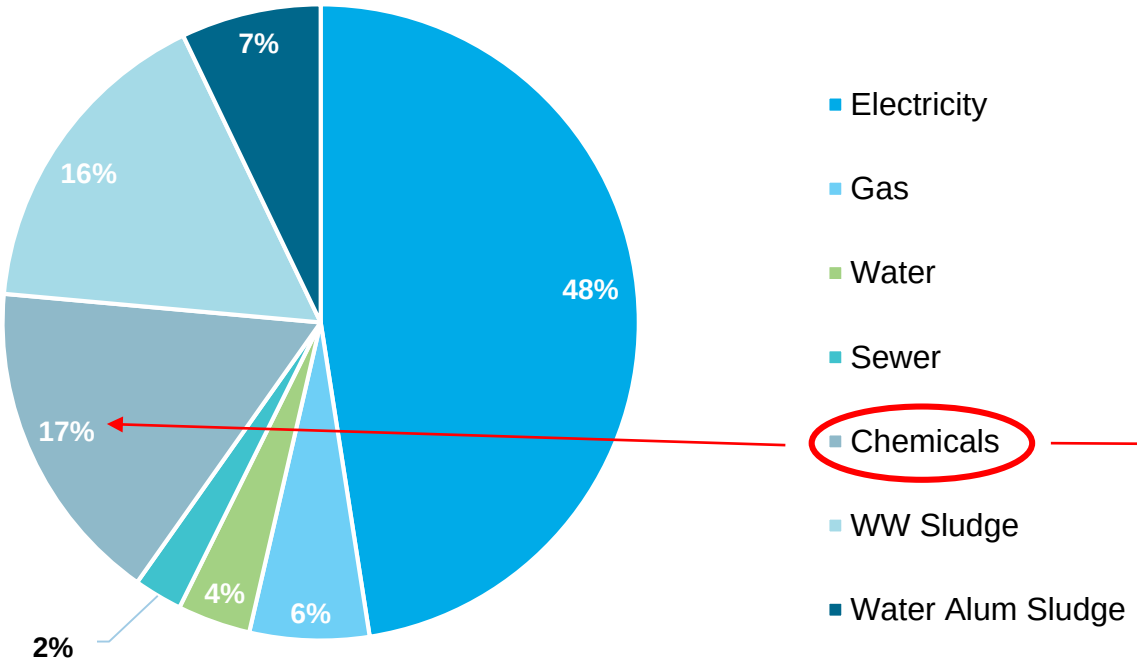
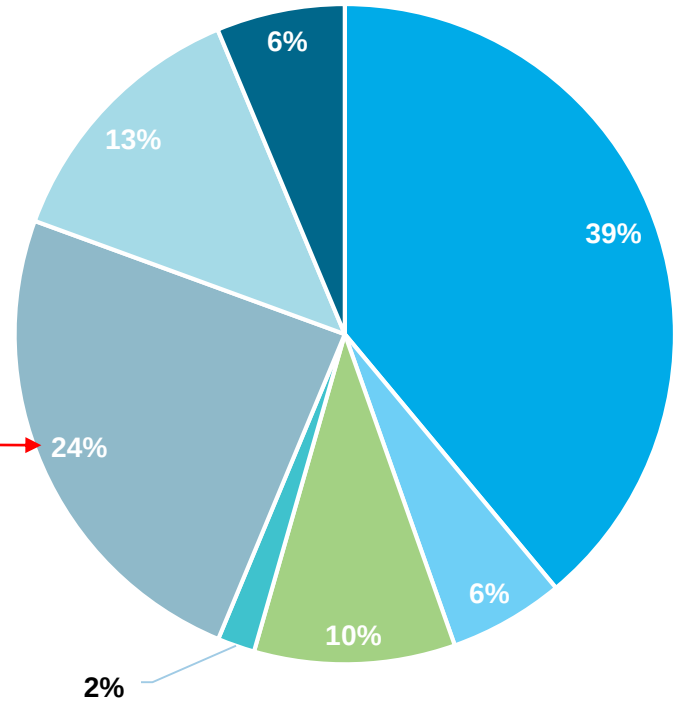
Chemicals - Executive Summary

FY 2020 Actuals



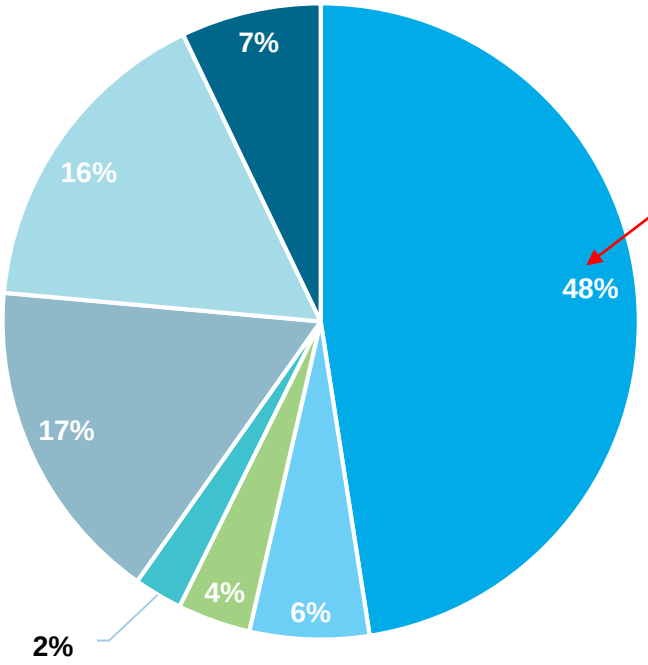
- Electricity
- Gas
- Water
- Sewer
- Chemicals
- WW Sludge
- Water Alum Sludge

FY 2024 Preliminary Actuals



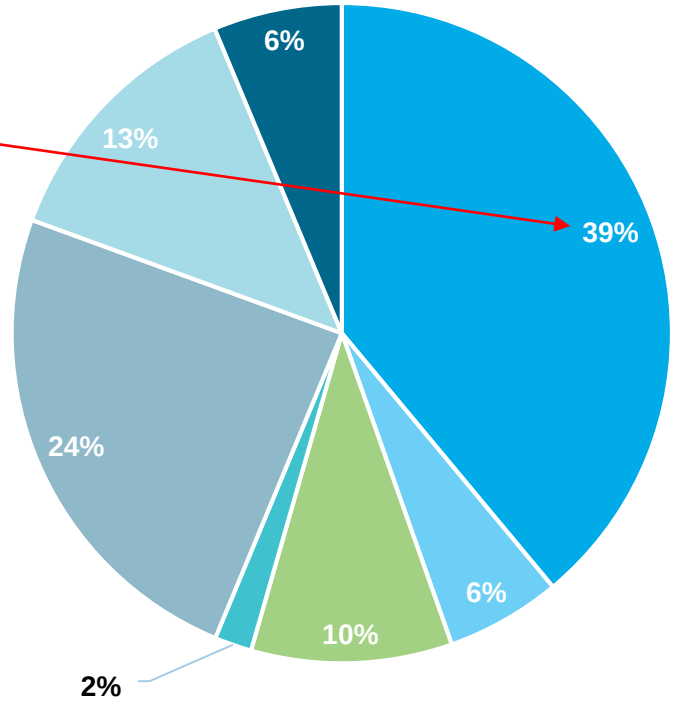
Electricity – Executive Summary

FY 2020 Actuals



Electricity
Gas
Water
Sewer
Chemicals
WW Sludge
Water Alum Sludge

FY 2024 Preliminary Actuals



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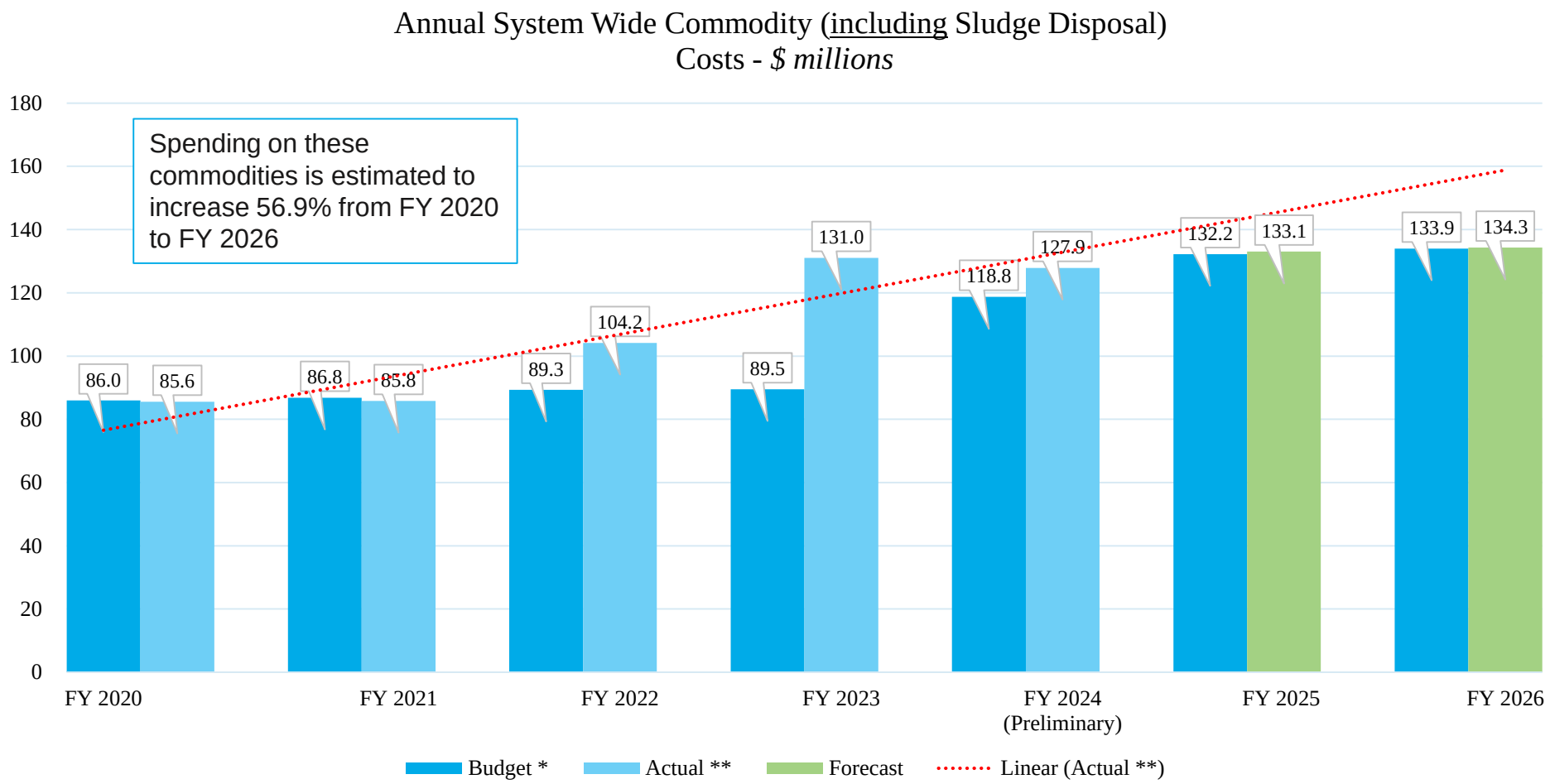
Commodities – Executive Summary



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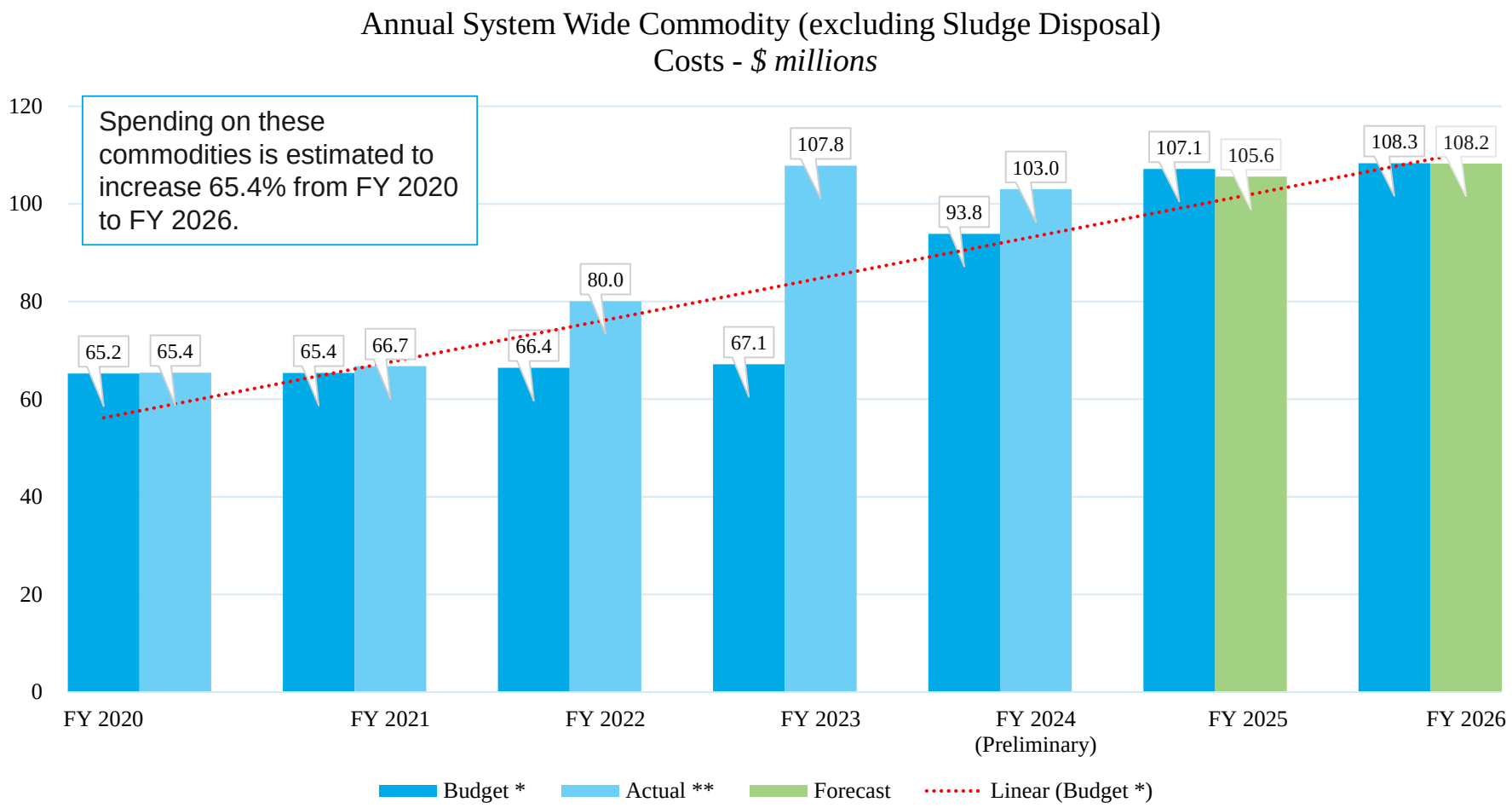
Commodities – Executive Summary



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Commodities – Executive Summary

- Excluding the sludge disposal items, “commodities” have historically only reflected roughly 8% of the total GLWA revenue requirement
  - Meaning that only ~ 8% of the GLWA total revenue requirement is impacted based on how much water we produce and deliver and how much wastewater we collect, treat and dispose of
- During FY 2023 this ratio increased to 12.5%, and over 15% when the sludge disposal amounts are included
- Based on Preliminary FY 2024 results the ratios are 11.8% and 14.7% when including sludge disposal

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Electric Usage and Costs

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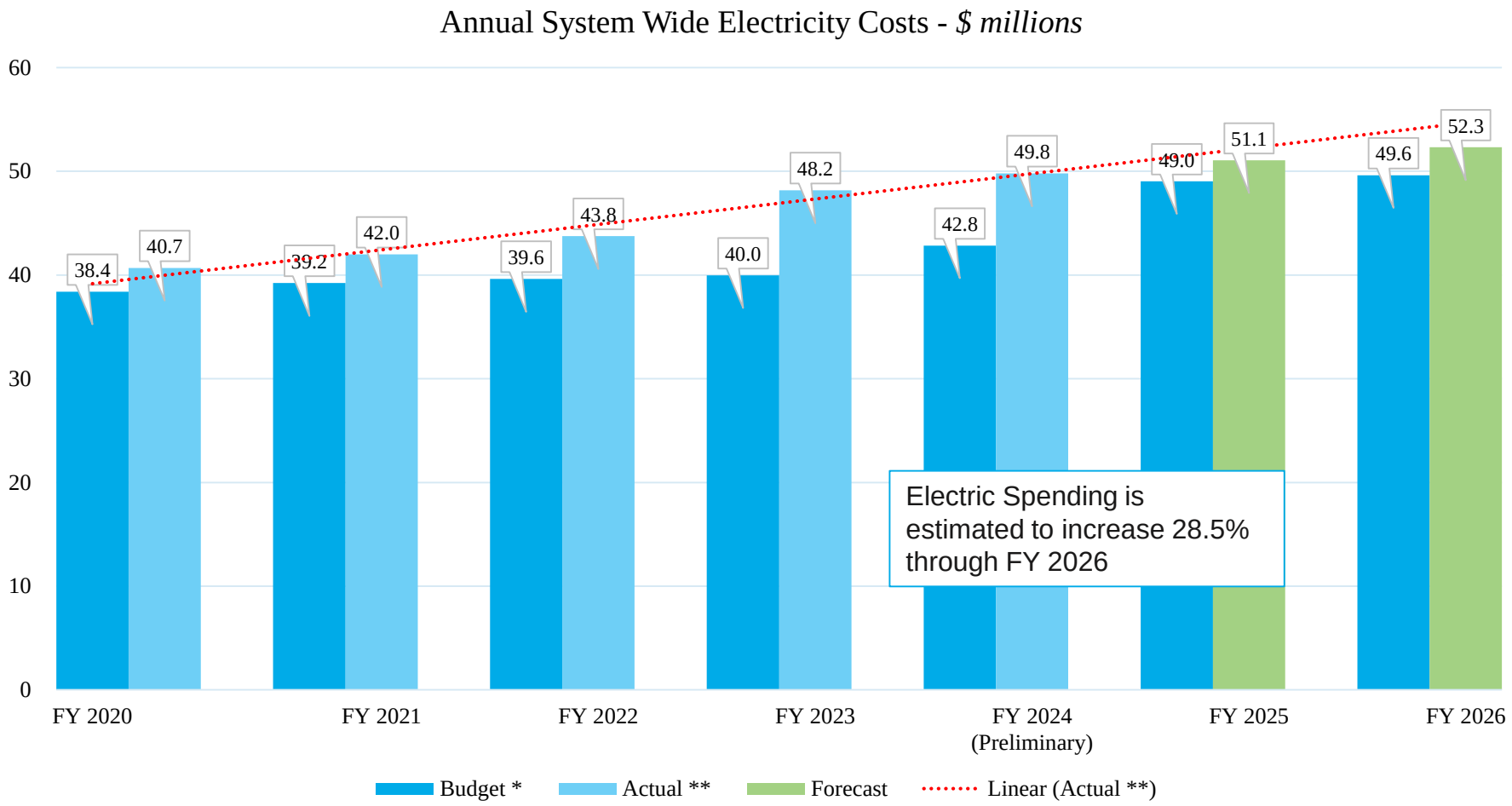
Electric – Executive Summary



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Water System – Electricity Usage

- Electrical usage is primarily associated with water distribution
- Peak production season (summer) results in higher electrical usage at the Water Treatment Plants (WTPs) and Pump Stations (Treated Water Transmission System)
- Cost per kWh has steadily increased since FY 2020 from $0.079 per kWh to $0.095 per kWh, a roughly 20.2% increase
- Based on a review of budget-to-actual data, it appears that budgeted expenses for power costs have fallen short of actual expenses for the last five fiscal years. This has led to concerns regarding the volatility of power costs and the status quo forecasting approach

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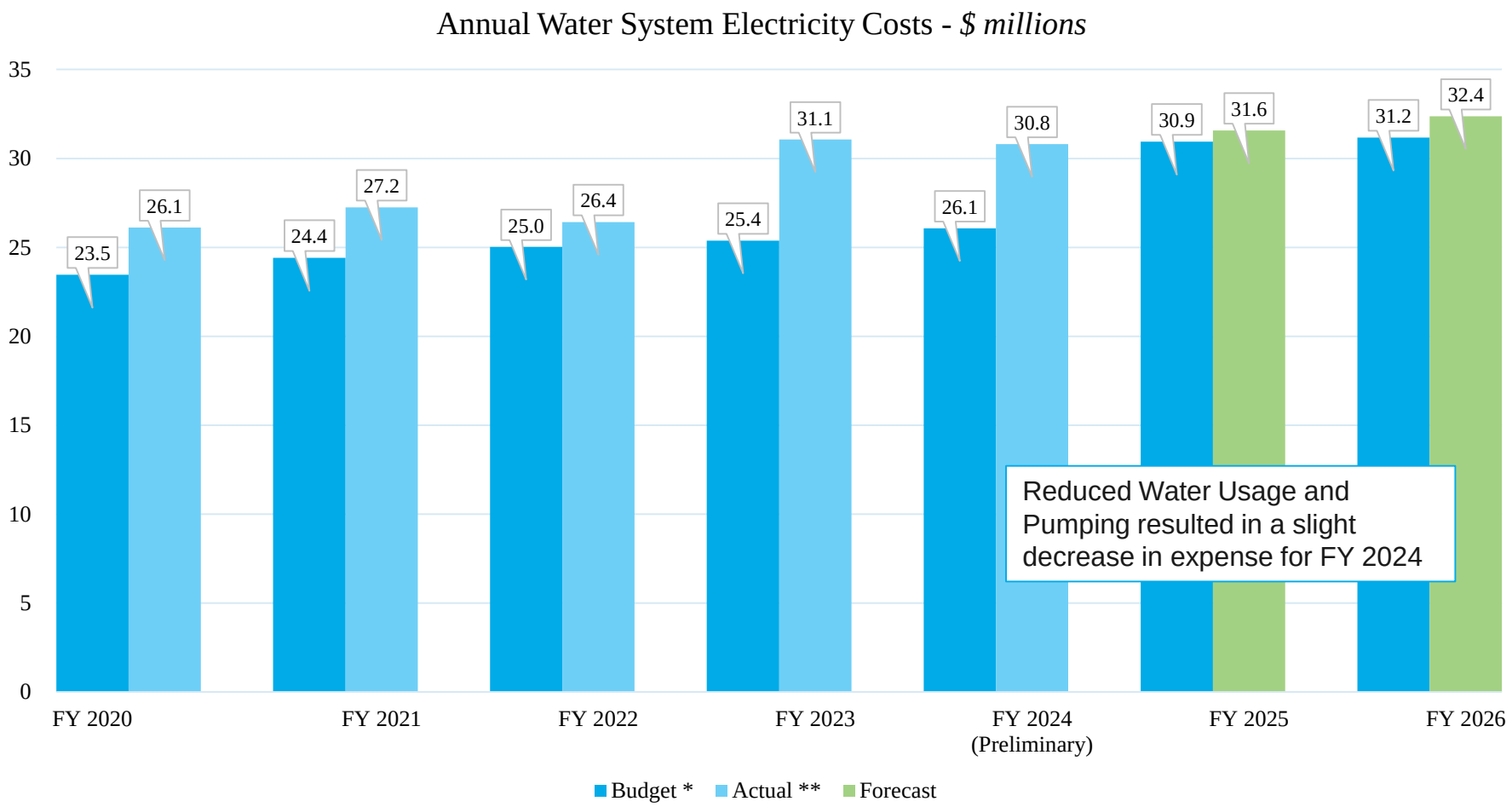
Water System – Adopted Electrical Budget



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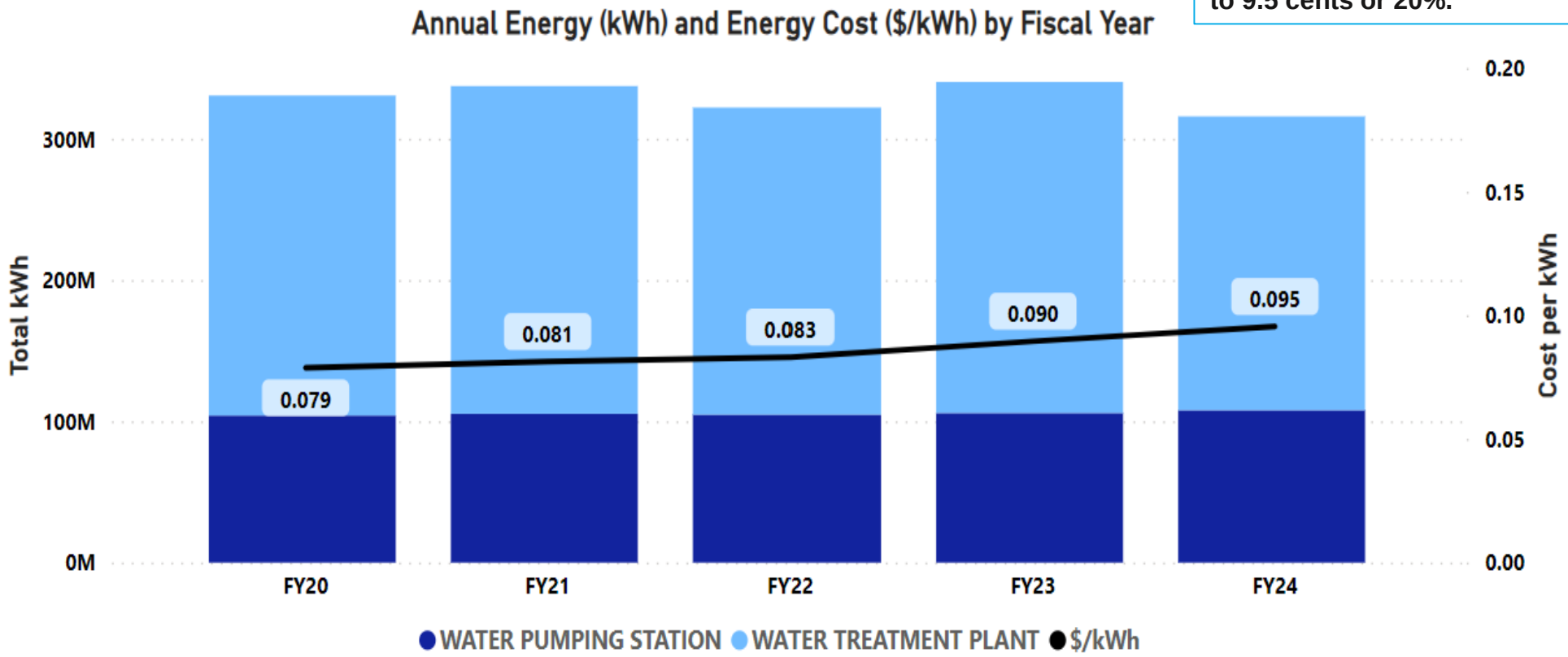
Water System Electric Usage and Unit Cost

Electrical usage has been stable, but the **unit cost has increased from 7.9 cents to 9.5 cents or 20%.**



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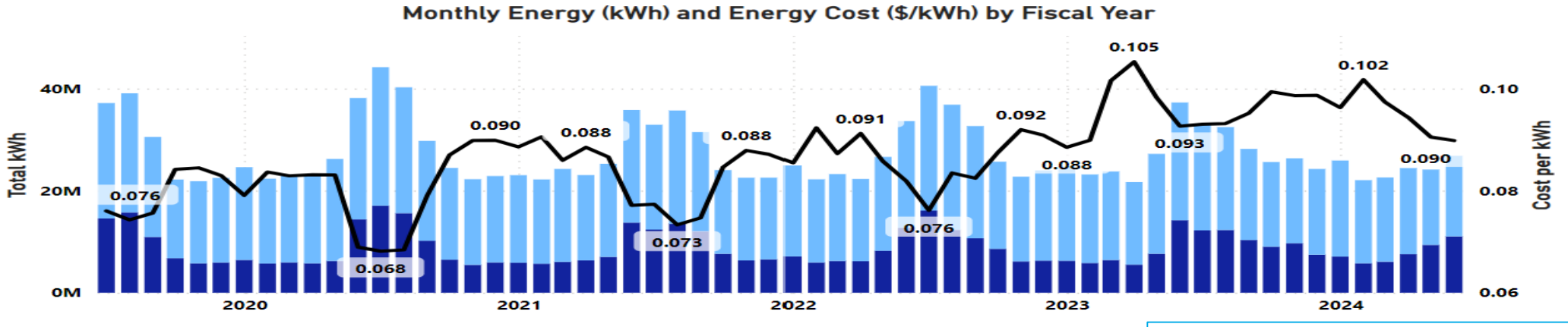
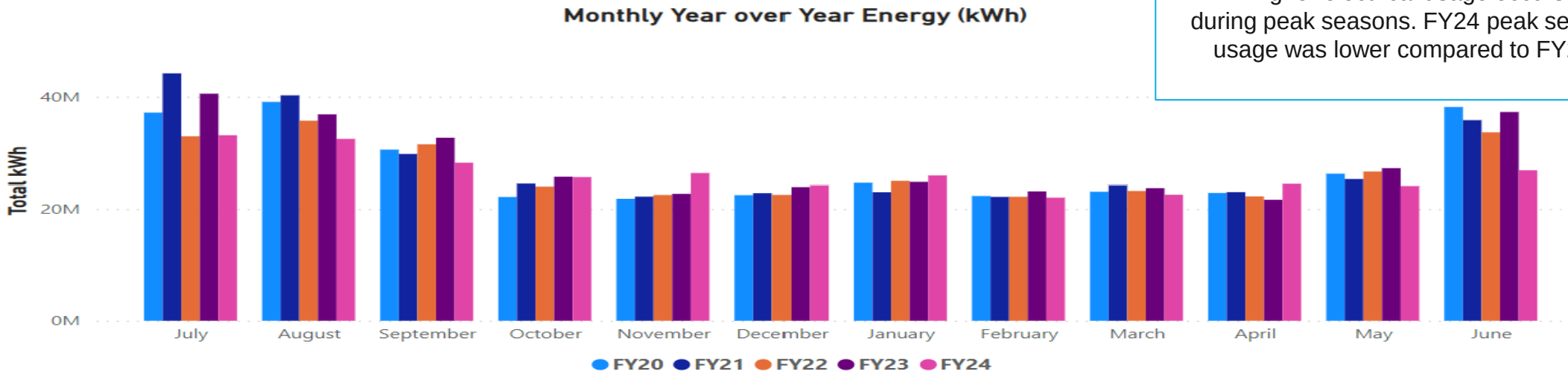
Water System Monthly Electric Usage





Higher electrical usage occurs during peak seasons. FY24 peak season usage was lower compared to FY23.

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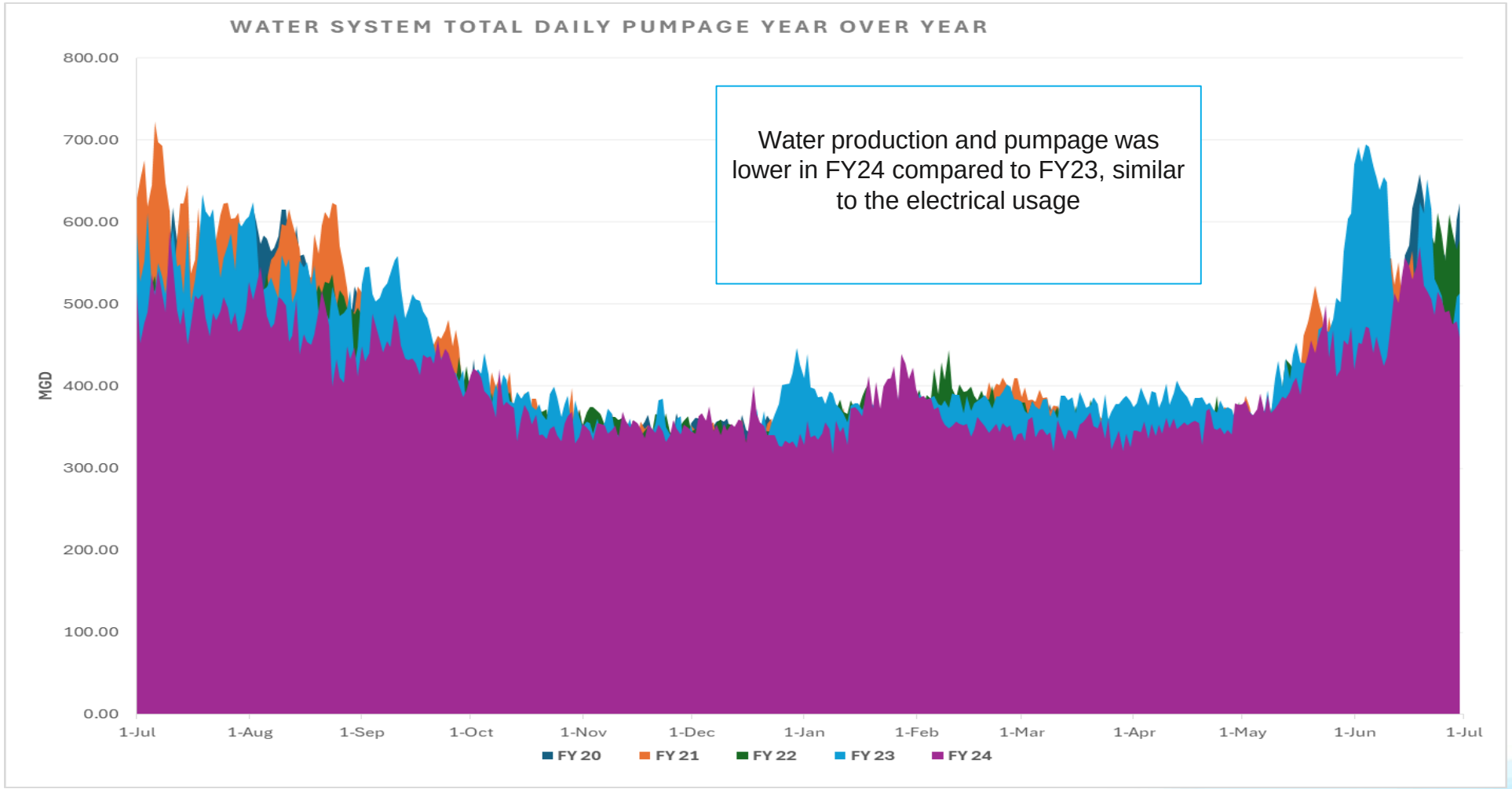
Water System Total Daily Pumpage Year Over Year



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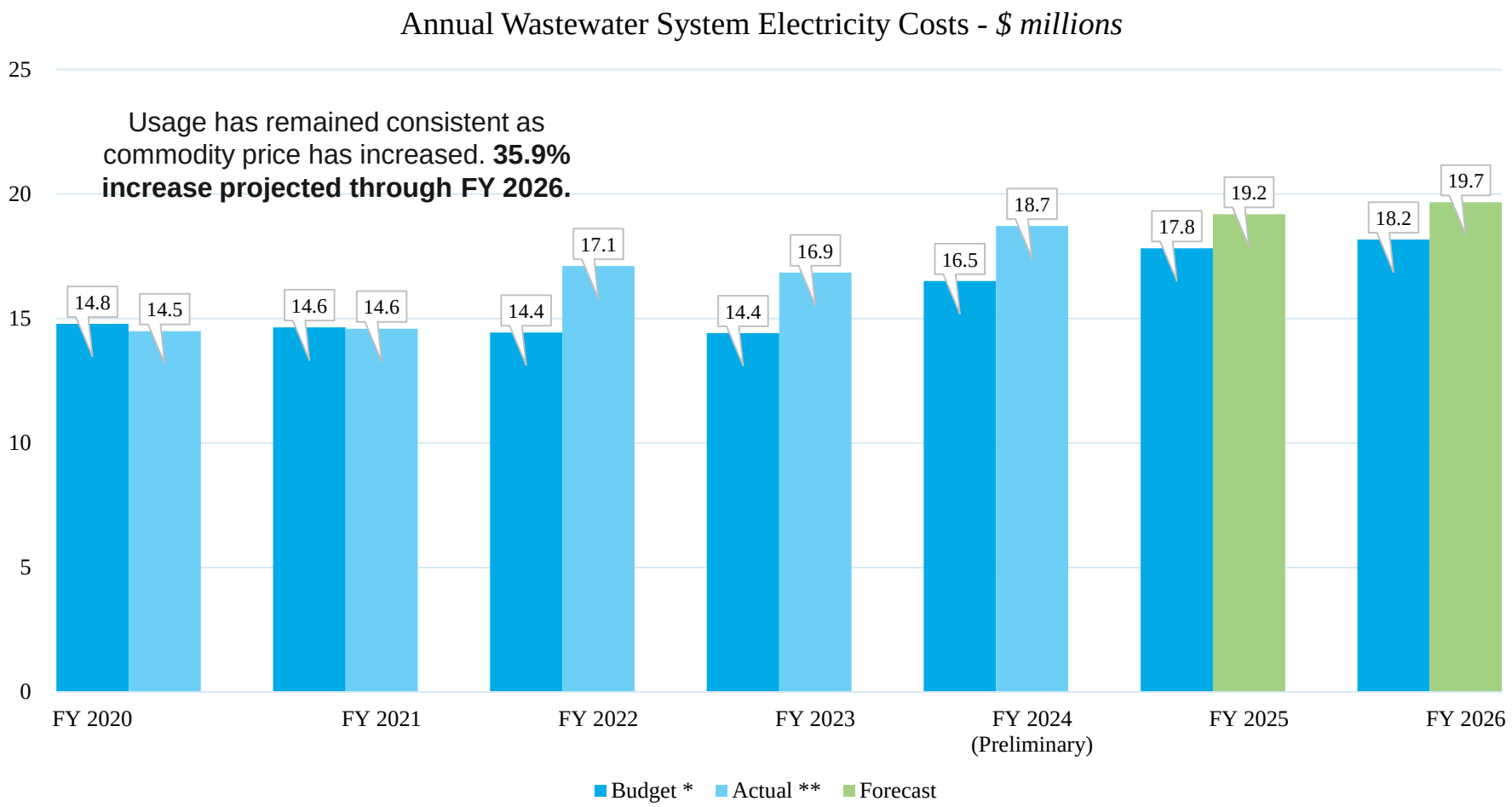
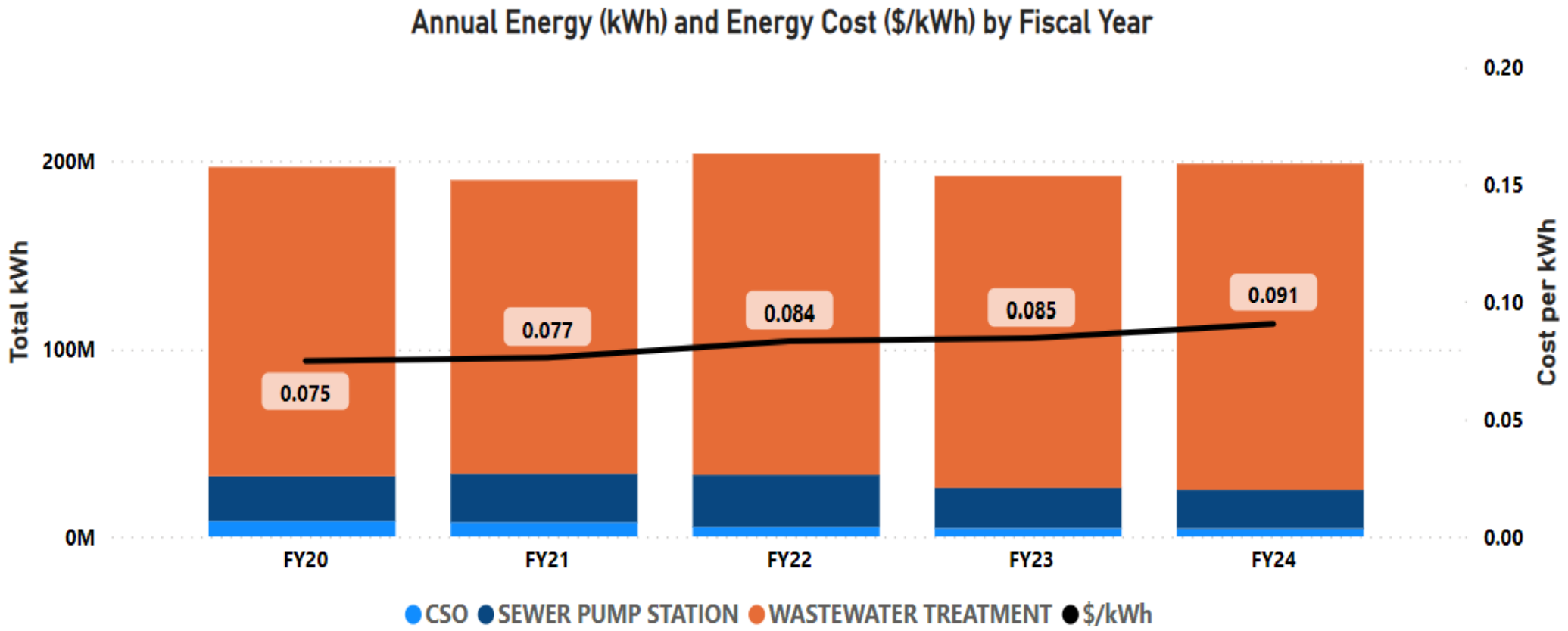
Wastewater– Adopted Electrical Budget



Wastewater Electric Usage and Unit Cost

Wastewater electrical usage has been stable, but the unit cost has increased from **7.5 cents to 9.1 cents or 20%.**



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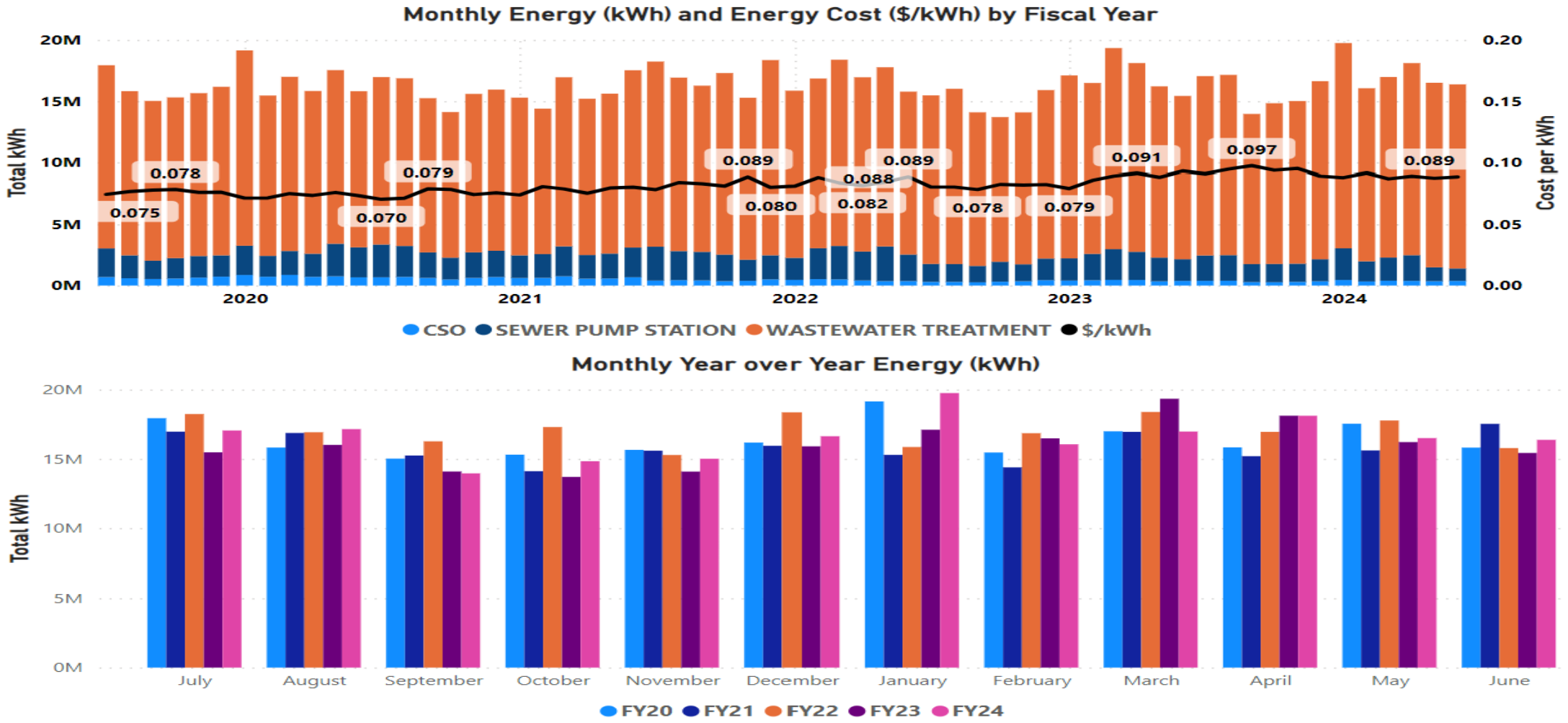
Wastewater Monthly Electric Usage



Most electrical usage is driven by WRRF. In FY24 electrical energy usage was higher than FY23 for most months

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Wastewater System Electrical Summary

- Wastewater Electrical usage is more consistent than the water system
- Cost per kWh has steadily increased since FY 2020 from $0.075 per kWh to $0.091 per kWh, a roughly 21.3% increase
- While the electrical budget and usage have remained consistent, cost per kWh has increased substantially. Additional increases as seen in FY 2024 and FY 2025 will be needed

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Natural Gas Usage and Costs

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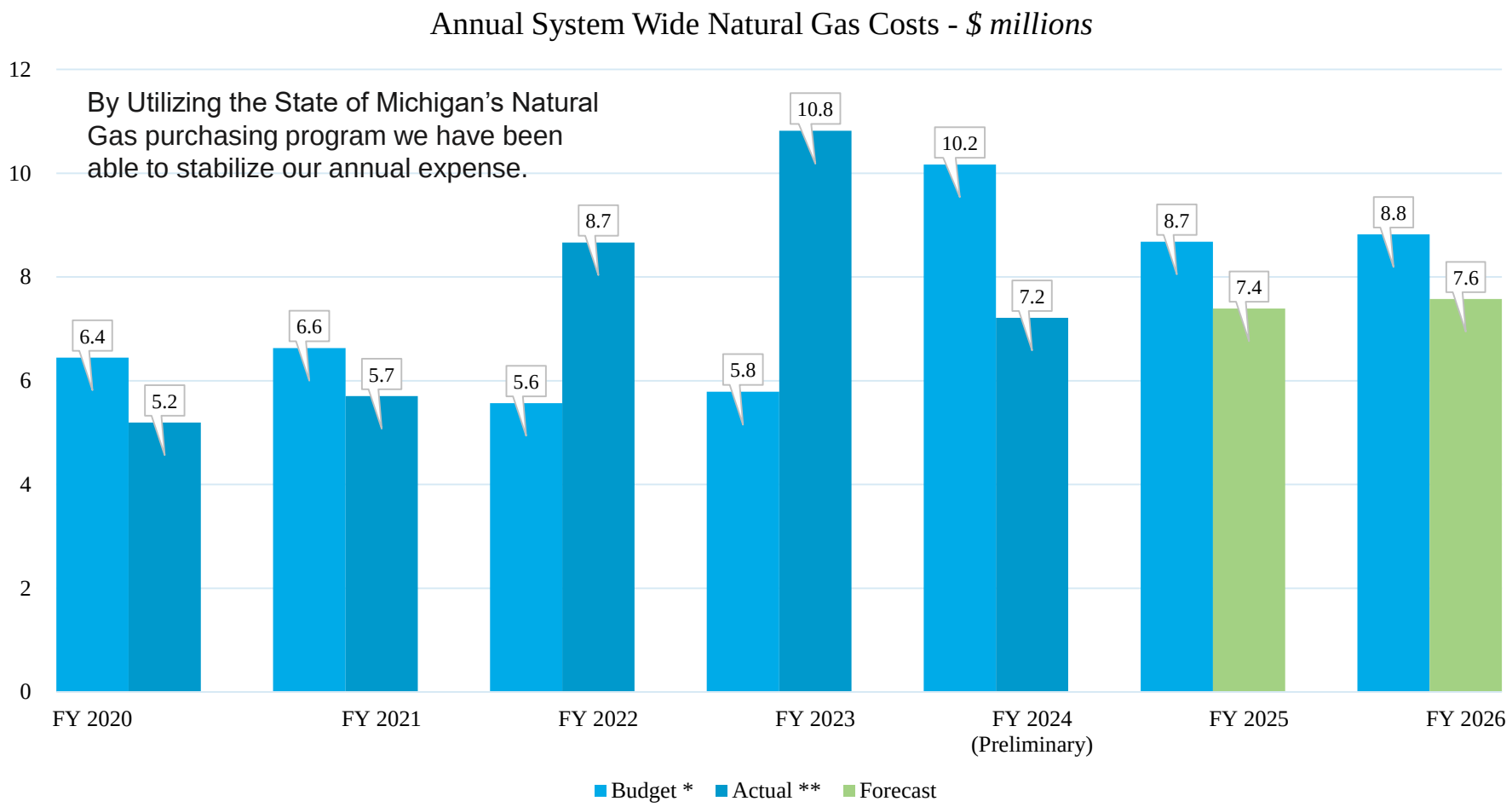
Natural Gas – Executive Summary



System Wide – Natural Gas Usage

- GLWA has negotiated and locked in gas pricing for fixed periods (1 – 2 years), minimizing the effect of market volatility
- 80% of anticipated volume for FY 2025 has been locked in at an average rate of $3.00 per mmBTU, $.04 lower than the rate locked in for FY 2024
- GLWA can effectively estimate anticipated annual volume due to the majority of usage being process driven and consistent year over year

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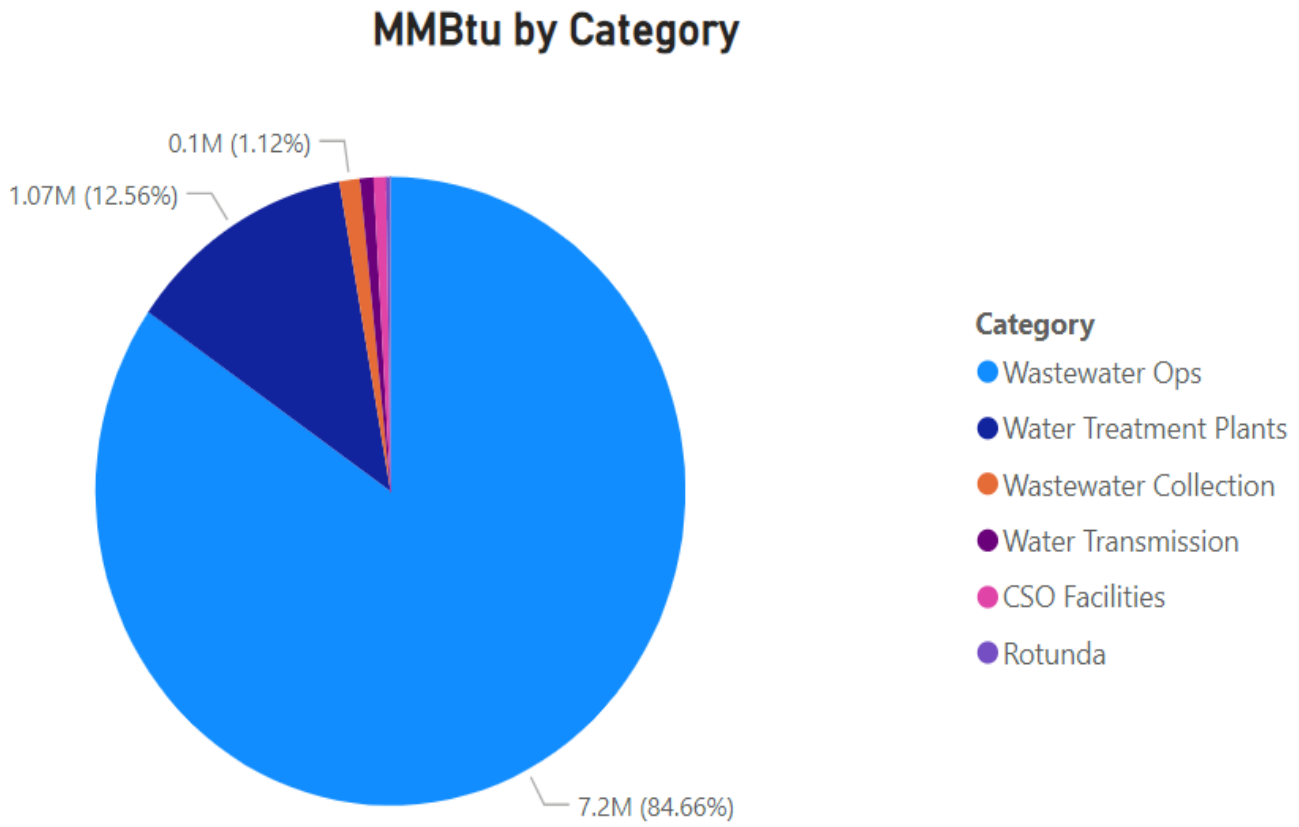
Natural Gas Usage

- Pie Chart represents Natural Gas usage by location type from FY 2019 thru FY 2024
- Wastewater Operations accounts for 85% of GLWA's natural gas usage (Process Use)
- Water Treatment Plants account for 12.5% (Heating)
- Average Natural gas unit cost for FY 2024 was $3.90 per mmBTU



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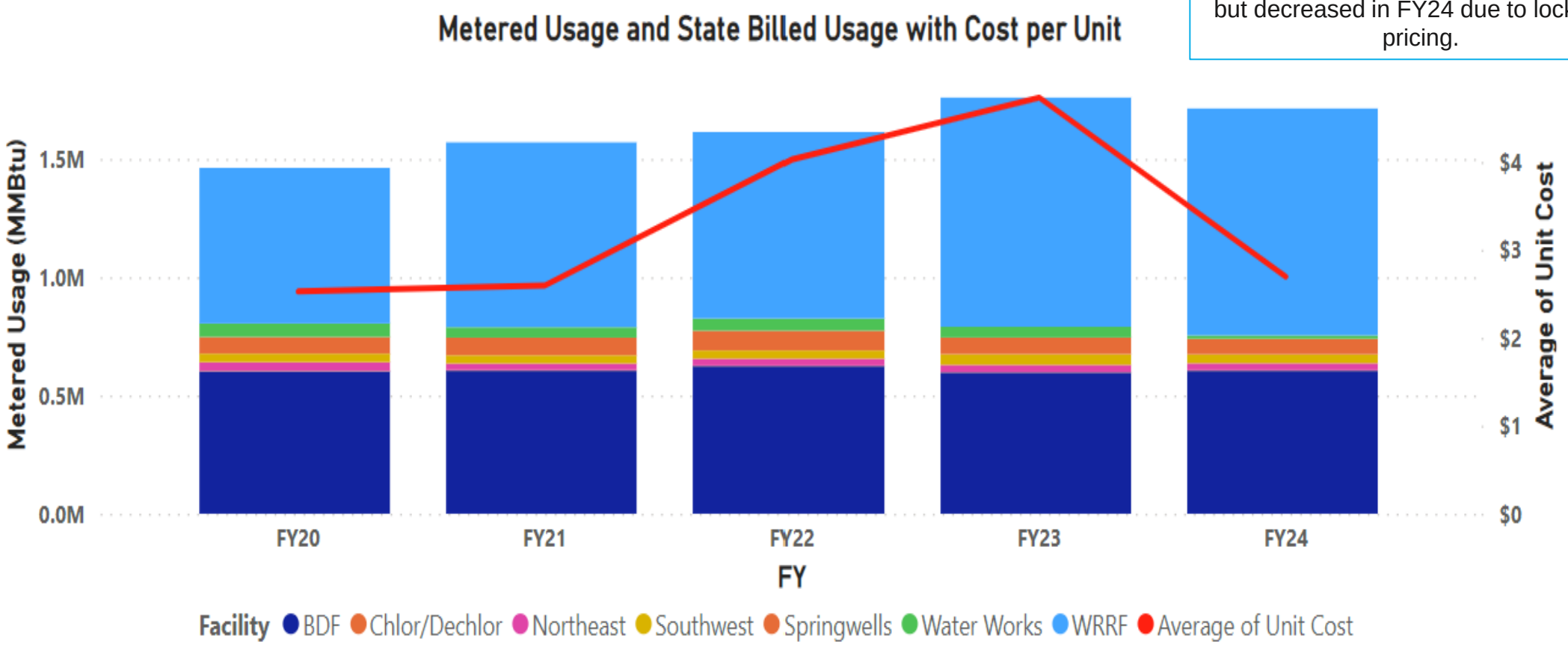
Natural Gas Usage and Unit Cost

Unit cost was higher for FY22 and FY23, but decreased in FY24 due to locked in pricing.



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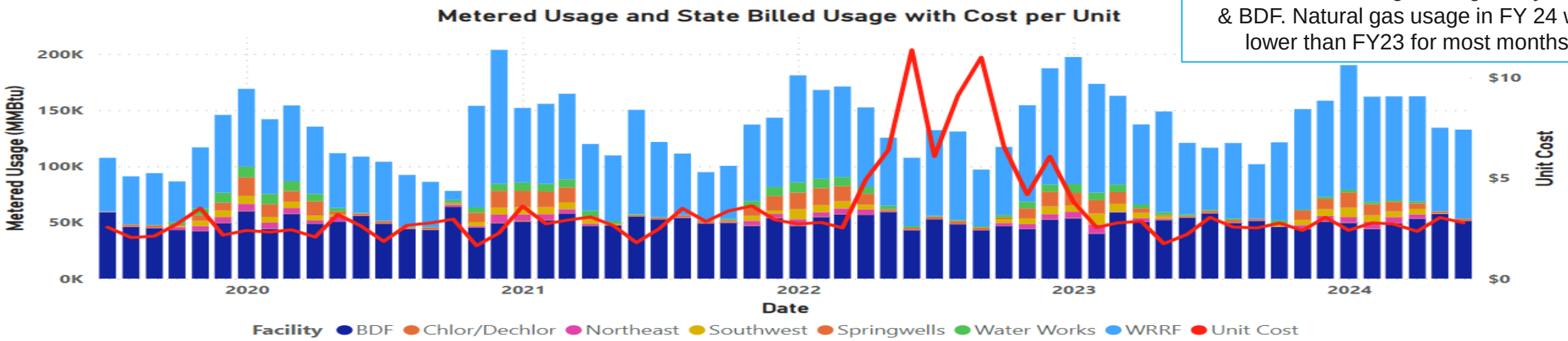
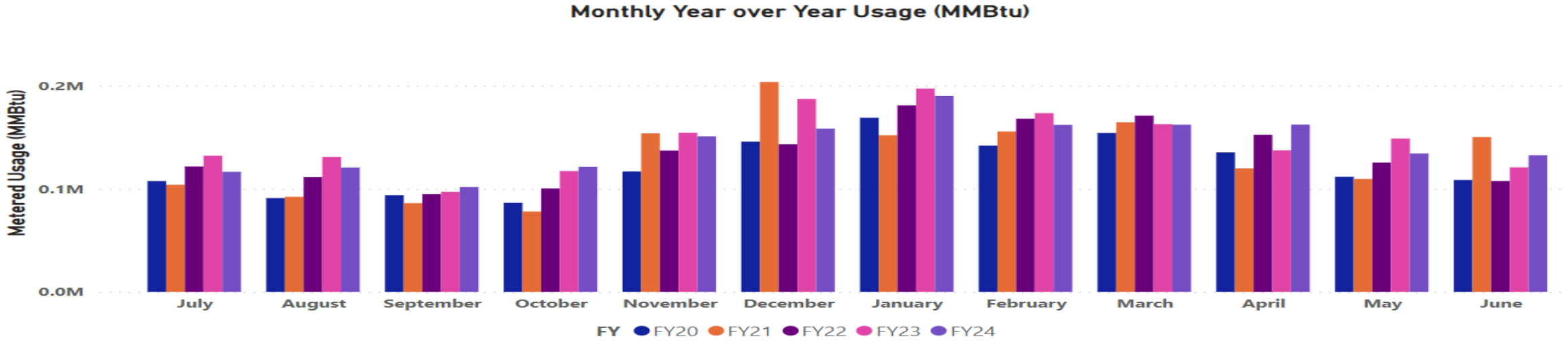
Natural Gas Monthly Usage (MMBtu)

Most of the natural gas usage is by WRRF & BDF. Natural gas usage in FY 24 was lower than FY23 for most months.





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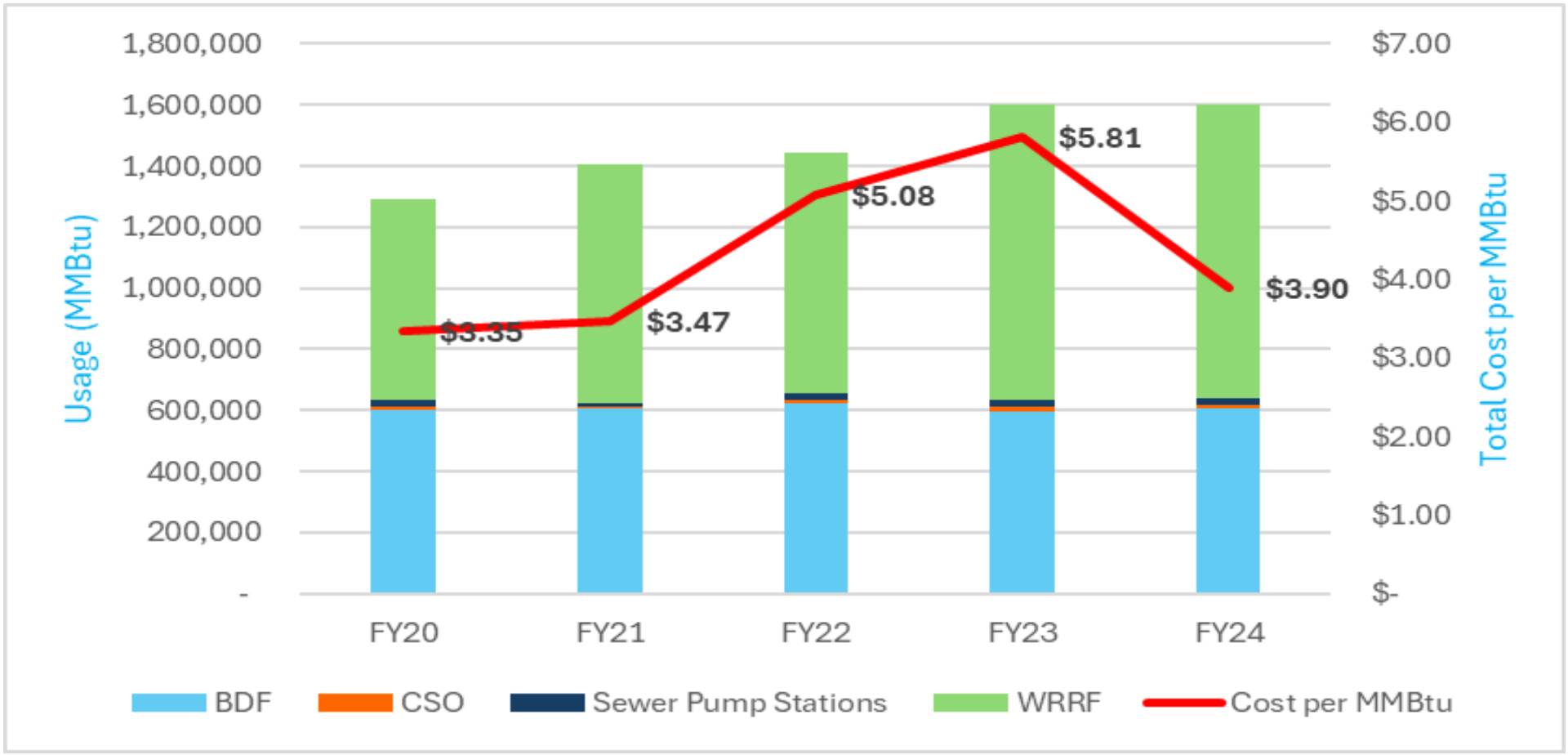
Wastewater System – Natural Gas Usage & Unit Cost



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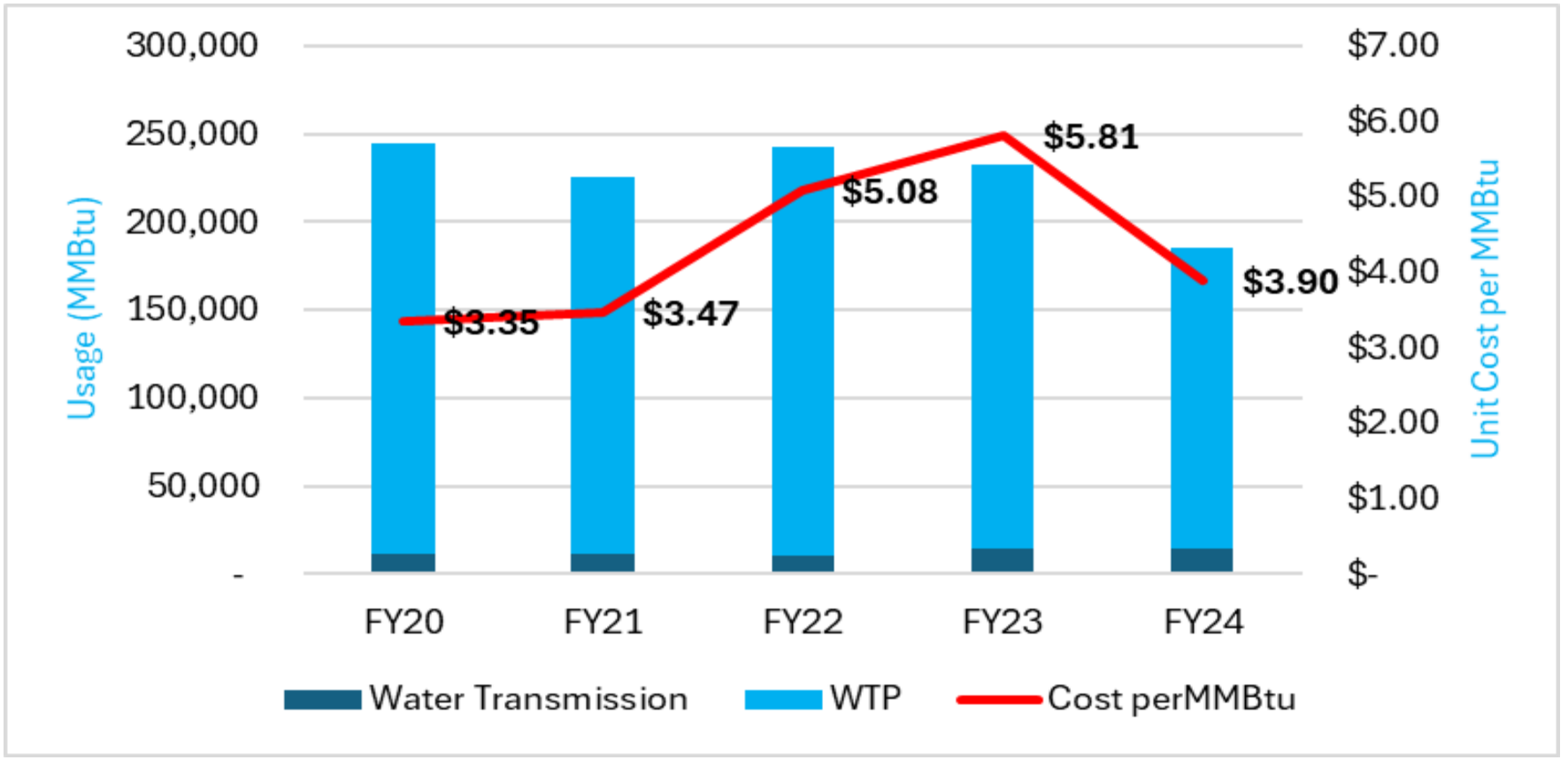
Water System – Natural Gas Usage & Unit Cost



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Water Usage and Costs

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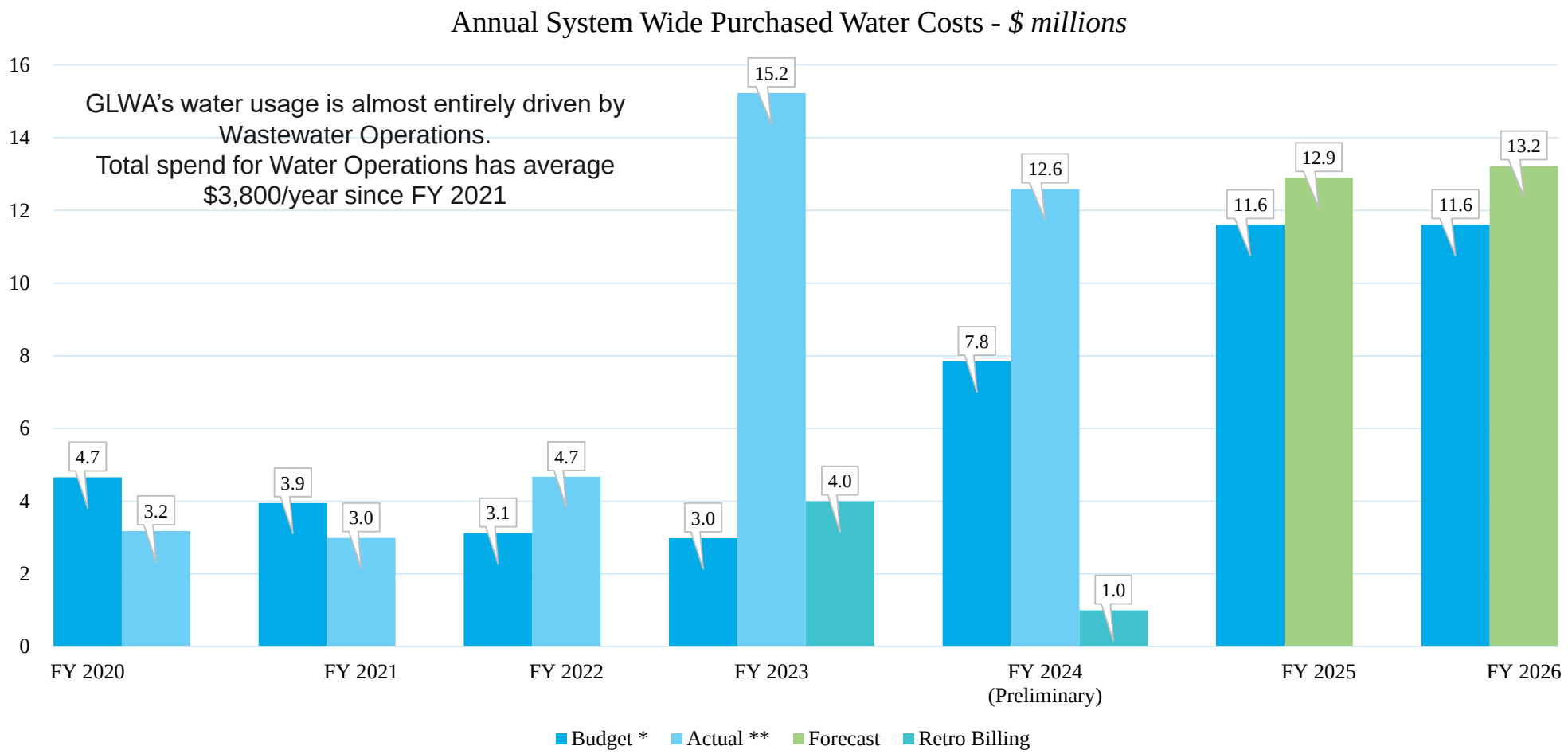
Water – Executive Summary



System Wide – Water Usage

- GLWA has recognized the need for accurate flow metering, both on water provided and water consumed
- Since FY 2021 GLWA has been working with DWSD to resolve metering issues for all facilities serviced
- Meters have been replaced at the Chlorination/De-chlorination facility and WRRF to ensure correct reads and billing
- GLWA is currently working through a review of all water/sewer connections for facilities in the city of Detroit to ensure accurate billing and metering

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DWSD Rate Change - Water Unit Cost

Month	Dechlor Volume (CCF)	Cost		WRRF Volume (CCF)	Cost		Total Cost	Unit Cost ($/CCF)
July 2022	76,895	$ 204,540.70		94,059	$ 250,196.94		$ 454,737.64	**$ 2.660**
August 2022	***93,388***	***$ 419,463.10***		***112,010***	***$ 503,113.12***		***$ 922,576.22***	***$ 4.491***
September 2022	***81,041***	***$ 363,955.32***		***100,805***	***$ 452,735.20***		***$ 816,690.52***	***$ 4.491***
October 2022	***97,912***	***$ 439,739.85***		***121,041***	***$ 543,635.32***		***$ 983,375.16***	***$ 4.491***
November 2022	***84,193***	***$ 378,114.10***		***100,152***	***$ 449,801.93***		***$ 827,916.03***	***$ 4.491***
December 2022	***88,348***	***$ 396,778.36***		***103,734***	***$ 465,892.27***		***$ 862,670.63***	***$ 4.491***

- Chlor/Dechlor & WRRF use a tremendous amount of process water
  - Over 6,000 CCF per day (4.5 MGD)
- Average unit cost ($/CCF) increased from $2.66 to $4.491
  - Increase of 69%
  - FY 2025 Rate is $4.78 an increase of 79.7% since FY 2022
- Monthly *increase* of approximate $350,000
  - $4.2M Annual Increase

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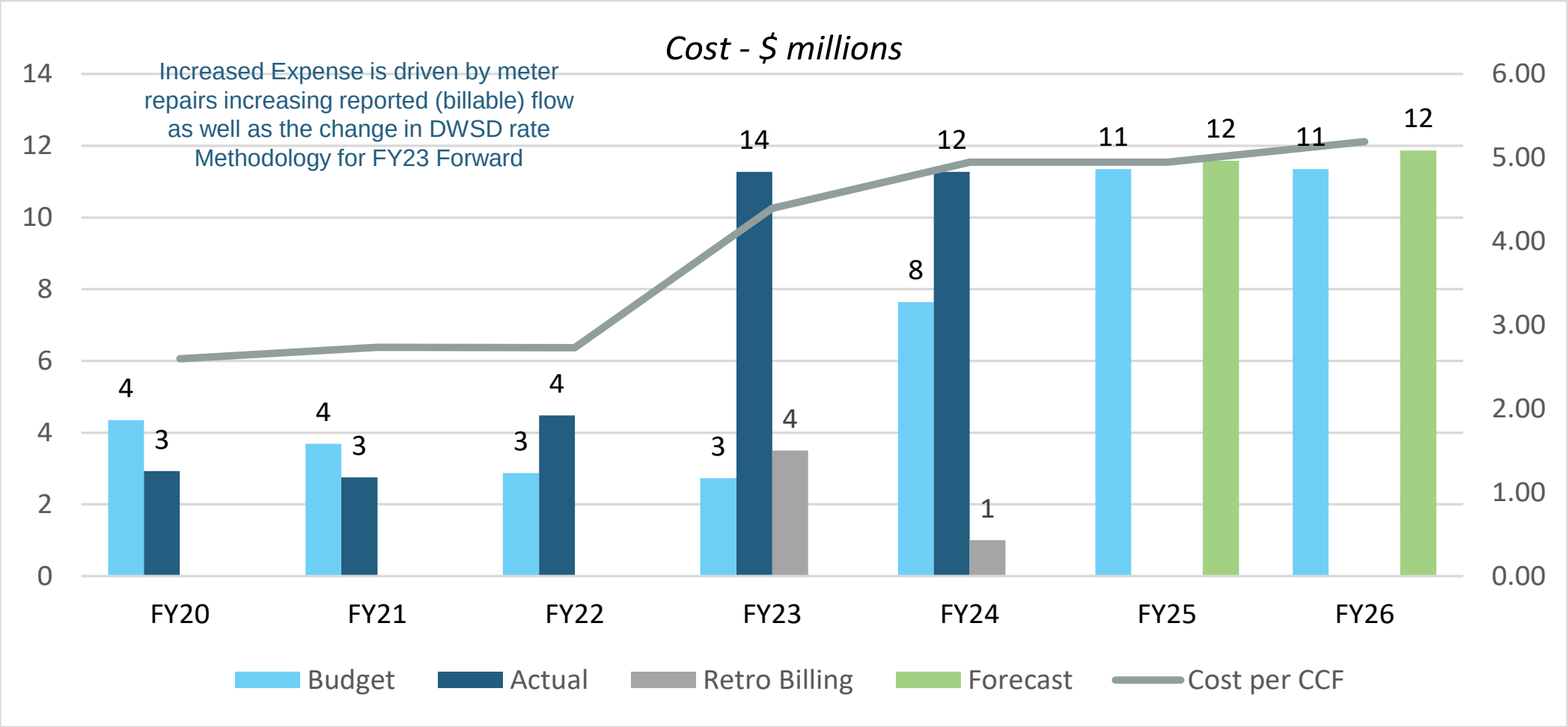
Wastewater – Adopted Water Budget



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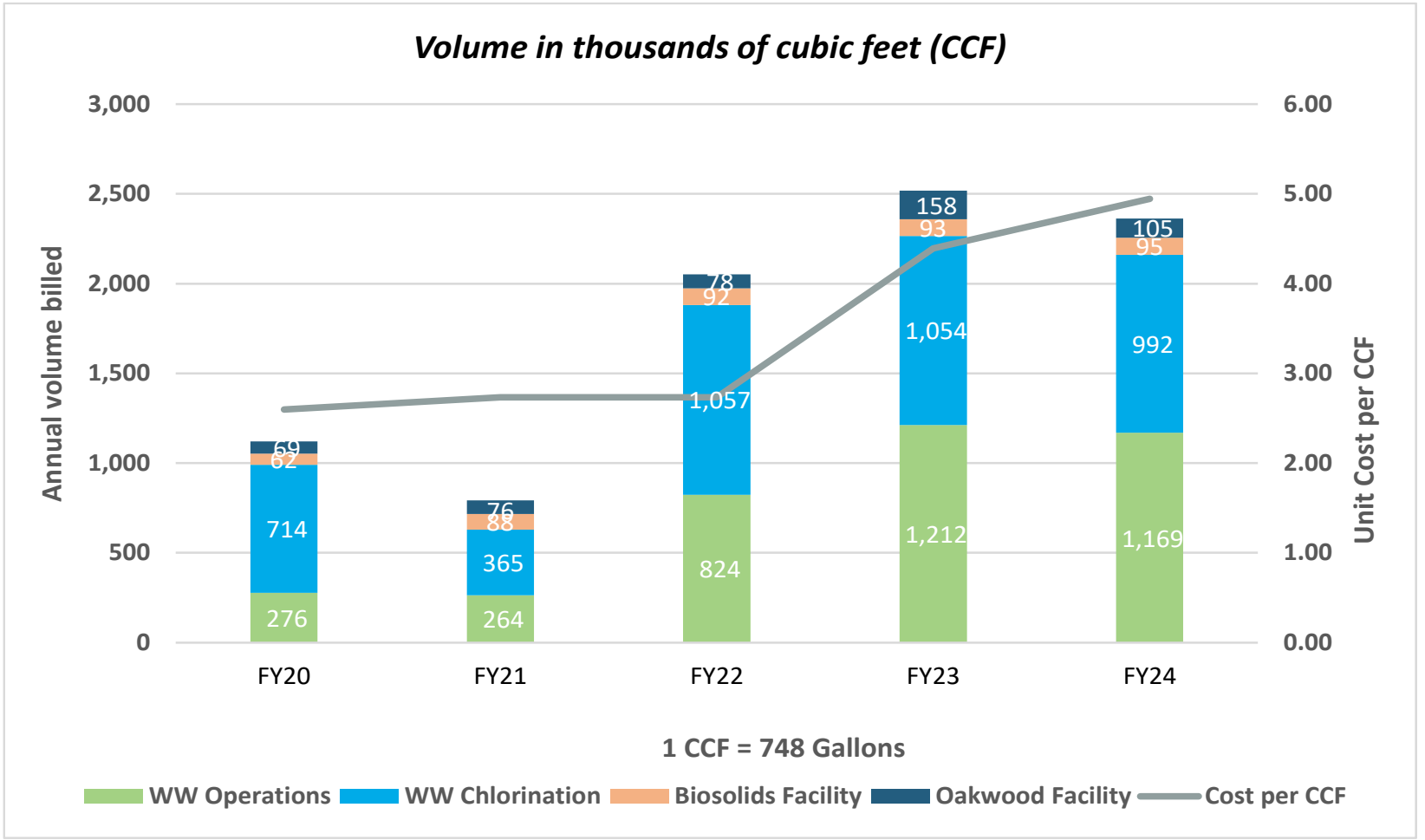
Wastewater – Water Volume Change



Wastewater volume changes due to meter repairs plus the impact of commodity cost change

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Chemical Usage and Costs

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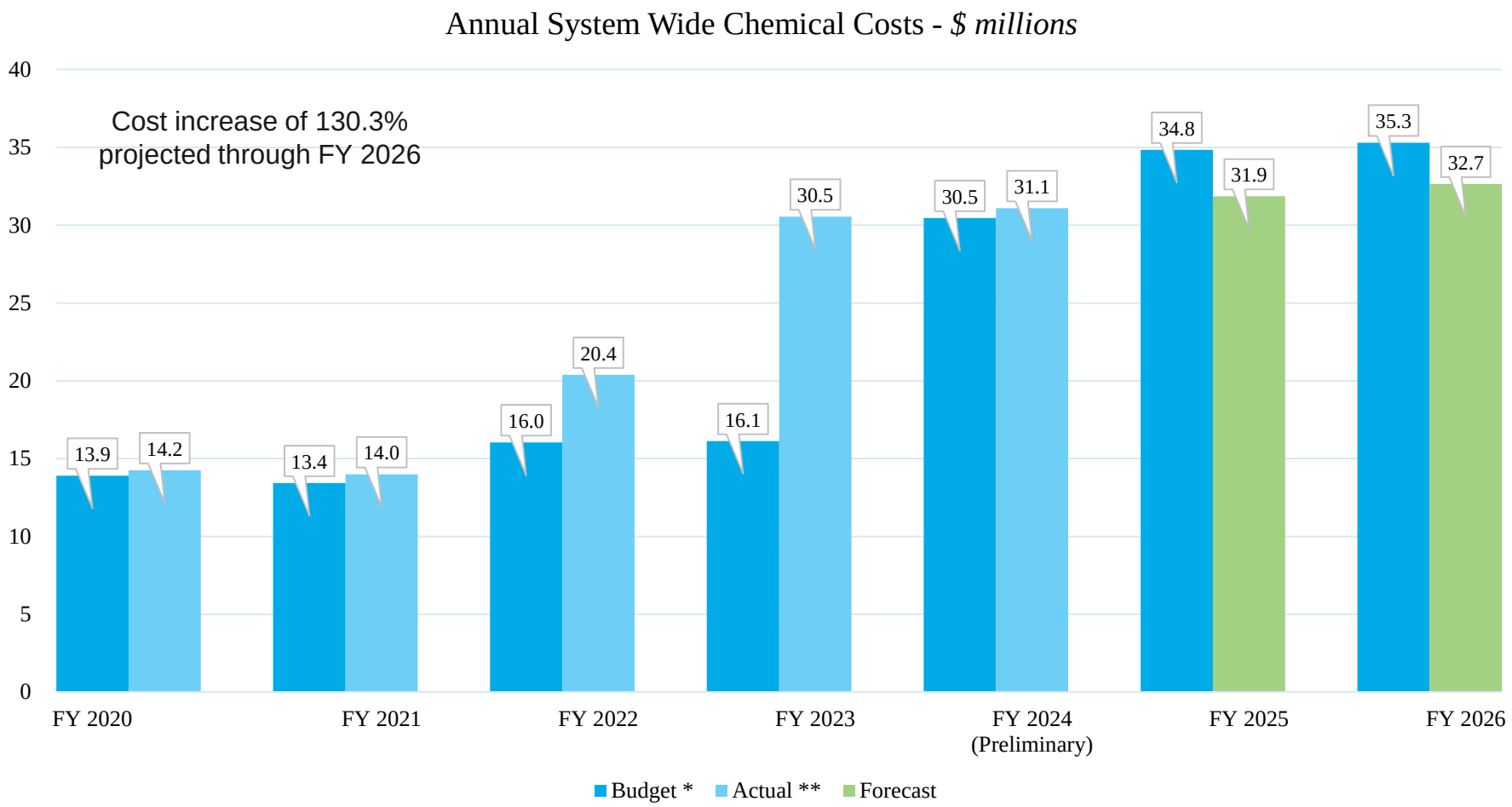
Chemical – Executive Summary



Changes That Will Affect FY 2025 and Beyond

- Beginning in January 2025 new Federal Lead & Copper Rule Revisions (LCRR) will require budget amendments for the current fiscal year and increases to the budgets presented in the following slides
  - These changes will affect all water plant budgets and wastewater budget at the Water Resource Recovery Facility for primary processing
  - The budget increases are forecast to be significant
    - Water plants chemical budgets for orthophosphate may increase as much as $4.7 million (36%)
    - Wastewater chemical budget for ferric chloride may increase as much as $2.8 million (59%)
  - Additional considerations were outlined in a presentation to the GLWA Board of Directors on February 28, 2024, and noted on the following slide

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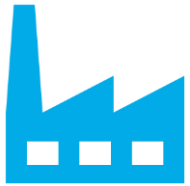
Implementation Considerations

Capacity limitations of our existing chemical feed systems

Chemical supply chain concerns

Water quality parameter (WQP) monitoring results at the points of entry and throughout the distribution systems



Increased phosphorus loading at the Water Resource Recovery Facility (WRRF)

Customer feedback

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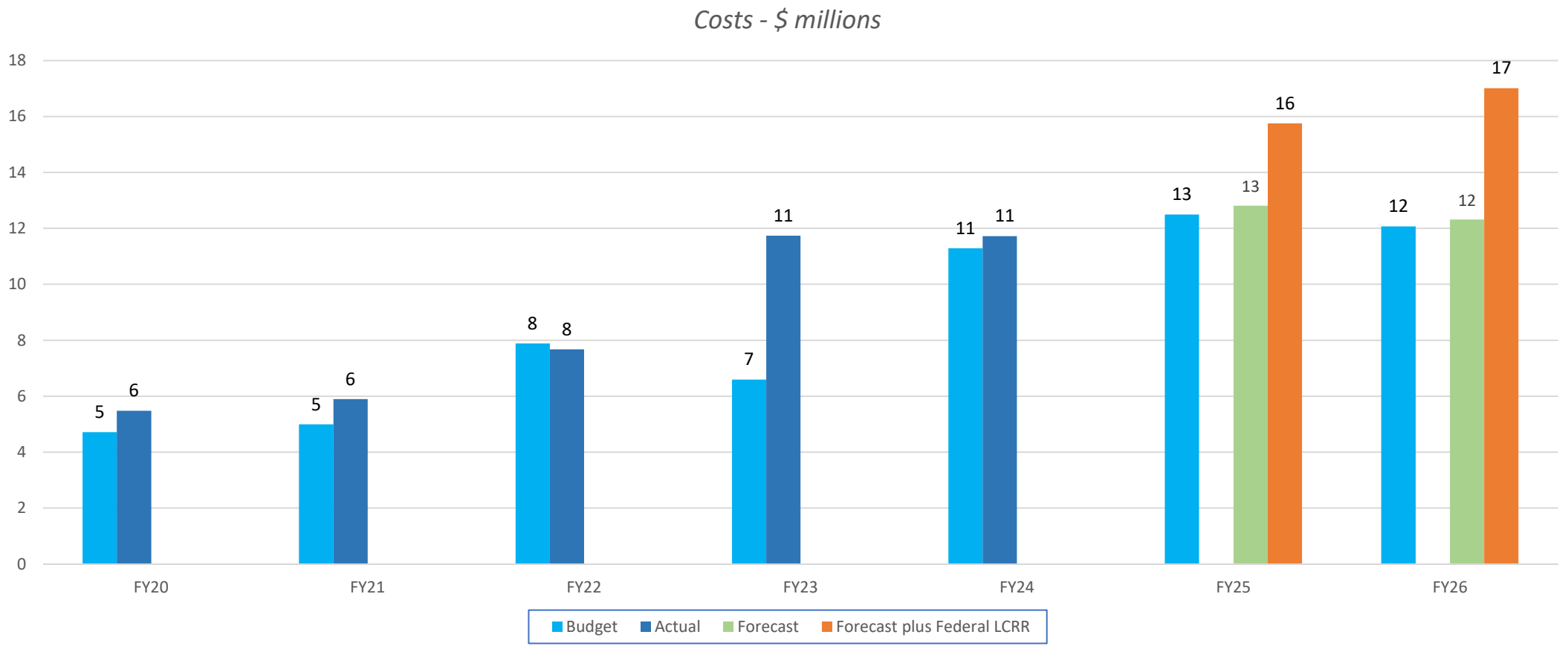
Water System – Adopted Chemical Budget



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Water Chemical Summary

- As shown in the graph on the previous page, expenditures for chemicals used in water treatment were relatively stable through FY 2021. Beginning that year and into FY 2022 & FY 2023 costs increased significantly. In FY 2024 prices have appeared to stabilize. Below are examples of significant increases experienced from FY 2021 to FY 2023.
  - Chlorine –annual average unit cost increased 372%
  - Orthophosphate – annual average unit cost increased 103%
  - Fluoride – annual average unit cost increased 176%
  - Aluminum Sulfate – annual average unit cost increased 57%

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Water Chemical Summary *(continued)*

- Although chlorine was only 12.1% of the original FY 2023 chemical budget ($6.6M); the significant increase in cost had the largest impact to this budget category.
- Three chemicals made up 82% of the adopted $11.3M FY 2024 Budget; Aluminum Sulfate 35%, Chlorine 24% and Orthophosphate 23%

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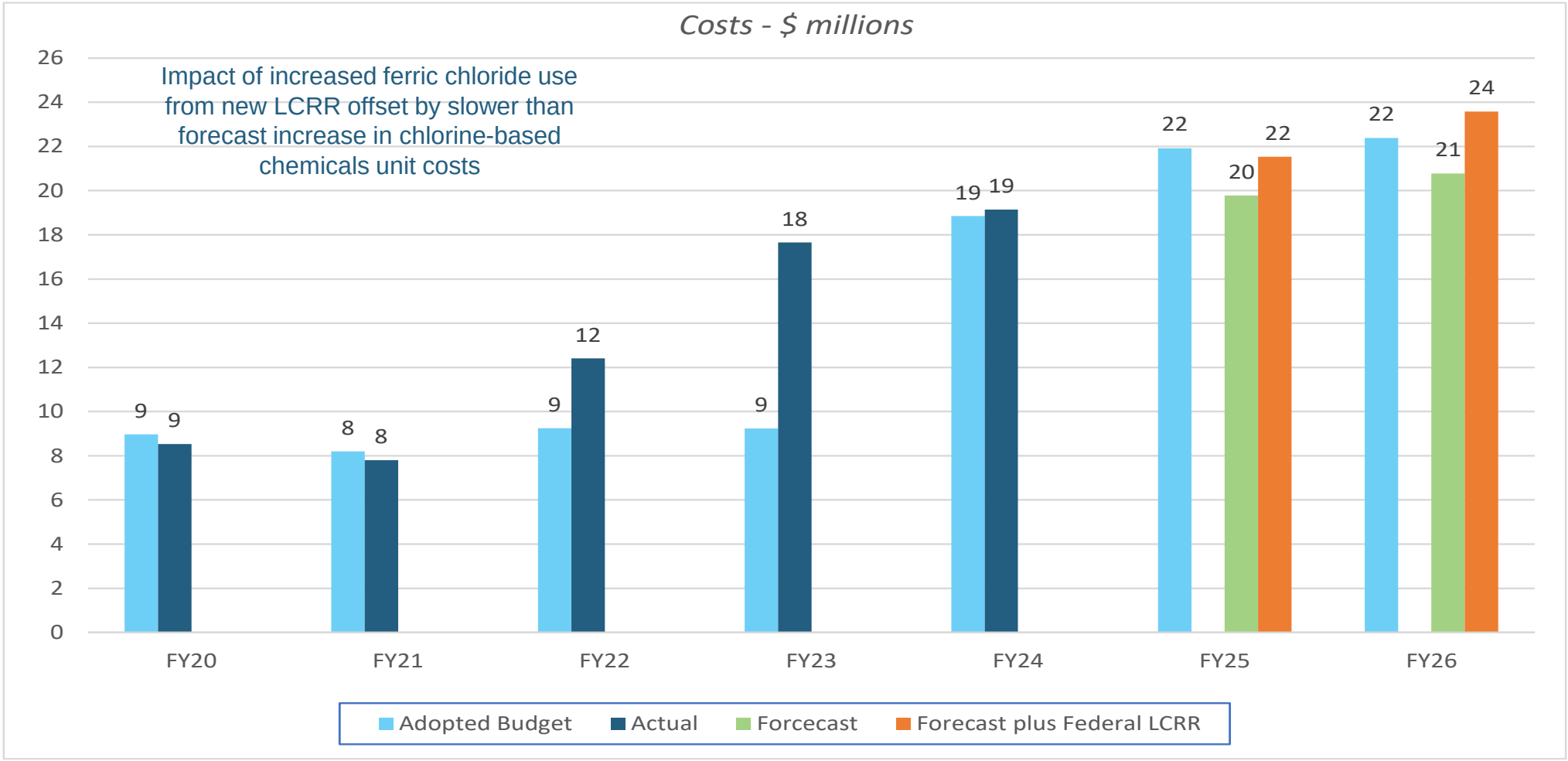
Wastewater System – Adopted Chemical Budget



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Wastewater Chemical Summary

- As shown in the graph on the previous page, expenditures for chemicals used in wastewater treatment were relatively stable through FY 2021. Beginning that year and into FY 2022 & FY 2023 costs increased significantly. In FY 2024 prices have appeared to stabilize. Below are examples of significant increases experienced from FY 2021 to FY 2023
  - Chlorine based products – annual average unit cost increased 296%
  - Oxygen (gaseous & liquid) - annual average unit cost increased 25%*
- Three chlorine-based chemicals made up 70% of the original FY 2024 chemical budget (Totaling $13.1M)

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Wastewater Chemical Summary *(continued)*

- The approved FY 2025 budget was based on forecast supply chain constraints impacting chlorine-based chemical pricing. As noted above these constraints have had a smaller impact than what was anticipated. As such the current FY 2025 budget may be adequate to address the impact of the additional LCRR ferric chloride expenditures
- Recently announced unit cost decreases include Sodium bisulfite 16% and *Oxygen & Nitrogen of 2.5% both effective in July 2024

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Wastewater Chemical Summary *(continued)*

- Per the US Environmental Protection Agency (USEPA) website; chlorine production capacity in the U.S. experienced an approximate 10% decline (1.2 million tons) in 2021, due primarily to the closure of manufacturing facilities . Recently the USEPA has noted that continue severe weather events as having possible supply chain impacts
- https://www.epa.gov/waterutilityresponse/status-chlorine-product-availability-and-pricing

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Biosolids and Sludge Usage and Costs

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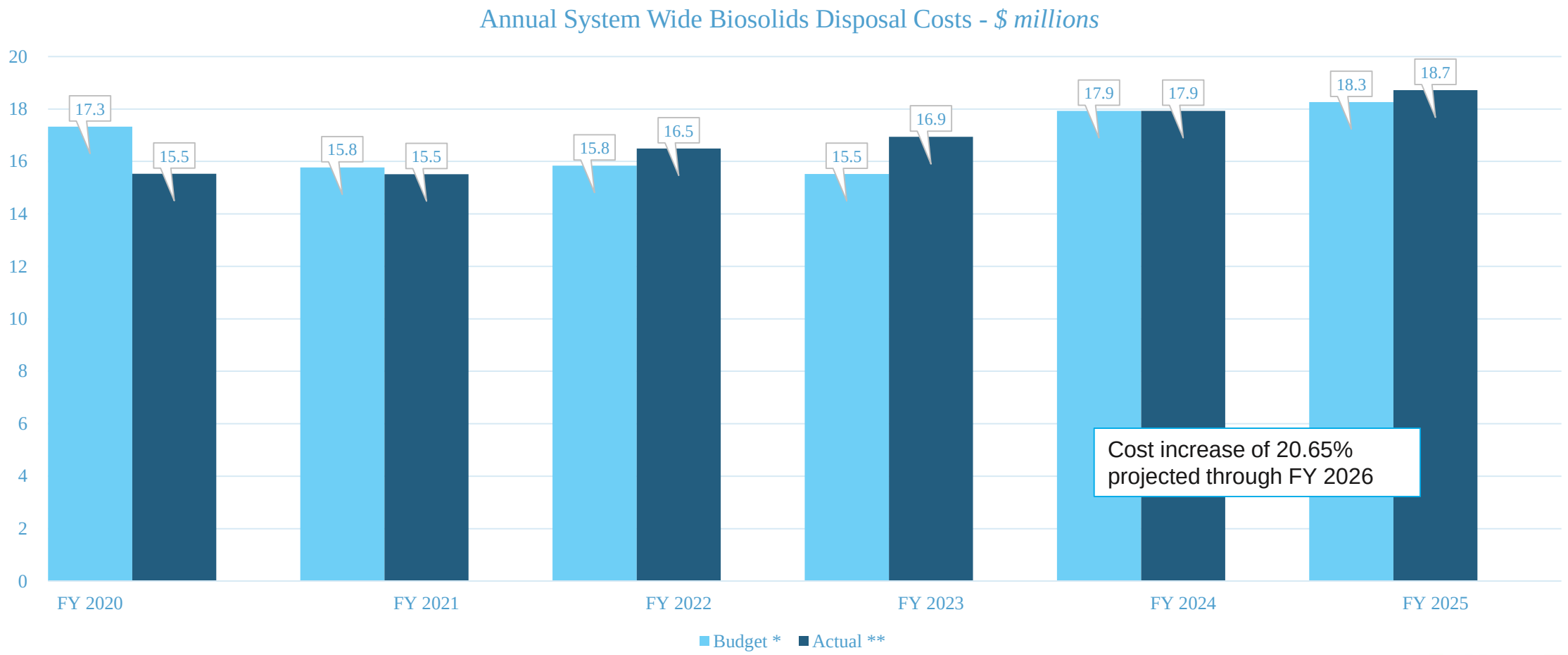
Biosolids – Executive Summary



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Wastewater Biosolids Summary

- GLWA has contracted with the New England Fertilizer Company (NEFCO) to operate the Biosolids Dryer Facility adjacent to the Water Resource Recovery Facility (WRRF) (Contract approved in 2013; became operational in 2015)
- The current cost is subject to adjustments annually (in March) based on the Consumer Price Index for All Urban Consumers (CPIU) – All Items in Detroit-Warren-Dearborn, MI as published by the U.S. Bureau of Labor Statistics
- Inflationary impact on the CPIU has caused this adjustment to increase from an average of 2.0% annual increase to an average 7.25% increase in both FY22 and FY23 resulting in an increased cost in excess of $1.0M in each of these years

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Wastewater Biosolids Summary

- The inflation rate was lower in FY24 resulting in a 2.8% increase, or $0.4 million

Water Sludge Summary

- The accumulated sludge is a byproduct of the water treatment process. The treatment process collects the suspend particles (turbidity) and settles within the basins. The sludge is then removed from the basins and is disposed of under the contract of both services
- Volumes of sludge removal varies from year to year depending on the quality of source waters

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Water Sludge Summary

- The most recent extension of sludge removal and hauling for Springwells, Northeast, and Southwest Water Treatment plants includes a 10.8% increase in cost per ton
- The Sludge hauling contacts for Water Works Park and Southwest has been renegotiated with a new supplier and have significantly increased due to enhanced processes and inflation

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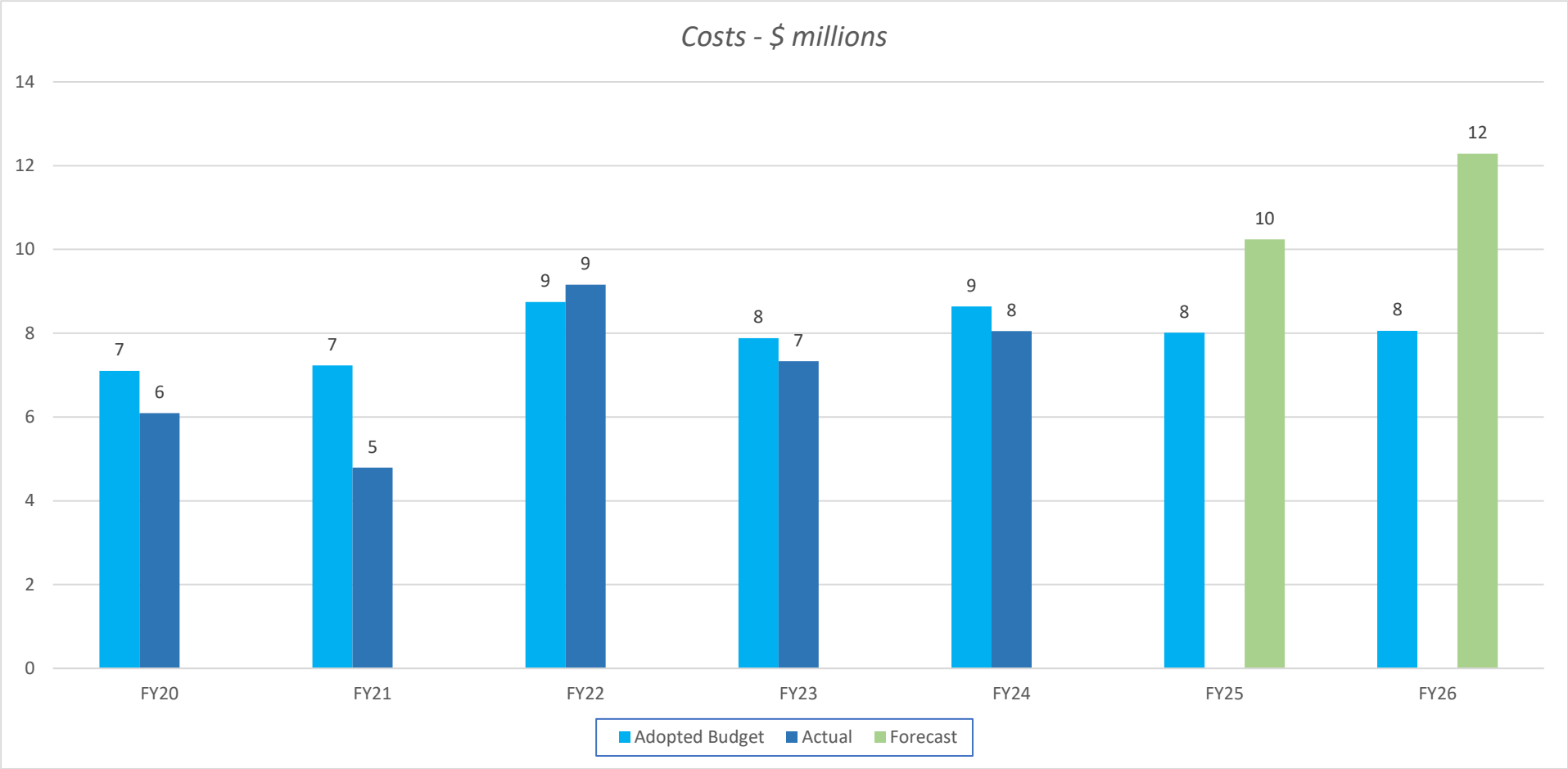
Water System – Adopted Sludge Budget



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