



# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD



TO: Commissioners Carlson, Mital, Helgeson, Schlossberg and Brown  
FROM: Rod Price, Chief Engineering & Operations Officer; Matt Barton, Chief Information Officer; Tyler Nice, Systems Engineering Supervisor; Wally McCullough, Water Engineering Supervisor  
DATE: May 24, 2019  
SUBJECT: Capital Improvement Plan Assumptions and Priorities  
OBJECTIVE: Provide General Direction

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## Issue

The Electric and Water Utilities will be presenting the 2020-2029 Capital Improvement Plans (CIP) to the Board in July. The Board has requested an overview of the many factors that are considered in the development of the CIP, and an independent review of the capital planning process.

Herein staff will present definitions and examples around capital planning, and are asking the board for general agreement around the capital categories and drivers.

## Background

Current practices to develop the CIP are to evaluate two factors overall as part of the process:

- Project budgeting and planning within yearly approved amounts
- Yearly budgeting totals over a 10 year Long Term Financial Plan (LTFP)

This backgrounder will describe how yearly spending amounts are derived for the Water and Electric CIPs, and define what factors influence individual project and program selection within the yearly budgets. It will also touch on independent plan review efforts and examples of available comparable capital spending of other northwest utilities.

## CIP Approval Overview

On an annual basis, EWEB staff develops a rolling ten year Capital Improvement Plan (CIP) for the Water and Electric Utilities, with the first five years approved by the Board. The projects and programs included in the CIPs for the Water and Electric Utilities includes each utilities' proportional share of funding related to shared services (i.e.: IT, Fleet, shared infrastructure projects such as ROC Consolidation). As a note, capital spending and O&M spending are interrelated. The CIP and O&M budgets are coordinated to maintain reliability of the system, support core business functions, and make progress on strategic goals. The balance between these spending plans are determined by monitoring performance metrics, identifying limitations in resourcing, spending and customer impact, and by strategic goals and focus.

Approval of the CIP typically takes place at the July Board meeting where high level plans around

the capital program are communicated, as well as a coordinated summary of Long Term Financial Plan (LTFP) effects by Finance. The approval process includes formal approval of the following year's capital budget, with modeling of year one through five in the LTFP, and indications of long term effects in years five through ten.

Estimates in the CIP for years one through five are of mid to high certainty, with preliminary project scopes, cost estimates, and anticipated timing defined. Estimates for projects and programs in years five through ten are of lower certainty with respect to scope and schedule and are intended to communicate long term financial drivers that may influence the rate structure.

The strategic priorities of the organization that drive the capital budget goals are set by the Board, General Manager, and Executive Team. These strategic objectives are then translated into programs and projects by Managers, Supervisors, and Subject Matter Experts. In addition to the strategic components of the capital plan, compulsory work (customer, regulatory, etc.) and infrastructure replacement work is completed to maintain reliability. Below includes more context to this overall stacked planning process associated with the CIP development that occur within the Electric Utility, Water Utility, and Shared Services efforts.

Options for independent review of the CIP have been investigated by staff. Previous formal and informal requests for budgetary estimates ranged \$500k to \$750k per utility with additional IS review at \$300k required. The quality of the outputs of these types of CIP review studies depend on available data the consultant has access to and require support availability from internal staff to supply quality data. In building toward a more comprehensive assessment, staff has elected to start with an incremental approach to this analysis prior to investing significant funds and resources. A series of asset or system-specific studies will ultimately augment an overarching review. For example a \$70,000 consultant led study has been launched to develop funding models for replacement of underground cable based on existing EWEB data.

### **Capital Categories and Drivers**

Projects and programs contained within the calendar year CIPs can generally be categorized as follows:

1. **Compulsory Work.** This work is mandatory to ensure EWEB meets minimum service, regulatory and safety requirements, including the following:
  - a. Emergency restoration
  - b. Emergent repair of critical infrastructure and/or systems to ensure business continuity
  - c. Safety improvements
  - d. **Obligation to Serve:** Customer driven work for new services, developments, large customers, etc.
  - e. **Right of Way Conflicts:** Required when EWEB facilities interfere with City of Eugene projects
  - f. Regulatory required work such as PUC electric distribution improvements.

Compulsory work is developed from both internal and external drivers such as coordination with the City and our customer service managers; monitoring of regulatory requirements and trends; and equipment observation and testing, as well as the economy.

There is minimal opportunity to change the compulsory portion of the capital plans due to

legal and policy requirements EWEB has connected with these categories of work.

2. Strategic Projects/Programs. These are typically distinct Type 2 or 3 projects derived from internal drivers. This work is driven mainly by the Board's strategic direction. These projects are typically multiyear and multimillion dollar efforts. Examples of these projects include:
  - a. Emergency Distribution Sites
  - b. Carmen Smith
  - c. Advanced Metering Systems
  - d. Second Water Source

With respect to priority, these projects and program priorities are moderately flexible in nature, and can typically be planned within a "strategic window" to allow prioritization of compulsory; and to balance with other non-capital strategic drivers (e.g. affordability, operational improvements).

3. Other Risk-Based Opportunity and Elective Improvement Projects. These projects make up the balance of the CIP and differ from the previous categories in their priority. Projects in this category are elective in that Staff can plan and schedule them ("Turning the Dials") to balance the within the boundaries of the capital plans and the long term financial plans as well as the staffing and resources available. This work is driven by the goal to maintain system condition and "Age of Asset" metrics in order to maintain reliability. Reducing the level of work in this area will ultimately result in the increase of compulsory work and reduction in reliability ("run to failure").

These projects are derived from several sources including:

- a. Emergent project opportunities where future cost savings can be realized.
- b. Right of Way/Partnership Opportunities: Potential Triple-Bottom-Line (TBL) benefits when shared projects are coordinated between agencies/partners (e.g. elective water main replacements, pole replacements, undergrounding, etc.)
- c. Mutual/Multiple Benefit Projects - Alignment with the goals of the Strategic Plan involving reliability, resiliency, and emergency preparedness.
- d. Master Plans and other planning documents.

Reliability and resiliency per the Strategic Plan are driving themes with these projects.

Examples projects in this category include:

- a. Substation, pump station, and reservoir rebuilds or replacements.
- b. Pipeline improvements and replacements to improve fire flows and reliability.
- c. Electric distribution improvements associated with storm outage mitigation.
- d. Seismic upgrades to critical infrastructure such as reservoirs, substations or transmission line replacements.
- e. Enterprise IS System replacements or major upgrades (i.e.: CIS, WAM, etc.).

Project management and operations staff continuously work with Management to assess safety, reliability and affordability metrics and "Turn the Dials" to meet these metrics to stay within board approved metrics, rate targets, and overall capital budgets. Within the total working budget amount, project lists are started with the Type 1 compulsory work based on a combination of historical

information, existing asset condition and life. From there, strategic projects are added to the plan within financial boundaries. These larger strategic efforts may require multiyear deployments in order to remain within established funding, resourcing or capabilities of the organization. Finally, additional system improvement and opportunity projects are selected which fit within the adopted remaining budget approved by the board along with available time and resourcing.

During the capital process, total rate-funded capital spending is leveled from year to year to avoid peaks of rate actions. This smoothing of the spending plan, in combination with management of the O&M budget, allows for a smooth long term financial plan without big swings in customer rates, or large reserve transfers.

Figure 1 below shows the breakdown in category for both the Electric and Water Utility.

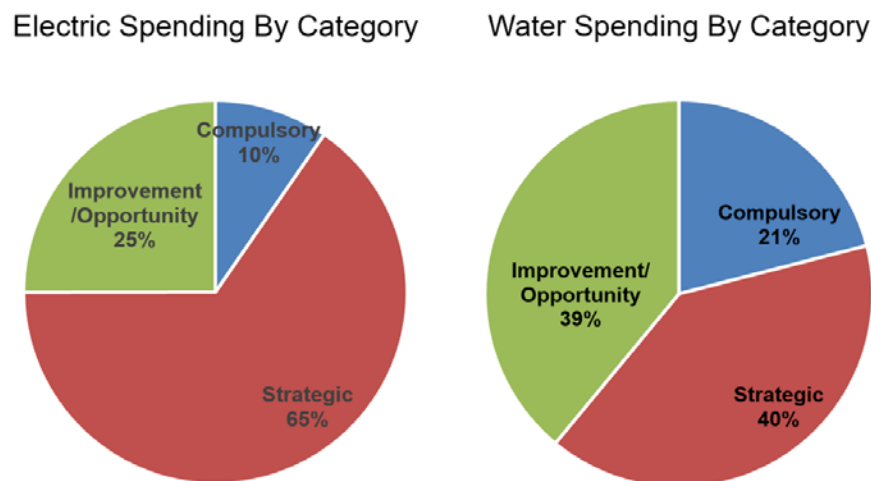


Figure 1. Electric and water spending by category (2019).

The relationship between the O&M budget and CIP is important to consider within the context of internal staffing and business operations funding, rate structure, reliability and strategic program development. In general, the lower the age of the asset fleets (lowering average age of assets is accomplished by increasing capital spending), the lower the spending required on O&M is required for reliable operation. Conversely, if capital spending is deferred extensively in order to decrease capital spending pressures, it is expected the O&M costs will increase in order to cover reliability issues with failing equipment at end of life. Due to the complexity of system equipment, size of equipment fleets, and composition of fleets (brands, technologies, etc.), it is difficult without extensive research funding to develop accurate models for this relationship between O&M and CIP spending and reliability.

### Yearly Budgeting Totals

Yearly capital budgets start with the total asset depreciation amounts on a per utility basis as calculated by the finance department. This method alone is not sufficient for determining project level funding to achieve a specific reliability target. Additional strategic and opportunity projects are

added such as Carmen Relicensing and the Second Source Water Plant.

There are currently two main indications that EWEB is spending appropriate levels of capital. Reliability metrics in both utilities are stable and within 5 year averages compared to other northwest municipal utilities, and capital spending is consistent with sampled comparable neighboring utilities (benchmarking).

The utilities use standardized reliability metrics to give quantitative measure to the average outage impact suffered by customers. For example, electric uses SAIDI and SAIFI indexes, and water uses leaks/breaks per mile. If reliability KPI's are not acceptable, this would drive staff to recommend increased replacement of key driver equipment, systems and technologies which would result in increased capital spending.

Benchmarking for utility sector comparisons range widely in effort, complexity, accuracy and cost to complete such research efforts. The lowest cost and most readily available comparator for Electric and Water Utilities is by comparing product rates that customers pay. This information is typically available publically and widely, and can be used to gauge if the cost of the product is in line with utilities of like organizational size, region, product type, and customer base. This method is reported by EWEB's Finance department to the board and includes a comparison of EWEB to neighboring northwest utilities.

Looking at magnitude of spending alone does not give context to utility specific factors for spending, therefore normalization of the data must be done in order to compare spending. Overall and category specific capital spending can be normalized to many utility attributes such as number of meters, annual MWh delivered, line miles (electric), pipe miles (water), per capita, per connection, etc. This method can give a comparison of like utilities with common basis. This method however depends on available data, and can result in some accuracy issues depending on the quality of the publically available data.

Third party vendor databases exist which allow for benchmarking of utility data. This is typically centered on operational metrics (generator availability, interruption time, etc.), and requires a utility to purchase membership, and submit the data for the vendor to analyze and produce summary comparison reports. Several companies exist typically organized by specific utility, or regional sector. The strength of data and comparison accuracy varies depending on the vendor supplying the service and utilities participating in the process.

### Electric Benchmarking

Staff have assembled capital spending details from four other similar utilities in the pacific northwest, and have normalized the spending data by utility statistics such as line miles, kWh delivered, and number of installed meters. Costs were divided by system type and budget line item where possible and averages developed for each class of comparison.

Figure 2 shows the electric utility is very close to the average spent per meter and per kWh produced when total capital spending is considered. Overall, EWEB is typically below on this normalized

spending on a per category basis for most spending categories, with some instances being the lowest normalized spending.

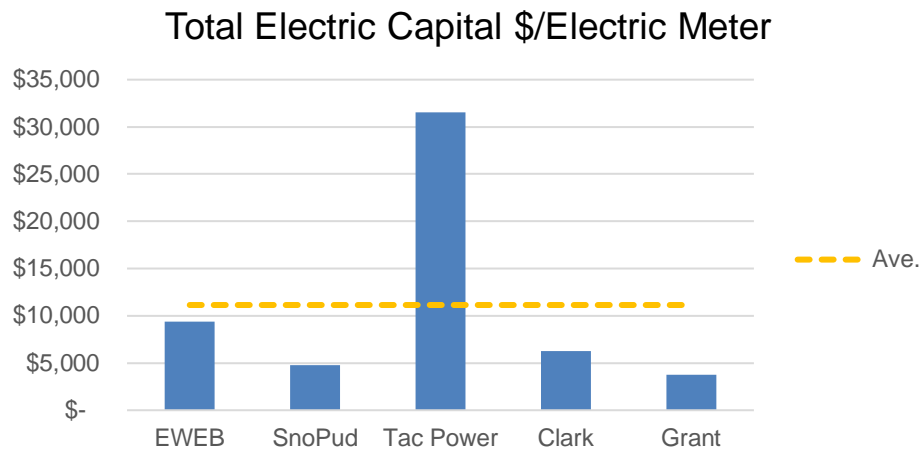


Figure 2. Total Electric utility capital spending per meter (2019).

Analysis presented in this report is a snapshot for 2019 and does not take in account multiyear efforts that may underway. Capital spending levels can swing by utility depending on factors around strategic goals and focus, and what other large efforts are underway. Other efforts that can reduce spending for utilities in a specific area to make budgetary room amongst rate pressure avoidance could be such things as constructing operations centers, deploying AMI, or large reconfiguration or Hydro relicensing efforts.

### Water Benchmarking

Water relies on several levels of benchmarking as a check that the appropriate investments is being provided for its infrastructure.

For a more detailed view specific to capital, the Water utility compared the CIP to the water CIP of other utilities. This data is normalized to a per meter connection amount to take into account the size of the utility. Information on this comparison is shown in Figure 3 below. It should be noted, however, that every company's CIP is different and it is difficult to ensure a like for like. For example, the data for EWEB includes water's proportion of shared services. It is unknown how much shared services are included in the others. In addition, Salem has a significant project coming up that does not appear to be in their CIP which will significantly affect their numbers. Also, TVWD's very large water supply program is not included in their data.

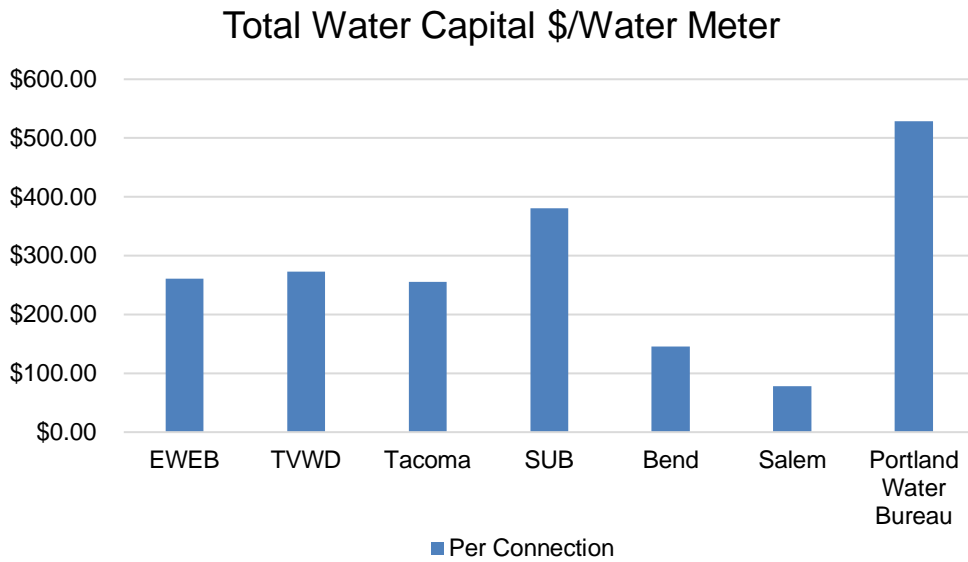


Figure 3. Total water capital per meter (2019).

The above benchmarks are really tied to the overall amount of the CIP. To benchmark and get to the question of “Are we doing the right work?”, Water relies on the Benchmarking data provided by the American Water Works Association. This data is provided to the Board as part of the Quarterly Report provided to the Board and includes information related to reliability. These include leaks/breaks per mile, duration of customer outage, etc. Looking at how the data trends from year to year provides insight on whether more or less investment is needed in distribution or transmission for example. Given the long life of many of our assets, however, it is difficult to say whether the investment is right for any given year.

#### Shared Service

Two of the main components in the shared service CIP category are Fleet and IS. EWEB has a very mature Fleet asset management program. It is a good tool in understanding the tradeoff between affordability and reliability. The model takes in account equipment life, spending, depreciation and condition. See Figure 4 for comparative spending with the four other utilities used in this effort.

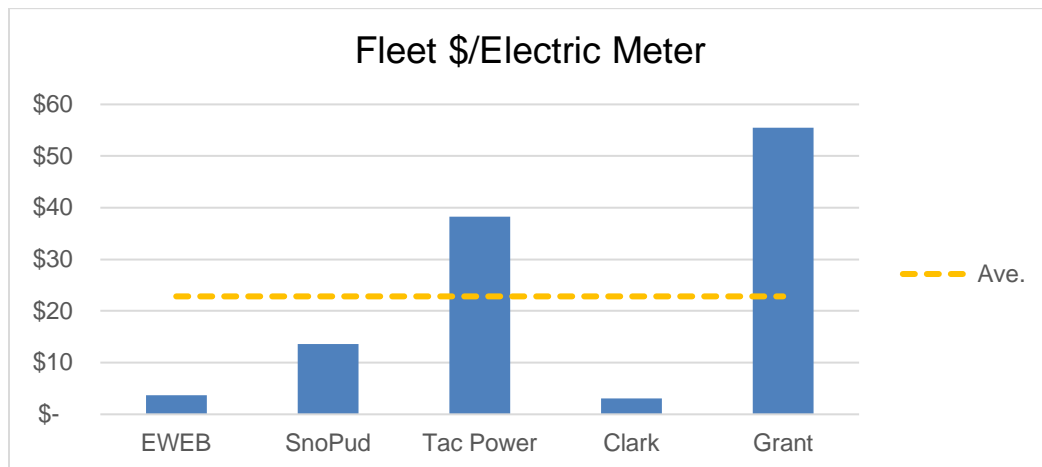


Figure 4. Fleet spending per electric meter (2019).

The IS division utilizes an established benchmarking model from Gartner utilized by the IS industry which compares spending in IS with a company’s revenue. For typical performers, the model states that a reasonable spending would be 3.5% of revenue. Currently, EWEB is spending approximately 5.6% of revenue on IS (capital and O&M combined). Based on the comparative companies studied for electric, EWEB is below average but in line with the majority of the group for IS spending per meter; see Figure 5.

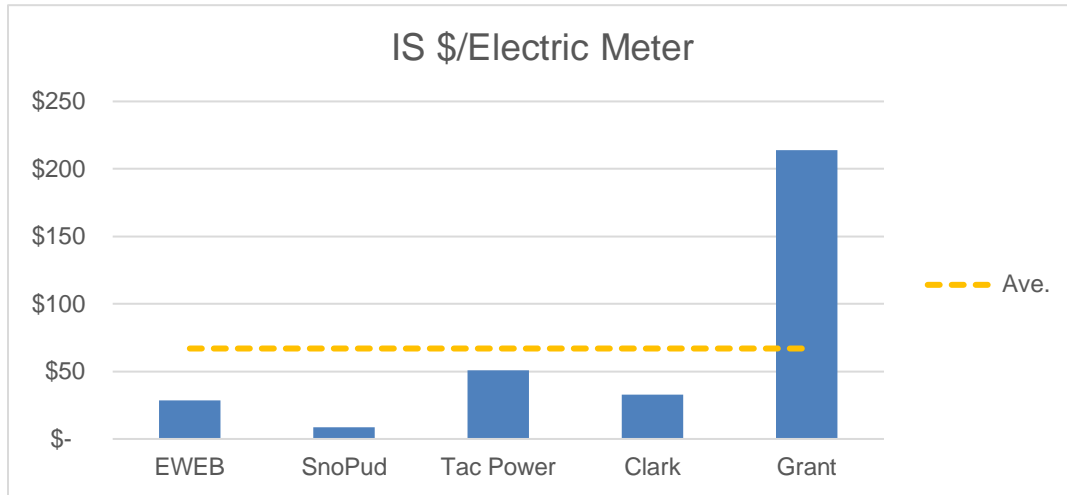


Figure 5. IS spending per electric meter comparable.

**Next Steps**

Staff will continue to refine the capital planning process. Board comments and questions will be included into the process as well as future consultant asset management studies (i.e.: underground cables, power transformers, 115kV circuit breakers).

**Requested Board Action**

Staff are requesting input from the board on the capital categories and drivers presented in this backgrounder. Staff will summarize this topic and be available for discussion, and to answer questions at the June 4, 2019 Board Meeting.

If you have any questions please contact Rod Price, Chief Engineering and Operations Officer at 541-685-7122 or email [rod.price@eweb.org](mailto:rod.price@eweb.org).