



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Brown, Carlson, Mital, Simpson and Helgeson
FROM: Rodney Price, Chief Electric Engineering and Operations Officer,
Tyler Nice, Systems Engineering Supervisor
DATE: July 10, 2018
SUBJECT: 2019 Electric 10-Year Capital Improvement Plan (CIP)
OBJECTIVE: Board Action – Approval of 2019 Electric 10 Year CIP

Issue

On July 10, 2017, EWEB management will present to the Board the 10-Year (2019-2028) Electric Capital Improvement Plan (CIP) for approval. Management is requesting Board approval of the first five (5) years of the 2019 10-Year CIP and the 2019 capital budget.

Background

During the May 2018 Board Meeting, EWEB staff presented to the Board a 10 year CIP for Electric that revised the 2018 capital budget. The revised CIP included only 2018 changes to reflect updated project estimates, emergent priorities, and project deferrals which affected the CIP since it was first approved in July of 2017. The CIP presented herein includes the proposed 2019 capital budget, as well as a more detailed update of the 10-year overall outlook (2019-2028). Also included in this backgrounder is a brief overview of Electric capital plan benchmarking efforts, as requested by the board.

Discussion

Benchmarking

Last fall, the Board requested that staff provide the Board with benchmarking information on EWEB's capital spending as it relates to other comparable utilities in the industry. The Electric Capital plan includes three main types of assets, Electric Transmission and Distribution (T&D), Generation and Shared assets, which are mainly Information Services (IS) and vehicles. As the Electric Capital plan has a number of details, EWEB staff is breaking the benchmarking into two parts. The initial phase is to treat the Electric Capital plan in a lumped sum manner and compare the EWEB levels with comparable utilities overall spending levels. These results will be included in this backgrounder.

The second phase will be to do a more in depth look at the type of projects that are planned and the impacts of various options on reliability, resiliency and long term financial impacts. Phase two will take place over the next six months and break down assets into different groups as IS assets differ in nature, lifecycle, and system criticality and impact, than T&D and Generation. Staff has been

engaging industry experts and plans to contract this detailed review in order to get a fully independent look at our plans. These results will be reported at a Board meeting later this year.

For the initial capital spending review, staff used the 2017 Financial and Operation Ratios of Public Power Utilities published by the American Public Power Association (APPA). The APPA compiles standardized financial data from member utilities, including EWEB. For capital spending, one key indicator is the Capital Expenditure to Depreciation Expense. From the APPA report, the average ratio is approximately 1.25 for Western area customers, and 1.43 for utilities with 50k-100k customers. The total EWEB Electric yearly depreciation rate is around \$23 million and the proposed 2019 total capital expenditure is \$37.7 million resulting in a ratio of 1.6. The ratio of 1.6 means the Electric Capital plan is investing capital at a slightly higher rate than the average rate of other utilities listed in the APPA report.

Another standard key financial ratio that aids in capital spending is the Age of System Ratio, which is the accumulated depreciation divided by the total asset cost. Accumulated depreciation indicates the assets financial depreciation life, which is indicative of the operational life as well. In general, an Age of System number greater than 50% indicates the need for additional capital yearly spending rate to achieve equal value to depreciation. For an initial understanding of what type of assets to spend capital and at what rate, staff has completed a high level review summarized in Table 1.

Table 1
High Level Electric Capital Financial Indicators

ASSET_CLASS_TYPE	TOTAL _ASSET COST (MM)	ACCUM_ DEPR (MM)	Calculated Age of System	2017 Depreciation Expense (MM)	proposed 2019 investment (MM)	Calculated Capital to Dep 2019 ratio
TRANSMISSION PLANT	\$85.9	\$48.3	56.2%	\$2.5	\$0.7	0.3
DISTRIBUTION PLANT	\$297.6	\$183.4	61.6%	\$9.2	\$16.3	1.8
TELECOMMUNICATIONS	\$18.8	\$13.4	71.3%	\$1.0	\$0.6	0.6
GENERATION	\$316.1	\$161.6	51.1%	\$9.6	\$16.6	1.7

For example, the Distribution Plant age of system is at 61%, which indicates that a higher level of capital spending in that area is needed. The 1.8 ratio of capital to depreciation is an indicator we are investing in capital faster than the rate of depreciation. At the current rate of capital spending, the age of system should, over time, come down.

Phase two of the capital benchmarking will include breaking down Electric capital spending into further financial categories and include additional considerations like risk and reliability. Phase two will also draw on specialized industry information required to separate out IS and T&D asset strategies.

2019-2028 Electric CIP

The Electric 2019 budget, as well as the complete ten-year 2019-2028 CIP, is included as Attachment 1. The 10 year CIP was reviewed and updated with the following guidelines per latest strategic directions:

1. Reliability:
 - AMI – Electric smart meter implementation, 2019-2021 (added \$8 MM during 10-year period, representing appropriate meter replacement rate)
 - Replacement of aging infrastructure.
 - Resiliency: A focus on projects that contribute water and electric system emergency preparedness, disruption management, and disaster recovery.
2. Responsibility (controlling rates):
 - Maintaining the Electric Year-End board required capital reserves of \$22 million or greater.
 - Setting yearly total spending limits to ensure Long Term Financial Plan does not project a general rate increase through 2020.
 - Setting yearly total capital spending targets (average \$35 MM/yr) based on a ratio of 1.5 for capital investment dollars to yearly depreciation rates. Yearly depreciation rates are approximately \$23 MM per year for all electric assets combined.
 - Match Type 1 and 2 rate funded spending to the assumed Electric Revenues – Operational Funding of \$18.7 MM/year.

Similar to previous capital board memos, spending is classified by three types, including the following:

Type 1 capital is a collection of routine capital work under specific categories (Transmission, Distribution, Buildings). This work is funded through rates. Examples of Type 1 capital include pole replacements, RTU replacements, etc.

Type 2 capital is classified as discrete projects with defined beginning and ending time periods and lifetime expenditures over \$1 million. Depending on the project, this work can be funded through either rates or bond funds. Examples of Type 2 capital include AMI and the Downtown Electric Network.

Type 3 capital is for large strategic programs with long-term impacts. These programs are generally bond-financed and include examples like Carmen-Smith Re-Licensing.

Overall, the 10-year total for the proposed Electric Capital plan is \$311 MM. This is approximately \$12.5 MM less than the previously approved total of \$324.2 MM. The major changes include:

- Type 1 – 5.8% reduction of \$7.2 MM. This reduction is mainly from moving all meter costs to the AMI project and a decrease in the Distribution Renewal and Replacement. Customer funded work to be corrected to historical spending levels.
- Type 2 - 12.7% increase of \$11.1 MM. Reflects \$8 MM increase in AMI project as well as increases in \$1.8 MM Distribution Resiliency (FEMA), Generation \$1.5 MM increase for IP Turbine Generator work, and \$4.8 MM IS projects. Also includes a \$2.7 MM decrease in T&D and \$1.5 MM decrease in Buildings and Land.

- Type 3 – 17% reduction of \$16.5 MM. Revised project estimates and savings in construction bids for the Carmen-Smith relicensing project.

As a note, three different version of the 10-Year capital plan was submitted to Finance for Long Term Financial review. Each version contained a different AMI deployment rate, 2 year, 4 year and 8 year. In all three cases, there were minimal impact to the rates and long term finances. However, various larger Type 2 projects resulted in deferrals to allow for accelerated AMI spending. The two year plan is being submitted for Board approval as it most closely reflects the staff implementation deployment target to finish meter installations by end of 2021.

2019 Electric Capital Budget and First Five Years.

The 2 year AMI implementation results in approximately \$11 MM dollars added to the first two years of the CIP. Several factors will help offset the AMI additional expenses.

1. Type 2 - The cancellation of the CIS project resulted in the availability of approximately \$8 MM in funds for the 2019-2021. The CIS project will be expected to start in 2022.
2. Type 1 – 6% reduction of approximately \$2 MM in T & D.

Overall, with the proposed capital plan, an accelerated smart meter installation impacts Electric T&D Type 2 spending the most but allows EWEB to maintain Type 1 capital spending, which has the most direct effect on daily reliability. In effect, accelerating AMI installation from and 8 year to a 2-3 year rate, results in replacing one major Type 2 T&D project with AMI. Large Type 2 projects like substations and transmission lines take years of planning, so doing a quicker AMI installation helps us manage larger project needs a little easier in the later years.

The main risk of accelerated AMI implantation is the deferral of large Type 2 projects like Jessen and Currin substations and the CIS upgrade. These substation projects do not result in immediate reliability risks, but more the ability to serve customers long term. The pause in the CIS project, along with having actual AMI experience and data, will allow EWEB to better plan and define CIS system needs. If EWEB has an emergent need for a large Type 2 project, we will have time to manage funding options and bring the discussion to the Board if necessary.

From industry experience, an additional benefit to early installation of smart meters will improve our system load modeling capability and help us make more informed choices about capital spending. In some cases helping EWEB avoiding system upgrades due to higher accuracy modeling and having real customer usage data.

Projects in Type 1 will continue to target reducing average age by replacing old cable and upgrading substation equipment and updating distribution system to improve reliability.

Projects in Type 2 category will continue to target the updates to the up-river substation and transmission portion of the EWEB electric system. These updates will reduce average infrastructure age significantly along with improving access from the Eugene area to the up-river generation assets for resiliency and emergency restoration purposes. Other Type 2 focus areas include systematic updates to the downtown network to increase reliability as well as larger projects west and northwest of Eugene to adapt to future load growth.

Electric Capital Reserves

The estimated year-end electric capital reserve balance ranges between \$22 MM to \$26 MM, with the variances a result of covering large Type 2 Strategic Projects that span multiple years.

Triple Bottom Line Assessment (TBL)

Most individual projects contained within the CIP have undergone, or will undergo (depending on year implemented), a TBL assessment at their appropriate level.

Recommendation

Management recommends approval of the first five years of the 2019 Electric 10-Year CIP and the capital budget for 2019 as outlined in the first year of the proposed 10-Year CIP.

Requested Board Action

Approval of the first five years of both the 2019 Electric Utility 10-Year CIP and the capital budget for 2019 as outlined in the first year of the proposed 10-Year CIP.

If you have any questions please contact Rod Price, Chief Electric Engineering and Operations Officer at 541-685-7122, email rod.price@eweb.org

cc: Frank Lawson
Sue Fahey
Tyler Nice

Attachments:

1. 2019 -2028 Electric CIP

Electric Capital Improvement Plan: 2019-2028 FINAL

2 Year AMI Deployment

Attachment 1	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	5-Year Total 2018-2022	5-Year Total 2023-2027	10-Year Total
General Funding													
Capital Reserve Balance	\$27,114,827	\$26,257,952	\$24,634,077	\$23,969,077	\$24,088,077	\$24,157,077	\$26,565,077	\$24,154,077	\$24,029,077	\$24,102,077			
Electric Rates - Operational Funding	\$18,665,000	\$18,665,000	\$18,665,000	\$18,665,000	\$18,665,000	\$18,665,000	\$18,665,000	\$18,665,000	\$18,665,000	\$18,665,000			
Customer-Driven Capital Re-Imbursement	\$2,550,000	\$2,295,000	\$2,340,000	\$2,386,000	\$2,434,000	\$2,483,000	\$2,532,000	\$2,583,000	\$2,635,000	\$2,687,000			
Residential	\$600,000	\$612,000	\$624,000	\$636,000	\$649,000	\$662,000	\$675,000	\$689,000	\$703,000	\$717,000			
Commercial	\$950,000	\$969,000	\$988,000	\$1,008,000	\$1,028,000	\$1,049,000	\$1,070,000	\$1,091,000	\$1,113,000	\$1,135,000			
Precapitalized Transformer Reimbursement	\$600,000	\$612,000	\$624,000	\$636,000	\$649,000	\$662,000	\$675,000	\$689,000	\$703,000	\$717,000			
Telecom	\$400,000	\$102,000	\$104,000	\$106,000	\$108,000	\$110,000	\$112,000	\$114,000	\$116,000	\$118,000			
ODOE Microgrid Grant Funding	\$60,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
FEMA Grant Funding	\$681,000	\$681,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Total Funds:	\$49,070,827	\$47,898,952	\$45,639,077	\$45,020,077	\$45,187,077	\$45,305,077	\$47,762,077	\$45,402,077	\$45,329,077	\$45,454,077			
Type 1 - General Capital													
Electric Infrastructure - Generation	\$1,657,000	\$2,405,000	\$2,540,000	\$1,255,000	\$1,130,000	\$500,000	\$500,000	\$500,000	\$520,000	\$520,000	\$8,987,000	\$2,540,000	\$11,527,000
Customer-Driven Capital Expense	\$2,250,000	\$2,295,000	\$2,340,000	\$2,386,000	\$2,434,000	\$2,483,000	\$2,532,000	\$2,583,000	\$2,635,000	\$2,687,000	\$11,705,000	\$12,920,000	\$24,625,000
Electric Infrastructure - Transmission & Distribution	\$6,050,000	\$5,937,000	\$6,055,000	\$6,175,000	\$6,297,000	\$6,421,000	\$6,546,000	\$6,674,000	\$6,805,000	\$6,937,000	\$30,514,000	\$33,383,000	\$63,897,000
Telecom Fiber - EWEB Driven	\$104,000	\$346,000	\$108,000	\$110,000	\$112,000	\$114,000	\$116,000	\$118,000	\$120,000	\$122,000	\$780,000	\$590,000	\$1,370,000
Telecom - Radio	\$175,000	\$0	\$0	\$0	\$0	\$200,000	\$300,000	\$300,000	\$300,000	\$300,000	\$175,000	\$1,100,000	\$1,275,000
Information Services (IS) - Shared & Electric	\$954,000	\$1,434,000	\$1,244,000	\$724,000	\$584,000	\$416,000	\$824,000	\$1,019,000	\$1,078,000	\$584,000	\$4,940,000	\$3,921,000	\$8,861,000
General Plant - Buildings & Land	\$200,000	\$131,000	\$82,000	\$82,000	\$115,000	\$156,000	\$164,000	\$123,000	\$287,000	\$200,000	\$610,000	\$930,000	\$1,540,000
General Plant - Fleet	\$345,000	\$265,000	\$475,000	\$500,000	\$510,000	\$520,000	\$530,000	\$541,000	\$552,000	\$563,000	\$2,095,000	\$2,706,000	\$4,801,000
Total Type 1 Net Expenditures	\$11,735,000	\$12,813,000	\$12,844,000	\$11,232,000	\$11,182,000	\$10,810,000	\$11,512,000	\$11,858,000	\$12,297,000	\$11,613,000	\$59,806,000	\$58,090,000	\$117,896,000
Total Type 1 Net Expenditures Not including Customer Reimbursable													
Type 2 - Rehabilitation & Expansion Projects													
Type 2 - Bond (Non-Rate) Funds Allocated													
Total Type 2 Bond (Non-Rate) Funds	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Type 2 - Rehabilitation & Expansion Project Expenditures													
Downtown Distribution Network	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$5,000,000	\$5,000,000	\$10,000,000
Distribution Resiliency Upgrades	\$931,000	\$931,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,862,000	\$0	\$1,862,000
Downtown Fiber Project	\$300,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$300,000	\$0	\$300,000
Advanced Meters (Electric)	\$6,346,875	\$6,346,875	\$650,000	\$650,000	\$650,000	\$0	\$0	\$0	\$0	\$0	\$14,643,750	\$0	\$14,643,750
Generation - Type 2 Strategic Project(s)	\$0	\$200,000	\$0	\$0	\$2,100,000	\$1,000,000	\$7,050,000	\$1,375,000	\$0	\$0	\$2,300,000	\$9,425,000	\$11,725,000
Electric System Modernization	\$250,000	\$350,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$600,000	\$0	\$600,000
Electric T & D - Type 2 Strategic Project(s)	\$200,000	\$500,000	\$6,200,000	\$4,500,000	\$1,400,000	\$2,250,000	\$0	\$1,500,000	\$5,750,000	\$8,000,000	\$12,800,000	\$17,500,000	\$30,300,000
Information Technology - Type 2 Strategic Project(s)	\$1,300,000	\$774,000	\$976,000	\$3,550,000	\$4,698,000	\$3,680,000	\$3,546,000	\$4,640,000	\$2,180,000	\$1,220,000	\$11,298,000	\$15,266,000	\$26,564,000
Buildings & Land - Type 2 Strategic Project(s) Total	\$750,000	\$350,000	\$0	\$0	\$0	\$0	\$500,000	\$1,000,000	\$0	\$0	\$1,100,000	\$1,500,000	\$2,600,000
Type 2 Capital Expenditures (Bond, Customer, & Rate Funded)	\$11,077,875	\$10,451,875	\$8,826,000	\$9,700,000	\$9,848,000	\$7,930,000	\$12,096,000	\$9,515,000	\$8,930,000	\$10,220,000	\$49,903,750	\$48,691,000	\$98,594,750
Type 2 - Rate-Funded Capital Expenditures	\$11,077,875	\$10,451,875	\$8,826,000	\$9,700,000	\$9,848,000	\$7,930,000	\$12,096,000	\$9,515,000	\$8,930,000	\$10,220,000	\$49,903,750	\$48,691,000	\$98,594,750
Type 1 + Type 2 Rate-Funded Capital Expenditures	\$22,812,875	\$23,264,875	\$21,670,000	\$20,932,000	\$21,030,000	\$18,740,000	\$23,608,000	\$21,373,000	\$21,227,000	\$21,833,000	\$109,709,750	\$106,781,000	\$216,490,750
Type 3 - Strategic Projects & Programs													
Type 3 - Bond (Non-Rate) Funds Allocated													
Carmen-Smith Dedicated Funds	\$14,980,000	\$22,430,000	\$31,355,000	\$14,275,000	\$4,930,000	\$2,270,000	\$2,030,000	\$1,510,000	\$1,400,000	\$0	\$87,970,000	\$7,210,000	\$95,180,000
Type 3 - Expenditures													
Carmen-Smith Expenditures	\$14,980,000	\$22,430,000	\$31,355,000	\$14,275,000	\$4,930,000	\$2,270,000	\$2,030,000	\$1,510,000	\$1,400,000	\$0	\$87,970,000	\$7,210,000	\$95,180,000
Total Expenditures	\$37,792,875	\$45,694,875	\$53,025,000	\$35,207,000	\$25,960,000	\$21,010,000	\$25,638,000	\$22,883,000	\$22,627,000	\$21,833,000	\$197,679,750	\$113,991,000	\$311,670,750
Predicted Year-End Reserve Balance	\$26,257,952	\$24,634,077	\$23,969,077	\$24,088,077	\$24,157,077	\$26,565,077	\$24,154,077	\$24,029,077	\$24,102,077	\$23,621,077	\$123,106,260	\$122,471,385	\$245,577,645
(a) - Capital Reserve Uses Starting Value	\$26,257,952	\$24,634,077	\$23,969,077	\$24,088,077	\$24,157,077	\$26,565,077	\$24,154,077	\$24,029,077	\$24,102,077	\$23,621,077	End of 2022	End of 2027	End of 2027
Reserve Transfer Required To Meet \$22M Minimum	(\$4,257,952)	(\$2,634,077)	(\$1,969,077)	(\$2,088,077)	(\$2,157,077)	(\$4,565,077)	(\$2,154,077)	(\$2,029,077)	(\$2,102,077)	(\$1,621,077)	(\$13,106,260)	(\$12,471,385)	(\$25,577,645)