MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Brown, Carlson, Barofsky, McRae, and Schlossberg

FROM: Frank Lawson, CEO and General Manager; Rod Price, Assistant General Manager, Utility Operations; Deborah Hart, Chief Financial Officer

DATE: June 29, 2022

SUBJECT: 2023 Integrated Capital & Financial Plans

OBJECTIVE: Direction on 2023 Integrated Capital & Financial Plans

Issue

Board Policy SD6 and Oregon Statutes require that staff annually prepare balanced Electric and Water Utility budgets for Board approval by the end of the calendar year. To prepare budgets, Management is seeking Board direction and/or concurrence on the strategic and operational priorities, business and economic forecast assumptions, capital investment plans, and Long-Term Financial Plans (LTFPs) used to develop the upcoming year's proposed budgets and customer pricing schedules (rates).

Background

Through a variety of means, Management receives direction consistent with Board Policy BL-4, which states the *"Board shall identify and define those results or conditions that are acceptable and not acceptable to the Board and communicate them in the form of establishing policy and approval of Strategic Plans, Long-Term Financial Plans, Capital Improvement Plans, annual budgets and goals".*

At the July Meeting, Management will collaborate with the Board to ensure a common understanding of the economic assumptions, desired operational and strategic outcomes, and proposed capital investments used to forecast the long-term financial results. If the assumptions and plans are consistent with Board direction and maintaining financial forecasts within Board policy, Management will use the information to develop the following year's budgets.

Prior to year-end, as budgets are developed consistent with the Board direction received, Management will analyze customer rates, including the total revenue requirement to develop and propose customer rates.

Apart from Bonneville Power Administration (BPA) rate increase "pass throughs", as provided in *SD10 Power Cost Recovery Policies*, in November and December EWEB will provide at least two public Rate Hearings prior to the implementation of new customer rates. Typically, final budgets and rates are approved by the Board at the December Board Meeting.

Discussion

Management herein presents the strategic and operational guidance, business, and economic forecast assumptions, proposed capital improvement plans, and resulting long-term financial and rate impacts for both the Water and Electric Utilities for your consideration, feedback, and direction. Through previous policies and direction, Management considers the following as prerequisites to the development of strategic guidance, assumptions, and plans.

- Investments shall be consistent with EWEB's proposed updated strategic plan, supporting the values of safety, reliability, affordability, environmental stewardship, and community.
- Financial policies, including key metrics of Working Capital Days Cash and Debt Service Coverage shall remain within Board policy.
- Financial reserves levels and replenishment requirements, including Capital Reserves and Rate Stabilization Reserves, shall remain within Board Policy.
- EWEB shall mitigate against electric wholesale market risk, weather fluctuations, and consumption pattern changes using conservative budget assumptions, establishing Contribution Margin Risk Factors, and adherence to Board Policy SD8, Power Risk Management Policies.

Strategic and Operational Guidance

Over the past several years, Commissioners have provided direction on the strategic and operational priorities. As a basis for this year's investment and financial planning, Management needs Board concurrence to use the following strategic and operational priorities and/or outcomes as guidance:

- Customer Rate Increases – Acceptable long-term "Revenue Requirement" increases (excluding Type 3 Programs) shall be benchmarked to inflationary forecasts. Given inflationary pressures in the past year and recent Federal Reserve actions, 2023 and 2024 are anticipated to be higher at 2.0-4.0%, with long run inflation forecasts closer to the Fed's 2.0% annual inflation target. Modeling for the 10-year compounded inflation rate forecasts assumes between 24.9% - 42.4%. Rate increases are smoothed over multi-year periods. The smoothing of rates mitigates a single year rate impact by pre-funding and/or utilizing reserves to fund large capital projects while minimizing impacts to customers.
- Customer Care – Funded to provide approximately 10% of the annual average water and electric expenses to a minimum of 5% of the residential customer base (Management Record of Decision).
- Water Investment Priorities - For reliability and resiliency, EWEB needs to scope and construct a treatment plant on the Willamette River, while simultaneously restoring the McKenzie watershed. By taking a comprehensive "source to tap" approach to water quality and reliability and given that significant investments have been made over the past decade at the Hayden Bridge Treatment Plant, EWEB's priority shifted to strengthening base-level water storage and in-town transmission infrastructure.
- Electric Investment Priorities - With significant electricity delivery infrastructure installed in the 1960s and 1970s, EWEB needs to attenuate and manage the "ballooning" need to replace this concurrently aging equipment while maintaining reliability and increasing resiliency to potentially disruptive events. We will target yearly investment rates of 2.0 to 2.5 times the annual depreciation rate to maintain the Electric Age of System, the percentage of fully depreciated electric assets, below the Board target of 60%. As of 2021, the Age of System metric

was 56%. Electricity investments will be managed by prioritizing high-customer-impact assets and those systems that increase resiliency to community-critical locations.

- Shared Organizational Investment Priorities – Within the horizon of the Long-Term Financial Plan, EWEB is replacing legacy information systems. This project is underway and internally is referred to as EWEB Enterprise Solutions(EES).

Business and Economic Forecast Assumptions

The assumptions used to create forecasts and budgets influence the overall outlook of the financial plans. As a basis for this year's investment and financial planning, Management needs Board concurrence to use the following economic assumptions and/or outcomes as guidance:

General Assumptions

- Labor Cost Escalation – Fully loaded costs are indexed to a combination of inflation factors and expected labor market comparators.
- Non-Labor O&M Escalation – 2023 is escalated at 4.0%, 2024 at 2.5%, and longer-range inflation is modeled at 2%.
- Capital Escalation – 2023 through 2025 is escalated at 5.0%, and longer-range inflation is modeled at 3.0%.

Water-Specific Assumptions

The Water Utility did not experience reduced consumption related to the pandemic, and the consumption forecast is planned at 95% of the five-year average, as follows.

Water Utility Consumption (billion gallons)				
Year	**2020**	**2021**	**2022**	**2023**
Budget	7.8	7.4	7.7	7.9
Actual	8.0	8.7	7.8 (projected)	

Electric-Specific Assumptions

- BPA power costs are a significant portion of the Electric Utility's budget and therefore are separately identified in the rate trajectory. As allowed under EWEB Policy SD10, the Electric Long-Term Financial Plan currently assumes 6% BPA rates increases, which correspond with 2.5% EWEB pass through rate increases every other year, including an increase effective October 2023. The actual rate increases for EWEB customers will depend on the final rates from BPA that are expected the summer of 2023 and would be incorporated in EWEB's rate trajectory with 2024 changes.
- Leaburg scenarios have not yet been included in the LTFP summary presentation. Scenario analysis is planned for the Leaburg TBL discussion in August. July LTFP presentation includes a placeholder amount of $2 million/year for ongoing Leaburg capital costs.
- Results of the electrification analysis indicate future load growth from the transportation sector. In the LTFP, conservatism is used, modeling a lower than base case consumer EV adoption rate.

- The Electric Utility scenario assumes retail consumption without reductions for pandemic impacts. For 2022, a 4% reduction in consumption was modeled due to pandemic impacts. The updated consumption is roughly aligned with 2021 experience and 2022 projections, as follows.

Electric Utility Consumption (average megawatts)				
Year	**2020**	**2021**	**2022**	**2023**
Budget	272	257	262	272
Actual	267	270	271(projected)	

Complete rosters of assumptions for both the Water and Electric Utilities' Long-Term Financial Plans are included on Attachments 1 and 2.

Capital Improvement Plans (CIPs)

Based on the strategic and operational guidance, and general business and economic forecast assumptions highlighted above, the Water and Electric Utilities' CIPs are presented for the Board's consideration, feedback, and potential concurrence.

As presented in previous Board Meetings, projects within the Water and Electric CIPs can be categorized into *Compulsory*, *Strategic Projects/Programs*, or *Risk-Based/Opportunity* Improvement Projects.

- *Compulsory*: compliance required work, obligation to serve (new connections) and emergent/emergency replacements to maintain or restore service. This work typically has a definite timeline or schedule need.
- *Risk-Based*: planned work driven by equipment condition or opportunity for efficiency with coincident projects with other agencies. Work that does not have a definite timeline, however in general the longer it is delayed the higher the risk of failure or that it will become compulsory. This work is prioritized around Strategic and Compulsory initiatives and generally exceeds funding and resource capability on a yearly basis.
- *Strategic*: work that is driven by board or GM direction to meet an emerging risk, or opportunity for the future. This work is typically high community, resource or regional/industry trend driven and is transformative in nature. Examples are AMI, EES, Carmen-Smith, and Second Source.

Additionally, Board Policy also defines different categories of Capital work into Type 1, 2, and 3. These categories define scale of work scope, schedule, and budget to ensure that reporting requirements to the board are meant for higher cost and impact projects.

- *Type 1*: typically made of Compulsory and Risk-Based work and budgets are made from many smaller to medium sized projects to make a program. Targeted for maintaining age of system and meeting customer and compliance obligations as well as funding shared (IT) and support functions (Fleet, Facilities) to ensure business continuity.
- *Type 2*: projects with a defined start and end that are strategic in nature that typically are larger than $1 million. EL-1 policy requires staff to report project progress to the board on a quarterly basis.
- *Type 3*: multi-year large construction projects that are generally bond funded and involve large

scale multimillion dollar supply or rehabilitation.

By collaborating with the Board on strategic issues and values, along with developing mutual understanding of assumptions, goals, and performance metrics, the following water and electric capital improvement plans are presented to achieve the organization's strategic and operational priorities as presented earlier.

Water Capital Improvement Plan (CIP)

The 2023-2032 Water Capital Improvement Plan is included as Attachment 6. The Water utility ten-year CIP totals approximately $345 million and is categorized as shown in the figure below for both next year's budget, the next five years, and the full ten (10) year perspective. The proposed CIP includes higher rates of inflation for the first 3 years to reflect the current construction climate. Other than this change, the water investments are similar to prior year plans, both with respect to projects and amount.

The Water investments are focused on reliability and resiliency as much of the risk based and strategic projects are associated with these efforts.

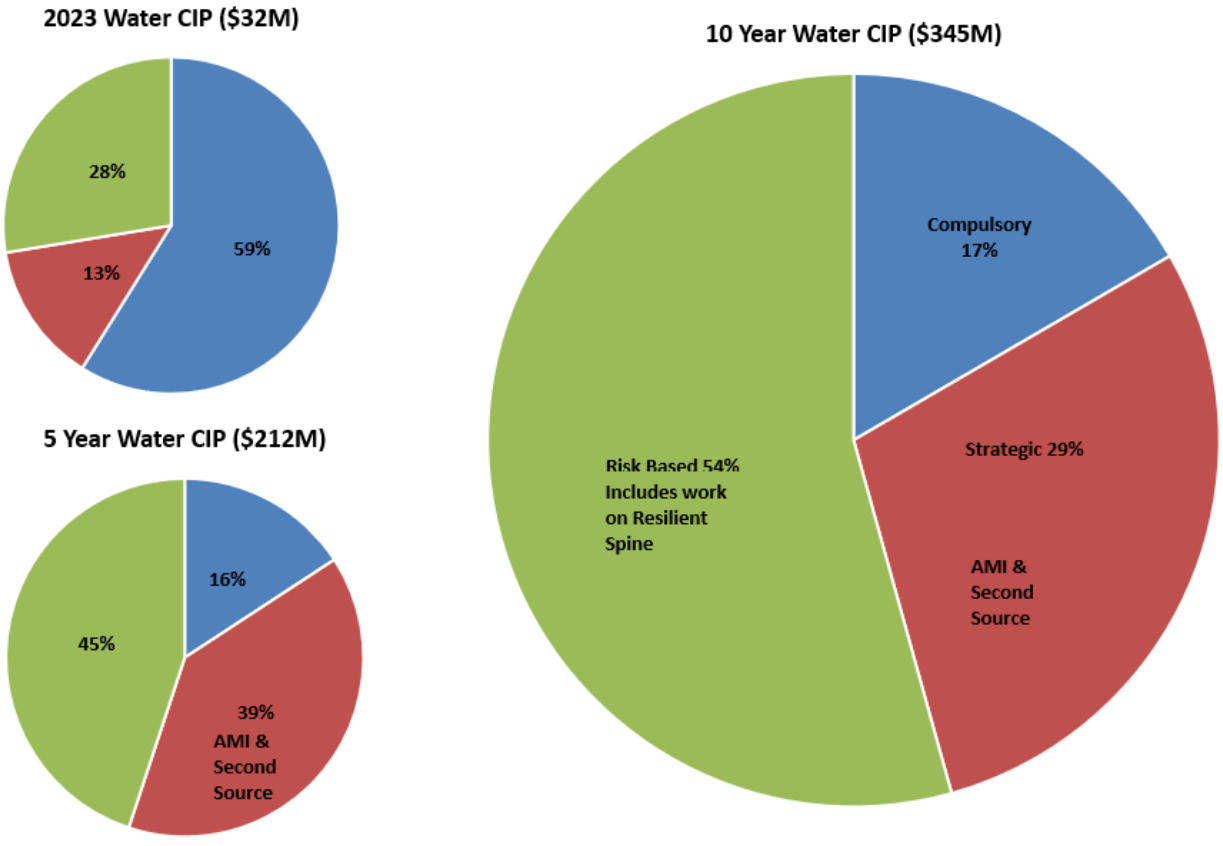


Figure: Water CIP Spending by Category (2023, First 5 years, 10 years)

A summary of planned projects/programs in each of the three categories is presented below followed

by specifics on what is included in the Five Year and 2023 CIPs.

Water Compulsory Work

The Water CIP includes the following Compulsory work:

- Customer work for new services and development
- Pipeline replacements where conflicts exist with City Street projects
- Replacement of failed critical infrastructure
- Projects necessary to meet regulatory requirements or to maintain compliance

The percentage of the CIP that is compulsory is higher in 2023 primarily due to the inclusion of the planned new base level reservoirs on E. 40th Ave in this category. While new reservoirs would normally be considered a Risk Based improvement, the timing of this College Hill Reservoir replacement is being driven by an Oregon Health Authority requirement to address issues with the aging reservoir. As such, the minimum amount of storage required to take College Hill out of service now is considered compulsory.

Water Strategic Projects

The strategic portion of the CIP includes the completion of work on both the distributed (neighborhood) emergency water distribution sites along with AMI deployment. Both of these projects are anticipated to end in 2024 in the CIP.

In addition, the Second Source project is anticipated to be under construction by 2025. This project makes up the majority of the Strategic Category in the 2023-2032 CIP. This project includes a new water treatment plant and river intake on the Willamette River with a capacity to meet our current minimum demand. The plant would be robust with features to allow daily operations and continue operations following a seismic event. Transmission main work to connect to the EWEB distribution section is included in this project scope.

Approximately $96 million is associated with this project in the CIP. Note this amount is higher than last year due to the higher inflation rates used in the CIP for the next three years. We also shifted some expenditures for this project out one year in this CIP due to a late start with the land use approvals.

Water Risk-Based/Opportunity Projects

Approximately half of the projects in the Ten-Year CIP are considered “Risk Based”, primarily associated with reliability and resiliency enhancements.

The Risk-Based category includes the Water Utility projects to improve its “Resilient Spine”. This work, largely driven by Master Planning efforts, in the last fifteen years has focused on the upgrade of the Hayden Bridge Intakes and Filtration Plant. Beginning in 2021 and for the next ten years this effort is being directed to our Base Level Reservoirs and transmission system. Specific projects in the next ten years include new seismically robust water reservoirs to replace the College Hill, Hawkins and Santa Clara Reservoirs, new transmission lines to South Eugene and interconnecting our river crossings, and improvements to the Knickerbocker Bridge pipe river crossing.

One area that we have increased significantly, beginning with last year’s CIP, is our main replacement work. Over the last fifteen years we have been focused on our resilient spine (treatment plant moving to reservoirs and transmission pipelines) and have kept our main replacement work at a modest level. As we continued to monitor this effort, however, we have noted an increase in our benchmark indicators

i.e., leaks per mile. These indicators show that we are now exceeding the national average for this benchmark. To address this issue, we are doubling expenditures on main replacement work over the next ten years. Approximately $60 million is associated with this effort in the ten-year CIP. As in the past this main replacement work will be coordinated with the City street work to the extent possible.

2023-2027 Water Projects

The 2023-2032 Water CIP includes a forecasted 2023 budget of $32 million. In the first five years of the CIP, water investments total $212 million, or 62% of the total plan. This is a greater amount than what was proposed last year due to another year of the Second Source Project coming into the five-year plan and the inflationary increases mentioned. A roster of noteworthy projects is presented below.

Table: Noteworthy Near-Term Water Investments

Year (Start)	**Project**	**Driver/Reason/Outcome**	**CIP Cost**
2019	Advanced Metering Infrastructure & Systems	System Optimization	$3.5MM (2023-2024)
2021	E. 40th Reservoirs	Reliability/Resiliency	$13MM
2022	Hilyard Street Transmission Main	Reliability/Resiliency	$3.1MM
2022	Second Source Water Treatment Plant	Reliability/Resiliency	$96MM
2025	Alder Street Transmission Main Upgrade	System Optimization	$3.5MM
2024	HQ-Knickerbocker Transmission Main Phase 3	Resiliency	$5.5MM
2024	Hawkins Reservoir Replacement	Reliability/Resiliency	$21MM

Electric Capital Improvement Plan (CIP)

The 2023-2032 Electric Capital Improvement Plan is included as Attachment 8. The Electric utility ten-year CIP totals approximately $584 million and is categorized as shown in the figure below for both next year's budget, the next five years, and the full ten(10) year perspective. The Electric investments are focused on the renewal and replacement of aged infrastructure as well as strategic modernization and resiliency related work. The goals of the capital programs within the plan are to maintain reliability and limit customer impacts for long lead time substation and underground feeder cable failures in future years, to execute emergency preparedness initiatives related to seismic events and wildfires, and leverage new technologies to reduce system downtime for outages through modernization and automation.

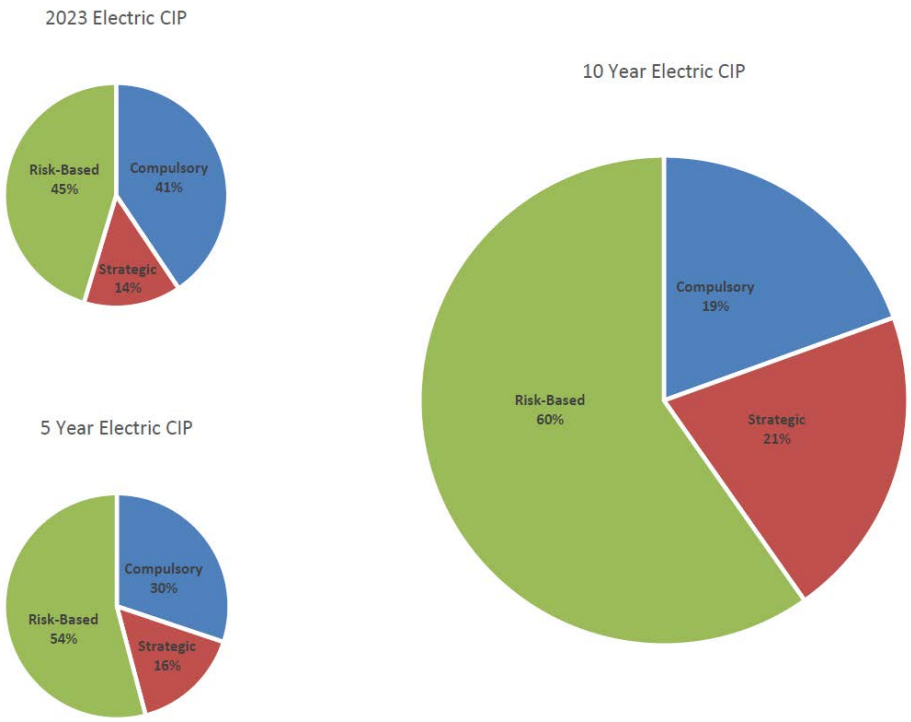


Figure: Electric CIP Spending by Category (2023, First 5 years, 10 years)

Electric Compulsory Work

The Electric CIP includes the following Compulsory work:

- Customer work for new services and development
- Powerline replacements where conflicts exist with City street projects
- Replacement of failed critical infrastructure on an emergent basis or as found via inspections
- Projects necessary to meet regulatory requirements or to maintain compliance such as PUC (poles, cross arms, clearances, etc.)
- Generation project improvements required by the Federal Energy Regulatory Commission (FERC) including Carmen-Smith and Leaburg Canal Mitigation

Electric Strategic Projects

Electric strategic projects are focused on *Maintaining Reliability and Increasing Resiliency* of the power supply and delivery customers rely on. This includes completion of the AMI project in 2023 and 2024 with anticipated easing of supply constraints.

A major portion of the plan includes replacement of aging critical infrastructure across the system as well as reconfiguration of supply systems to EWEB's most critical loads. This includes a program of projects in the first 5-years of the plan to reconfigure EWEB's connection to the East of I-5 system which supplies the Upriver service territory, International Paper(IP) Plant, Hayden Bridge Water Plant, and tie-in of Carmen-Smith with the EWEB system. Also included is the timed rehabilitation of the IP Cogeneration generator and turbine. This section of the system focus also includes multiple connections to BPA which will ensure robust supply paths from the bulk electric system.

One major driver to overall expenditures over the 10-year period relates to the Leaburg Canal Repair alternatives that are currently in the development phase. The submitted plan currently has an assumed placeholder of $2 million per year to account for interim measures that will be needed to ensure dam safety until the overall works are planned and executed. The plan will be updated as these alternatives are refined.

Electric Risk-Based/Opportunity Projects

Over half of the projects in the 2023-2032 CIP are considered "Risk Based", associated with reliability and resiliency enhancements due to the age of system and evolving risks to the electric system such as the Subduction Zone Earthquake and Wildfire.

The Risk-Based category includes the Electric Utility projects to improve its "Resilient Spine" as well as replacements due to end of life of equipment based on condition, age, and customer impact. The CIP reflects the investments needed to address the ageing "bubble" of infrastructure installed in the 1960s and 1970s. This work is largely driven by reliability impacts trending towards unfavorable as seen by an increase in equipment failures, including transmission, distribution, substation, and communications assets. As electric system asset age increases and likelihood of failure and end-of life increases, the proposed level of investment is required to renew these assets to avoid customer impact in the form of unplanned outages.

The plan scope focuses on age of system replacement and new technology modernization. Mainly in the form of equipment replacement for cable, breakers, transformers, and other critical equipment. A roll out of substation rebuilds in the last 5 years of the plan ensures reliable delivery of power for substations that are nearing end of life. These substation projects are prioritized with a risk-based method which considers probability of failure (equipment condition, age) and customer impact (number of customers and criticality of load – system, community, restoration).

Electric 2022-2026 Projects

The Electric 2023-2032 CIP includes a forecasted 2023 budget of $69.8 million. In the first five years of the CIP, electric investments total $321 million, or 55% of the total plan, including the following roster of noteworthy projects.

Table: Noteworthy Near-Term Electric Investments

Year (Start)	Project	Driver/Reason/Outcome	CIP Cost
2018	Advanced Metering Deployment	Resiliency/Modernization	$3.3MM
2021	Currin Substation Rebuild	Reliability/Resiliency	$7.5MM
2023	IP & Hayden Bridge Substation Rebuilds	Reliability	$20MM
2025	Thurston Substation Expansion and Walterville Substation Reconfiguration	Resiliency	$13.5MM
2026	Cal Young & Santa Clara Substation Rebuilds	Reliability	$10.5MM
2023-2032	Leaburg Canal Risk Mitigation	Compulsory/Strategic	$25MM (placeholder)
2022-2026	Carmen-Smith Project	Compulsory/Reliability	$72MM

Shared Service Capital Improvement Plan

The proposed CIP contains investment in several services used across both the Water and Electric utilities. Shared Service Strategic investments include upgrades to our Information Technology infrastructure and software to replace our current business systems (EES). Also included are Risk based investments to maintain our vehicle fleet and investments in our communications infrastructure to maintain radio and fiber communication paths and electronics. Development of the Bertelsen Property Operations expansion project following vacation of the Headquarters property is also included in the plan for 2023 and 2024.

Budget and Long-Term Financial Outcomes

Consistent with the strategic and operational guidance, and business and economic forecast assumptions, EWEB Management has presented the resulting investment plan totaling approximately $929 million over ten(10) years, still within the Revenue Requirement (rates) guidelines as provided by the Board. The Water and Electric utility's plans include bond funding throughout the planning horizon of $170 million and $165 million, respectively.

Water

Based on the previously stated strategic and operational guidance, business, and economic forecast assumptions, and a ten(10) year capital investment plan of $345 million, including a second Willamette water treatment plant, key water financial metrics remain within board policy through 2032 with a 10-year compounded rate increase of 63.04%, equivalent to 5.01% per year. Because of heavy mid-2020's investment and cash flow needs, the $14 million rate stabilization funds are forecasted to be utilized in 2023 and the initial 6 year's rate increases are steeper than the latter 4 years of the plan. At the conclusion of ten years, with all other comparator utilities escalating rates at CPI (consumer price index), this keeps EWEB in the lowest quartile among the peer group, fourth from the lowest. Excluding a second Willamette water treatment plant, the ten-year capital investment decreases to $249 million, and the rate trajectory falls to 32.96%, equivalent to 2.89% per year, within Board guidance.

The Water Long-Term Financial Plan outcome is included in Attachment 1, and the impact of capital investments including a water treatment plant and the Watershed Recovery Fee on our water comparator position is shown in Attachment 4.

Electric

Based on the previously stated strategic and operational guidance, business, and economic forecast assumptions, and a ten (10) year capital investment plan of $584 million, key electric financial metrics remain within board policy through 2032 with a 10-year compounded rate increase of 37.65%, equivalent to 3.25% per year.

The Electric Long-Term Financial Plan outcome is included in Attachment 2.

Recommendation

Management recommends that the Board direct staff to prepare the 2023 budgets for O&M and Capital using the assumptions set forth herein, which includes an overall revenue requirement increase of 4.0% for the electric utility and water increase of 6%.

Requested Board Action

Management is not requesting Board action at the July 5th meeting. However, Management is requesting that the Board provide clear direction on the strategic and operational guidance, business, and economic forecast assumptions, and a ten(10) year capital investment plans to be used in the development of the 2023 Budget, and upcoming rate proposals.

Attachments

Attachment 1 - Summary of Water Utility LTFP Revenue Requirement Assumptions and Outcomes
Attachment 2 - Summary of Electric Utility LTFP Revenue Requirement Assumptions and Outcomes
Attachment 3 - Average Bill Comparison
Attachment 4 – Forecast Water Average Bill Comparison with water treatment plant
Attachment 5 - Median Household Income (MHI) %
Attachment 6 – Water CIP 2023-2032
Attachment 7 – Electric CIP 2023-2032

Attachment 1

Summary of Water LTFP Revenue Requirement Assumptions and Outcomes (000's omitted)

Yellow = within 10% of target

Red = below target

Key Metrics (Dollars in $000's)	Target	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Reserves & Cash	$12,680	$13,000	$12,700	$14,000	$17,400	$20,000	$18,800	$14,900	$13,600	$13,600	$12,800
AWS Reserve Balance		$3,800	-	-	-	-	-	-	-	-	-
Meter Reserve		-	$300	$800	$1,400	$2,000	$2,500	$3,100	$3,600	$4,200	$4,800
Total Cash Reserves	$12,680	$16,800	$13,000	$14,800	$18,800	$22,000	$21,300	$18,000	$17,200	$17,800	$17,600
Annual Capital Investment		$32,458	$25,562	$41,680	$58,708	$53,727	$36,833	$25,294	$25,359	$25,484	$19,900
Bond Funding			$78,300			$70,090			$21,340		
Rate Stabilization Reserves Funding		$14,310									
DSC	2.00-2.50	6.62	4.83	2.70	2.81	2.73	2.00	2.12	2.21	2.14	2.07
Days Cash	> 150 days	207	183	211	256	273	247	204	187	185	171

	10 Year Compound	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Average Impact Resulting from Change in Revenue Requirement	63.04%	6.00%	6.00%	6.50%	6.50%	6.50%	6.75%	4.00%	4.00%	2.25%	1.75%

Key Assumptions

- Consumption approximately of 7.9 million kgal
- Contribution margin risk tolerance of $1.1 million which represents 95% of the 5-year consumption average
- Annual revenue requirement without second source increases at 32.96% compounded over the next 10 years
- Contributions of $560,000 to AMI reserve starting 2024 based on 20-year estimated life
- Bond issuance: $78 million in 2024, $70 million in 2027, and $21 million in 2030

Attachment 2

Summary of Electric LTFP Revenue Requirement Assumptions and Outcomes (000's omitted)

Yellow = within 10% of target

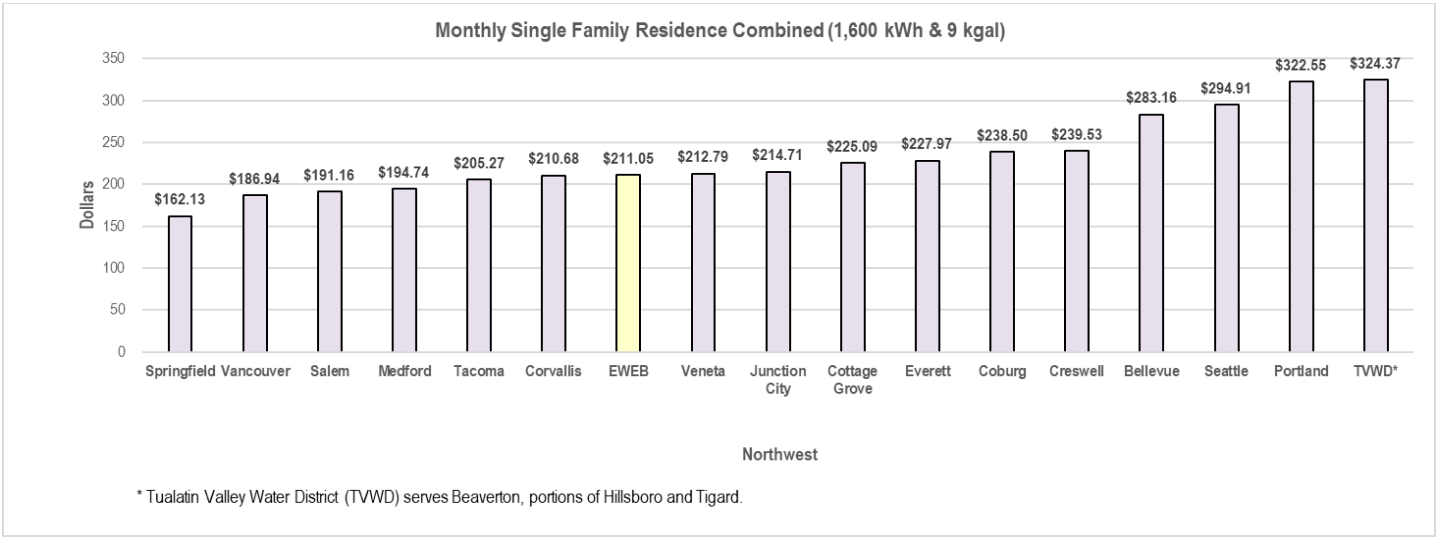
Red = below target

Key Metrics (Dollars in $000's)	Target	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Reserves and Cash	$85,720	$120,000	$108,000	$92,000	$90,000	$94,000	$97,000	$99,000	$103,000	$108,000	$111,000
Meter Reserve		$3,000	$4,000	$5,000	$6,000	$2,000	$0	$0	$0	$0	$0
Total Cash Reserves	$85,720	$123,000	$112,000	$97,000	$96,000	$96,000	$97,000	$99,000	$103,000	$108,000	$111,000
Annual Capital Investment		$70,000	$48,000	$63,000	$81,000	$59,000	$55,000	$52,000	$54,000	$61,000	$41,000
Bond Funding				$83,000			$44,000			$38,000	
Rate Stabilization Reserves Funding		$17,000	$5,000								
Debt Service Coverage Ratio	1.75	3.27	2.89	2.81	2.58	2.33	2.84	2.5	2.38	2.47	2.07
Days Cash	>150 Days	194	174	150	153	151	150	151	151	155	150

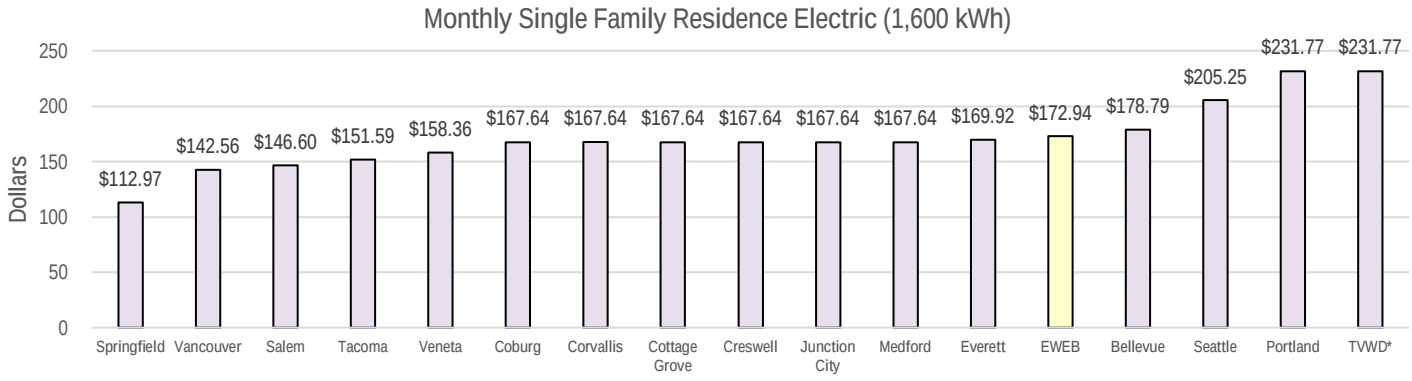
Revenue Requirement Assumptions	10 Year Compound	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
General Rate Increase		4.00%	1.50%	4.00%	1.50%	4.00%		2.50%		2.50%	
BPA Increase			2.50%		2.50%		2.50%		2.50%		2.50%
Average Impact Resulting from Change in Revenue Requirement	37.65%	4.00%	4.00%	4.00%	4.00%	4.00%	2.50%	2.50%	2.50%	2.50%	2.50%

Key Assumptions

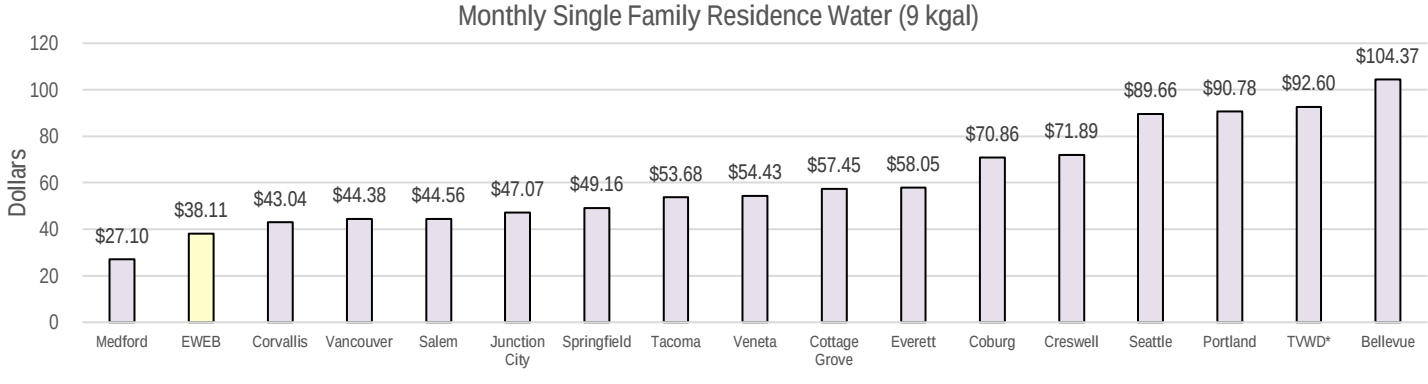
- Retail load approximately 2.4 million MWh's, roughly on track with 2022 forecast load, and roughly 2% higher than 2020 actual load due to economic recovery and anticipated warmer summers
- Electrification load approximately 9.2 thousand MWh's in 2023 increasing to 54.2 thousand MWh's in 2032
- Contribution margin risk tolerance of $15.0 million which represents 90% generation
- Similar contribution margin risk tolerance through 2027, expected conditions 2028-2032
- BPA rate increase of 6% assumed in October of 2023, 2025, 2027, 2029, and 2031 which translates to 2.5% for EWEB customer-owners
- $85/MWh melded mid-market price curve in 2023 decreasing to $60/MWh in 2032
- Environmental Commodities represent roughly $3.1 million of wholesale revenue
- Leaburg generation revenue not included in the financial plan through 2032, pending future Board decision on the facility
- Bond issuance: $83 million in 2025, $44 million in 2028, and $38 million in 2031 funding capital work
- Use of $22 million of Rate Stabilization Reserve funds for capital work in years 2023 and 2024
- $1.0 million per year contribution to meter replacement reserve starting 2021 based on 12-year estimated life and the funds begin to draw down in 2027, at which point we no longer contribute to the fund



* Tualatin Valley Water District (TVWD) serves Beaverton, portions of Hillsboro and Tigard.



* Include CILT, taxes and fees where applicable.
* PGE serves Portland & TVWD.
* Pacific Power serves Corvallis, Junction City, Coburg, Creswell, Cottage Grove, Medford, and portions of Portland metropolitan area.



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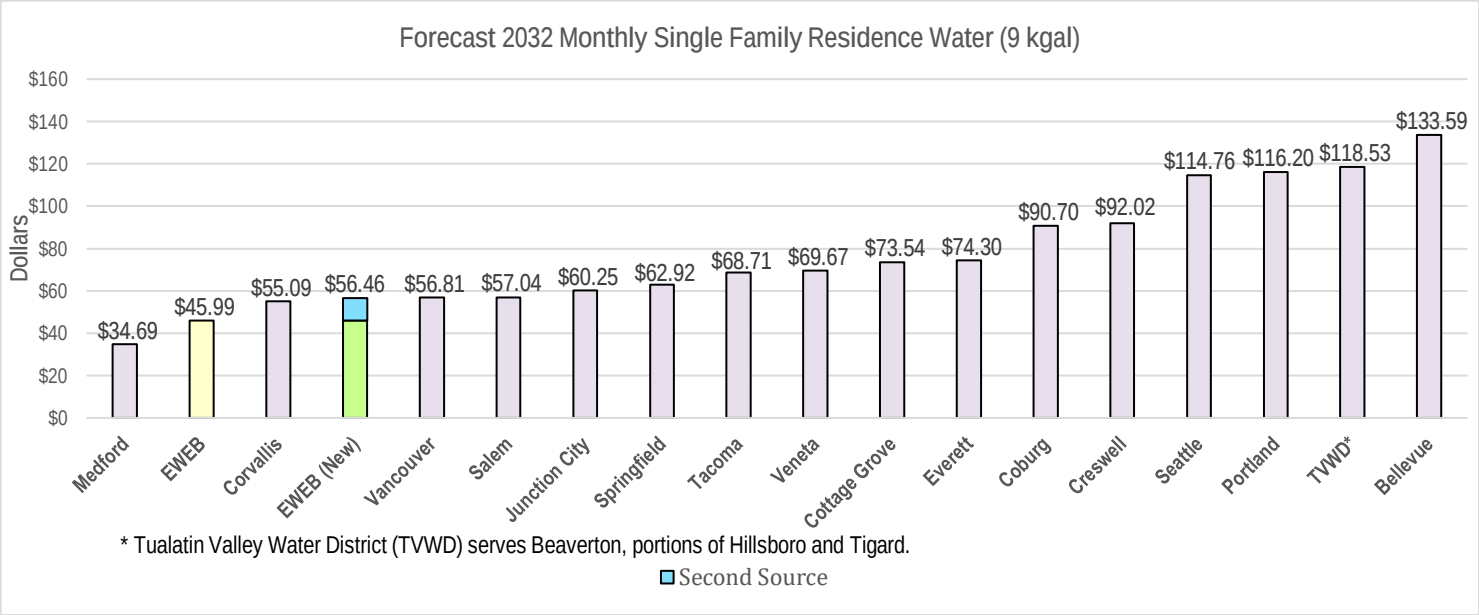
Forecast 2032 Monthly Single Family Residence Water (9 kgal)
Dollars
$160
$140
$120
$100
$80
$60
$40
$20
$0
$34.69
$45.99
$55.09
$56.46
$56.81
$57.04
$60.25
$62.92
$68.71
$69.67
$73.54
$74.30
$90.70
$92.02
$114.76
$116.20
$118.53
$133.59
Medford
EWEB
Corvallis
EWEB (New)
Vancouver
Salem
Junction City
Springfield
Tacoma
Veneta
Cottage Grove
Everett
Coburg
Creswell
Seattle
Portland
TVWD*
Bellevue
* Tualatin Valley Water District (TVWD) serves Beaverton, portions of Hillsboro and Tigard.
Second Source

Attachment 5

Background

The source of each comparator's median household income (MHI) is from the United States Census Bureau website. The methodology uses the following data :

- Monthly water and electric bill at average residential consumption
- Annual bill at same level of use
- Median household income (in 2020 dollars)

Currently there is no national standard for what affordable percent (%) of MHI value is or is not. Consideration must be given to financial sustainability of the utility as a whole in addition to affordability of price. Setting artificially lower prices may produce financial constraints to reinvesting in the system and eventually harm public health through poor product quality and service.

To address the limited income customer-owner bill impact, EWEB has maintained a customer care program for many years that provides assistance for bill payment and weatherization programs.

Included below are the combined average water and electric bills for residential customers in :
Eugene, Portland, Salem, Medford, Vancouver, Tacoma, Seattle and Everett.
Average consumption is based on 7 kgal of water and 1,050 kWh of electricity respectively.
The average is annualized and compared as a percentage of MHI.

Findings

City	Water 7 kgal	Electric 1050 kWh	Monthly	Annual	Median Household Income	%
Oregon						
Eugene	34.19	120.80	154.99	1,859.88	$52,689.00	**3.53%**
Portland	74.66	152.54	227.20	2,726.40	$73,159.00	**3.73%**
Medford	23.92	106.38	130.30	1,563.60	$52,243.00	**2.99%**
Salem	37.34	104.80	142.14	1,705.68	$58,726.00	**2.90%**
Washington						
Vancouver	36.76	97.68	134.44	1,613.28	$63,617.00	**2.54%**
Tacoma	47.29	105.64	152.93	1,835.16	$64,457.00	**2.85%**
Seattle	73.46	133.37	206.83	2,481.96	$97,185.00	**2.55%**
Everett	45.15	112.34	157.49	1,889.88	$66,023.00	**2.86%**

Water Capital Improvement Plan: 2023-2032

Attachment 6

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	5 Year Total 2023-2027	5 Year Total 2028-2032	10 Year Total
Type 1 - General Capital (rate funded)													
Source - Intake and Hayden Bridge	$ 1,360,000	$ 1,571,000	$ 666,000	$ 686,000	$ 706,000	$ 727,000	$ 749,000	$ 772,000	$ 795,000	$ 819,000	$ 4,989,000	$ 3,862,000	$ 8,851,000
Distribution - Pump Stations & Reservoirs	$ 1,365,000	$ 706,000	$ 741,000	$ 882,000	$ 1,277,000	$ 683,000	$ 769,000	$ 792,000	$ 816,000	$ 840,000	$ 4,971,000	$ 3,900,000	$ 8,871,000
Distribution - Pipelines	$ 4,809,000	$ 5,490,000	$ 5,765,000	$ 6,534,000	$ 6,730,000	$ 6,932,000	$ 7,791,000	$ 8,025,000	$ 8,266,000	$ 8,514,000	$ 29,328,000	$ 39,528,000	$ 68,856,000
Distribution - Services & Meters	$ 1,575,000	$ 1,654,000	$ 1,736,000	$ 1,788,000	$ 1,842,000	$ 1,897,000	$ 1,954,000	$ 2,013,000	$ 2,073,000	$ 2,136,000	$ 8,595,000	$ 10,073,000	$ 18,668,000
Distribution - Post AMI Meter Replacements/Upgrades		$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 350,000	$ 1,400,000	$ 1,750,000	$ 3,150,000
Information Technology	$ 1,134,000	$ 1,394,000	$ 2,151,000	$ 1,778,000	$ 978,000	$ 1,396,000	$ 1,738,000	$ 2,191,000	$ 1,859,000	$ 1,250,000	$ 7,435,000	$ 8,434,000	$ 15,869,000
Buildings & Land	$ 111,000	$ 79,000	$ 161,000	$ 74,000	$ 202,000	$ 94,000	$ 51,000	$ 296,000	$ 58,000	$ 60,000	$ 627,000	$ 559,000	$ 1,186,000
Fleet	$ 650,000	$ 850,000	$ 705,000	$ 735,000	$ 760,000	$ 790,000	$ 826,000	$ 865,000	$ 910,000	$ 960,000	$ 3,700,000	$ 4,351,000	$ 8,051,000
Total Type 1 Expenditures	$ 11,004,000	$ 12,094,000	$ 12,275,000	$ 12,827,000	$ 12,845,000	$ 12,869,000	$ 14,228,000	$ 15,304,000	$ 15,127,000	$ 14,929,000	$ 61,045,000	$ 72,457,000	$ 133,502,000
Type 2 - Rehabilitation & Expansion Projects (rate & bo													
Rate Funded Type 2 Projects													
Information Technology	$ 905,000	$ 950,000	$ 998,000	$ 587,000	$ 605,000	$ 623,000	$ 642,000	$ 661,000	$ 681,000	$ 701,000	$ 4,045,000	$ 3,308,000	$ 7,353,000
	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal - Rate Funded Projects	$ 905,000	$ 950,000	$ 998,000	$ 587,000	$ 605,000	$ 623,000	$ 642,000	$ 661,000	$ 681,000	$ 701,000	$ 4,045,000	$ 3,308,000	$ 7,353,000
Bond Eligible Type 2 Projects													
Source - Intake and Hayden Bridge	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,303,000	$ -	$ -	$ -	$ -	$ 1,303,000	$ 1,303,000
Distribution - Pump Stations & Reservoirs	$ 13,545,000	$ 3,308,000	$ 9,608,000	$ 10,969,000	$ 6,140,000	$ 1,897,000	$ 9,120,000	$ 9,394,000	$ 9,676,000	$ 4,271,000	$ 43,570,000	$ 34,358,000	$ 77,928,000
Distribution - Pipelines	$ 3,150,000	$ 2,756,000	$ 4,746,000	$ 4,173,000	$ 3,070,000	$ 4,174,000	$ -	$ -	$ -	$ -	$ 17,895,000	$ 4,174,000	$ 22,069,000
Advanced Meters (Water)	$ 2,000,000	$ 1,500,000	$ -	$ -	$ -						$ 3,500,000	$ -	$ 3,500,000
Buildings and Land	$ 804,000	$ 397,000	$ 161,000	$ 342,000	$ 362,000	$ 192,000	$ -	$ -	$ -	$ -	$ 2,066,000	$ 192,000	$ 2,258,000
Subtotal - Bond Eligible Projects	$ 19,499,000	$ 7,961,000	$ 14,515,000	$ 15,484,000	$ 9,572,000	$ 6,263,000	$ 10,423,000	$ 9,394,000	$ 9,676,000	$ 4,271,000	$ 67,031,000	$ 40,027,000	$ 107,058,000
Total Type 2 Expenditures	$ 20,404,000	$ 8,911,000	$ 15,513,000	$ 16,071,000	$ 10,177,000	$ 6,886,000	$ 11,065,000	$ 10,055,000	$ 10,357,000	$ 4,972,000	$ 71,076,000	$ 43,335,000	$ 114,411,000
Type 3 - Strategic Projects & Programs (bond funded)													
Emergency Water Supply	$ 525,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 525,000	$ -	$ 525,000
Second Source Treatment Plant	$ 525,000	$ 4,410,000	$ 13,891,000	$ 29,808,000	$ 30,702,000	$ 17,077,000					$ 79,336,000	$ 17,077,000	$ 96,413,000
Total Type 3 Expenditures	$ 1,050,000	$ 4,410,000	$ 13,891,000	$ 29,808,000	$ 30,702,000	$ 17,077,000	$ -	$ -	$ -	$ -	$ 79,861,000	$ 17,077,000	$ 96,938,000
Total Expenditures	$ 32,458,000	$ 25,415,000	$ 41,679,000	$ 58,706,000	$ 53,724,000	$ 36,832,000	$ 25,293,000	$ 25,359,000	$ 25,484,000	$ 19,901,000	$ 211,982,000	$ 132,869,000	$ 344,851,000

Electric Capital Improvement Plan: 2023-2032

Attachment 7

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	5-Year Total 2023-2027	5-Year Total 2028-2032	10-Year Total
Type 1 - General Capital													
Electric Infrastructure - Generation	$ 2,201,942	$ 4,709,709	$ 2,023,034	$ 1,227,083	$ 1,108,889	$ 1,326,374	$ 3,579,860	$ 1,276,859	$ 1,315,165	$ 1,364,619	$ 11,270,656	$ 8,852,877	$ 20,123,533
Customer-Driven Capital Expense	$ 4,000,500	$ 2,353,838	$ 2,471,529	$ 2,545,675	$ 2,622,046	$ 2,700,707	$ 2,781,728	$ 2,865,180	$ 2,951,135	$ 3,039,669	$ 13,993,588	$ 14,338,420	$ 28,332,007
Electric Infrastructure - Transmission & Distribution	$ 8,931,300	$ 10,646,843	$ 12,302,081	$ 14,787,571	$ 15,882,104	$ 15,385,807	$ 15,399,178	$ 15,399,503	$ 19,256,331	$ 15,918,756	$ 62,549,899	$ 81,359,574	$ 143,909,473
Downtown Distribution Network	$ 1,093,050	$ 1,257,953	$ 1,436,613	$ 1,491,635	$ 1,197,421	$ 1,233,344	$ 1,270,344	$ 905,853	$ 1,057,433	$ 996,613	$ 6,476,671	$ 5,463,587	$ 11,940,258
Telecom Fiber - EWEB Driven	$ 210,000	$ 165,375	$ 636,694	$ 178,853	$ 147,375	$ 151,796	$ 156,350	$ 161,041	$ 165,872	$ 170,848	$ 1,338,297	$ 805,906	$ 2,144,203
Telecom - Radio	$ 341,250	$ 358,313	$ 119,235	$ 126,389	$ 390,544	$ -	$ -	$ -	$ -	$ -	$ 1,335,731	$ -	$ 1,335,731
Precapitalized AMI Meter Capital subtotal (post-deployment)	$ 525,000	$ 551,250	$ 578,813	$ 596,177	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,251,239	$ -	$ 2,251,239
Information Services (IS) - Shared & Electric	$ 4,656,000	$ 5,099,000	$ 7,945,000	$ 6,469,000	$ 4,196,000	$ 5,702,000	$ 6,311,000	$ 6,936,000	$ 8,329,000	$ 4,934,000	$ 28,365,000	$ 32,212,000	$ 60,577,000
General Plant - Buildings & Land	$ 359,100	$ 251,370	$ 509,355	$ 234,894	$ 641,081	$ 297,268	$ 162,865	$ 938,061	$ 183,841	$ 189,356	$ 1,995,800	$ 1,771,391	$ 3,767,191
General Plant - Fleet	$ 1,485,750	$ 2,929,343	$ 2,824,605	$ 2,098,543	$ 1,417,256	$ 1,504,047	$ 1,596,073	$ 1,693,610	$ 1,796,944	$ 1,904,954	$ 10,755,496	$ 8,495,629	$ 19,251,125
Total Type 1 Net Expenditures	**$ 23,803,892**	**$ 28,322,991**	**$ 30,846,958**	**$ 29,755,819**	**$ 27,602,715**	**$ 28,301,343**	**$ 31,257,398**	**$ 30,176,107**	**$ 35,055,720**	**$ 28,508,816**	**$ 140,332,376**	**$ 153,299,384**	**$ 293,631,760**
Type 2 - Rehabilitation & Expansion Projects													
Distribution Resiliency Upgrades	$ 63,000	$ 1,697,850	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,760,850	$ -	$ 1,760,850
Advanced Meters (Electric)	$ 1,593,900	$ 1,673,595	$ -	$ -	$ 3,929,998	$ 4,047,898	$ 4,169,335	$ 4,294,415	$ 4,423,247	$ -	$ 7,197,493	$ 16,934,895	$ 24,132,388
Generation - Type 2 Strategic Project(s)	$ 3,629,126	$ 2,205,000	$ 3,439,158	$ 11,367,878	$ 2,456,249	$ 2,529,936	$ 2,605,834	$ 2,684,009	$ 2,764,530	$ 2,847,465	$ 23,097,410	$ 13,431,775	$ 36,529,185
Electric T & D - Type 2 Strategic Project(s)	$ 7,665,000	$ 2,425,500	$ 13,891,500	$ 25,039,429	$ 19,649,990	$ 13,598,407	$ 10,423,337	$ 10,736,037	$ 15,204,913	$ 7,118,664	$ 68,671,419	$ 57,081,358	$ 125,752,776
Information Technology - Type 2 Strategic Project(s)	$ 2,866,000	$ 3,009,000	$ 3,159,000	$ 1,859,000	$ 1,915,000	$ 1,973,000	$ 2,032,000	$ 2,093,000	$ 2,156,000	$ 2,220,000	$ 12,808,000	$ 10,474,000	$ 23,282,000
Buildings & Land - Type 2 Strategic Project(s) Total	$ 2,593,500	$ 1,256,850	$ 509,355	$ 1,081,465	$ 1,147,068	$ 608,450	$ -	$ -	$ -	$ -	$ 6,588,238	$ 608,450	$ 7,196,688
Type 2 - Rate-Funded Capital Expenditures	**$ 18,410,526**	**$ 12,267,795**	**$ 20,999,013**	**$ 39,347,771**	**$ 29,098,305**	**$ 22,757,691**	**$ 19,230,506**	**$ 19,807,461**	**$ 24,548,690**	**$ 12,186,129**	**$ 120,123,410**	**$ 98,530,477**	**$ 218,653,887**
											$ -	$ -	$ -
Type 1 + Type 2 Rate-Funded Capital Expenditures	**$ 42,214,418**	**$ 40,590,786**	**$ 51,845,971**	**$ 69,103,590**	**$ 56,701,020**	**$ 51,059,033**	**$ 50,487,904**	**$ 49,983,568**	**$ 59,604,410**	**$ 40,694,945**	**$ 260,455,785**	**$ 251,829,861**	**$ 512,285,647**
Type 3 - Strategic Projects & Programs													
Type 3 - Expenditures													
Carmen-Smith Expenditures	$ 27,595,631	$ 7,257,233	$ 11,272,795	$ 11,842,504	$ 2,611,255	$ 4,015,967	$ 1,517,962	$ 4,260,539	$ 1,610,406	$ -	$ 60,579,417	$ 11,404,873	$ 71,984,290
Total Expenditures	**$ 69,810,049**	**$ 47,848,019**	**$ 63,118,766**	**$ 80,946,094**	**$ 59,312,274**	**$ 55,075,000**	**$ 52,005,866**	**$ 54,244,107**	**$ 61,214,816**	**$ 40,694,945**	**$ 321,035,203**	**$ 263,234,734**	**$ 584,269,937**