



# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

*Rely on us.*

TO: Susan Ackerman, Chief Energy Officer  
FROM: Matthew A. Schroettig, Power Resources Counsel  
DATE: July 3, 2018  
SUBJECT: Columbia Generating Station  
OBJECTIVE: Information Only

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## Issue

Recently, EWEB has received public comment regarding the Columbia Generating Station (CGS) nuclear plant. Several questions focused on EWEB's ability to refuse power generated by CGS, the comparative economic viability of the plant, and the potential to replace its output (as one of the single largest carbon free resources in the region) with renewable generation. The following analysis responds to those questions, and provides additional information and context to interested parties.

## Background

Today, roughly 30% of EWEB's power production comes from owned, co-owned, or non-BPA contracted for resources. However, the great majority of EWEB's power supply comes from BPA (roughly 70%, though it varies annually based on water supply).<sup>1</sup> This is the result of the December 2008 Power Sales Agreement between EWEB and BPA, effective through September 30, 2028, commonly referred to as the "Regional Dialogue Contract."

BPA markets power from the Federal Columbia River Power System (the "Federal System") composed of 31 federal hydroelectric projects, one non-federal nuclear project, several non-federally-owned hydroelectric and thermal projects in the Pacific Northwest, and from various contractual rights. The federal projects are built and operated by the United States Bureau of Reclamation and the Corps of Engineers and are located primarily in the Columbia and Snake River Basins. The sole nuclear project, CGS, is operated by Energy Northwest, a joint action agency representing a consortium of 27 public utility districts and municipalities across Washington.

## Columbia Generating Station

The Columbia Generating Station (CGS) nuclear generator has a capacity of roughly 1,200 MW and represents approximately 4% of the electricity used in the northwest. The output of CGS is provided to BPA at the cost of production under a formal net billing agreement in which BPA pays the costs of maintaining and operating the facility. As a part of the BPA Federal System, under the Regional Dialogue Contract EWEB does not have the option to refuse power from CGS. The existing Power

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<sup>1</sup> Available at: <http://www.eweb.org/Documents/about-us/where-your-power-comes-from-infographic.pdf>.

Sales Agreement will expire in 2028, and EWEB is currently working with BPA and the region to discuss renewal options. However, for reasons discussed below, maintaining CGS as a foundational component of the northwest resource mix is in the best interest of EWEB’s customer owners; is consistent with EWEB’s organizational core values of Safe, Reliable, Responsible, and Community; is in alignment with EWEB’s existing position on carbon emissions reductions; and supports a least-cost approach to decarbonizing the electric sector.<sup>2</sup>

In 2016, Seattle City Light (SCL) passed a Resolution intended to focus all future resource acquisitions on “clean and safe energy sources that generate the lowest amount of greenhouse gases or radioactive waste.”<sup>3,4</sup> The Resolution went on to direct SCL “to promote the transition of electricity generation in the Pacific Northwest away from energy facilities that burn fossil fuels or use nuclear power.” The Resolution has been widely interpreted to mean that SCL intends to call for the closure of CGS, or to encourage BPA to somehow differentiate distinct resources within the Federal System as part of the upcoming 2028 contracting discussions.

When it comes to plant safety, CGS has more than 30 years of safe operation. In its most recent annual assessment, the Nuclear Regulatory Commission (NRC) again rated CGS at the top performance level for public safety.<sup>5</sup> Additionally, in both 2017 and 2018 the Northwest Public Power Association (NWPPA) awarded Energy northwest first place in safety performance for utilities with more than 1 million hours of employee exposure.<sup>6</sup> However, the majority of the public discourse and negative pressure surrounding CGS has been driven by the Physicians for Social Responsibility (PSR). The SCL resolution followed a concerted effort on the part of the Oregon and Washington chapters of PSR, which had commissioned a report on CGS by a local economist, Robert McCullough, in 2013. The report concluded that northwest ratepayers would save roughly \$1.7 billion by closing CGS.<sup>7</sup> This initial report has been frequently refreshed, most recently on January 22, 2018.<sup>8</sup>

The updated report asserts that the output of CGS could be replaced with renewable generation resources for a benefit of roughly \$325.9 million between January 2018 and June 2027. In summary, the relevant conclusions of the report are: (1) energy from CGS can be replaced at lower cost from renewable resources and the market, and (2) replacement of CGS with intermittent, non-dispatchable resources would not impact reliability or resource adequacy. As discussed below, EWEB management believes that both of these conclusions are in error and substantially misleading.

Based on analysis from the Northwest Power Planning and Conservation Council (NWPPCC) as well as BPA rate information, the McCullough report’s recommendations actually would lead to a *cost increase* of \$310 million annually and would adversely affect regional power supply adequacy.

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2 See: <http://www.eweb.org/Documents/about-us/Position%20on%20Carbon%20Pricing%20Policy-FINAL.pdf>

3 <https://seattle.legistar.com/View.ashx?M=F&ID=4525087&GUID=D7276CCF-CF14-4530-AF34-72B74D630C9E>.

4 It is also worth noting that 27 regional PUDs, COUs, Cooperatives, and stakeholder organizations, along with the WA Governor’s office, have signed Resolutions in support of Energy Northwest and the continued operation of CGS. Available at: <https://www.energy-northwest.com/ourenergyprojects/Columbia/Pages/Member-Support.aspx>.

5 Available at: <https://www.tri-cityherald.com/news/local/hanford/article212389649.html>

6 Available at: <https://www.nwppa.org/wp-content/uploads/2017-Safety-Awards.pdf>

7 See:

[https://d3n8a8pro7vhnmx.cloudfront.net/oregonpsrorg/pages/1266/attachments/original/1516225007/Economic\\_Analysis\\_of\\_the\\_Columbia\\_Generating\\_Station\\_%28McCullough\\_Research\\_2013%29.pdf](https://d3n8a8pro7vhnmx.cloudfront.net/oregonpsrorg/pages/1266/attachments/original/1516225007/Economic_Analysis_of_the_Columbia_Generating_Station_%28McCullough_Research_2013%29.pdf).

8 See:

[https://d3n8a8pro7vhnmx.cloudfront.net/oregonpsrorg/pages/1271/attachments/original/1517357684/20180104\\_Update\\_of\\_CGS\\_costs\\_and\\_implications\\_23\\_%282%29.pdf](https://d3n8a8pro7vhnmx.cloudfront.net/oregonpsrorg/pages/1271/attachments/original/1517357684/20180104_Update_of_CGS_costs_and_implications_23_%282%29.pdf).

## CGS – Energy Replacement Cost

The heart of the report is a comparison of the projected power costs of CGS from 2018 to 2027 with the levelized cost of energy (LCOE) from new renewable resources taken from “Lazard’s Levelized Cost of Energy Analysis – Version 11.0”, which is a study produced by the international Lazard “financial advisory and asset management firm.” The Lazard study projects a range of potential LCOE values for new resources on a national and international basis.

The McCullough Research analysis takes a “median” LCOE from this report for new solar of \$37.50 per MWh and \$33 per MWh for new wind. These values might be realistic in some parts of the United States, such as the desert Southwest for solar, or the plains for wind, but they are unrealistic in the Pacific Northwest.

This is primarily because the Lazard analysis assumes extremely high capacity factors for the wind and solar resources. Specifically, the report assumes a 55% factor for wind and 30% factor for solar. This means that for 100 MW of installed generation, the report assumes that wind will generate 55 aMW and solar will generate 30 aMW on an annual basis.

In contrast, the NWPCC’s 7<sup>th</sup> Power Plan developed capacity factors of 32% for wind and 19% for solar in the Pacific Northwest. These values were vetted extensively by regional experts. Applying these more reasonable capacity figures to the Lazard levelized costs results in values of \$59.21 per MWh for solar and \$56.72 per MWh for wind.

In addition to drastically understating the cost of new renewable resources in the northwest, the McCullough Research report ignores the value difference in energy between baseload generation and intermittent resource output. BPA has a specific set of rates that calculate the cost of converting variable resource output to a flat annual block of power known. The service is known as Resource Support Services (RSS). Under current BPA rates, these services cost \$15.46 per MWh for a wind resource and \$15.83 per MWh for a solar resource.

Therefore, using regionally vetted capacity factors from the NWPCC and BPA’s latest rates, the least expensive replacement for the power of CGS with intermittent renewables would be wind power with a levelized cost of approximately \$76.20 per MWh.<sup>9</sup> Conversely, the average projected cost of power for CGS for 2018 to 2028 is \$42.93 per MWh. This difference in costs of \$33.27 per MWh at the average annual CGS output of 1,062 aMW leads to a *cost* of \$310 million annually were the report’s recommendations to be implemented.

This result is consistent with a scenario analysis conducted in the 7<sup>th</sup> Power Plan that examined the change in regional portfolio cost for the planned retirement of a 1,000 MW carbon free resource. That analysis found an increase in regional power costs of \$3 to \$6 billion on a net present value basis over 20 years.

Lastly, the latest McCullough report goes into some detail comparing CGS power costs to Mid-C market prices. But this is not a valid comparison. Market purchases are not directly comparable to physical generating assets that are dispatchable, carbon-free, and have well defined costs. Additionally, the output of CGS is so substantial on a regional basis that replacing that power through

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<sup>9</sup> This is the sum of \$56.72 per MWh LCOE, \$4.32 per MWh Variable Energy Resource Balancing Services (VERBS) charges, and \$15.16 per MWh for RSS.

the market, even if it were possible, would have a significant impact on market prices and reliability.

## **CGS – Capacity and Reliability Impacts**

The McCullough report does not address resource adequacy or reliability implications of replacing the output of CGS with 3,000 to 5,500 MW of intermittent resources.

This is in contrast to the analysis of the NWPPCC. The NWPPCC conducts a rigorous, annual Pacific Northwest Power Supply Adequacy Assessment which looks forward five years. The most recent assessment conducted in 2017 for adequacy in 2022 shows potential for resource deficiencies based on the planned retirements of the Boardman, Centralia and Colstrip Units 1 & 2 coal facilities. Retirement of CGS would significantly exacerbate these issues.<sup>10</sup>

Notably, the 7<sup>th</sup> Power Plan does not rely on the large scale development of intermittent resources to meet regional capacity needs, instead calling for demand response measures as available or natural gas generation. This is specifically because “power production from wind and solar PV projects creates little dependable peak capacity and increases the need for within-hour balancing reserves...”<sup>11</sup>

Replacing CGS output with intermittent resources would be doubly restrictive for BPA in terms of capacity. Not only would the baseload capacity of CGS be gone, but hydro system flexibility would be further burdened by the need to balance the intermittent resources within the hour, potentially drastically increasing costs for BPA, and consequently for EWEB customer owners.

## **EWEB’s Carbon Reduction Goals**

EWEB was an early advocate of addressing climate change, and has publicly supported carbon pricing in Oregon, stating: “Recognizing the potential benefits to our customers, EWEB supports a Carbon Pricing Policy to meet Oregon’s adopted GHG reduction goals that is direct, efficient, economy-wide, technology-neutral, market-based, upstream, and regionally consistent.”<sup>12</sup> Further, as part of its support for Oregon’s then-proposed “Cap-and-Invest” legislation, in November 2017 the EWEB Board adopted Resolution 1736, a section of which is dedicated to publically stating EWEB’s support for a least-cost approach to decarbonizing the electric sector.<sup>13</sup>

In December 2017, the Public Generating Pool (PGP), a group of 10 Oregon and Washington consumer-owned electric utilities (including EWEB), along with Benton PUD and Energy Northwest, co-sponsored a study from E3 that looked at several ways to simultaneously achieve the environmental and economic goals in the electric sector.<sup>14</sup> The stated purpose of the study is to contribute to the discussion on how to meet the Pacific Northwest’s decarbonization goals by exploring how the region’s electric sector could most effectively and efficiently contribute to the achievement of those goals. To that end, the study seeks to identify how to most effectively contribute to carbon emissions reductions goals in a least-cost manner.<sup>15</sup>

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10 See Pacific Northwest Power Supply Adequacy Assessment for 2022. Available at: <https://www.nwcouncil.org/media/7491213/2017-5.pdf>.

11 See 7<sup>th</sup> Power Plan, page 3-5. Available at: <https://www.nwcouncil.org/7thPlan>.

12 See: <http://www.eweb.org/Documents/about-us/Position%20on%20Carbon%20Pricing%20Policy-FINAL.pdf>

13 See: <http://www.eweb.org/Documents/board-meetings/2017/12-05-17/m11-res-no-1736-approval-of-eweb-2018-state-legislative-agenda.pdf>.

14 Available at: <https://www.ethree.com/e3-completes-study-of-policy-mechanisms-to-decarbonize-the-electric-sector-in-the-northwest/>

15 See: [http://www.publicgeneratingpool.com/wp-content/uploads/2017/12/E3\\_PGP\\_GHGReductionStudy\\_2017-12-15\\_FINAL.pdf](http://www.publicgeneratingpool.com/wp-content/uploads/2017/12/E3_PGP_GHGReductionStudy_2017-12-15_FINAL.pdf).

Relevant to this discussion of CGS is the study's conclusion regarding the impact of retiring existing carbon-free resources (i.e., nuclear generation) on the region's ability to achieve the goal of an 80% reduction in emissions below 1990 levels by 2050.

### **CGS – Retirement of Existing Carbon-Free Resources**

Given ongoing regional discussions surrounding the relicensing of the Snake River Dams, along with the continued discourse surrounding CGS, the E3 study included a sensitivity analysis of the impacts of retiring 2,000 aMW of existing zero-carbon generation. Though this is not specific to CGS, the conclusion is still relevant, given both the relative size of CGS (1,200MW nameplate) and the resulting cost of replacing those resources.

In summary, the study concluded that if the region is to achieve its goal of an 80% reduction in emissions, the retirement of 2,000aMW of carbon-free generation would require the installation of 5,500 MW of new renewable generation, along with 2,000 MW of new natural gas capacity for resource adequacy, at an additional total cost to the region of \$1.6 billion per year.

The carbon-free production of CGS is one of the reasons EWEB is able to claim the lowest emissions of any Oregon Consumer Owned Utility (at 0.041 lbs CO<sub>2</sub>/KWh) according to the Oregon Department of Energy.<sup>16</sup> This is highlighted in a 2014 study by IHS Cambridge Energy Research Associates, which concluded that the operation of CGS prevents about 3.6 million metric tons of CO<sub>2</sub> from entering the atmosphere every year when compared to combined-cycle natural gas turbines, the most likely replacement resource. (For reference, CGS's output is roughly equivalent to three new base load combined-cycle natural gas plants.)

Further, looking nationwide, the continued retirement of nuclear facilities is resulting in an increase in carbon emissions and an increase in ratepayer costs. For example, an April 2018 report by the Brattle Group concluded that the retirement of four plants in Ohio and Pennsylvania would result in an increase of over 21 million metric tons of carbon dioxide emissions annually, cause a loss of zero-emissions generation greater than the total amount of renewable generation in the entire PJM region, and raise gross electricity costs for customers by approximately \$400 million for Ohio, \$285 million for Pennsylvania, and \$1.5 billion across all of PJM.<sup>17</sup>

Finally, in response to public comment regarding radiation concerns, it is worth noting that after more than fifty years of commercial nuclear energy production in the United States, including more than 3,500 reactor years of operation, there have been no radiation-related health effects linked to their operation.<sup>18</sup>

### **Conclusion**

Currently, EWEB does not have the option to refuse power from CGS under the existing Regional Dialogue Contract with BPA. In 2028, the existing Power Sales Agreement with BPA will expire, and EWEB is currently working with BPA and the region to discuss options for renewal. However, the available analysis strongly indicates that, so long as it remains possible to do so in safe and

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<sup>16</sup> Available at: <https://www.oregon.gov/energy/energy-oregon/Pages/Electricity-Mix-in-Oregon.aspx>

<sup>17</sup> Available at: <http://www.brattle.com/news-and-knowledge/news/report-by-brattle-economists-estimates-the-impacts-of-nuclear-retirements-in-ohio-and-pennsylvania>

<sup>18</sup> Available at: <https://www.energy-northwest.com/ourenergyprojects/Columbia/Pages/Myths.aspx>

reliable manner, continued operation of CGS is in the best interest of EWEB's customer owners.

EWEB soon will be undertaking a full integrated electric resource planning process, to be completed at the end of 2021, for the Board's consideration. Management recommends that future resource decisions be analyzed in the context of that planning process. The June 5, 2018 revision to EWEB's Strategic Plan affirmed EWEB's commitment to responsible and sustainable stewardship. The Strategic Plan provides staff with the tools necessary to analyze and propose resource choice options that are in the best interest of EWEB customer owners.



# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

*Rely on us.*

TO: Commissioners Brown, Carlson, Mital, Simpson and Helgeson  
FROM: Sue Fahey, Chief Financial Officer; Deborah Hart, Interim Finance Manager;  
Sarah Creighton, Enterprise Risk Supervisor  
DATE: June 27, 2018  
SUBJECT: Records Storage Analysis / In-House Feasibility  
OBJECTIVE: Information Only

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## **Background**

At the October 3, 2017 Board meeting, Commissioners were asked to approve a contract with DocuTRAK Imaging, Inc., of Eugene for records storage services, for a not to exceed amount of \$150,000 over five years. As a result of the ensuing discussion, staff was asked to research various options for ongoing records storage to ensure records are being stored in the most cost-effective manner.

## **Discussion**

EWEB presently has over 1700 boxes of records in storage. Many of these records have a permanent retention requirement, so this figure is expected to grow over time as more permanent records are created. Oregon records laws require records with a retention period of 100 years or more to be maintained in hard copy or on microfilm. A minimum of 1000 sq. ft. is needed to house these records.

EWEB's records are subject to various state and federal retention requirements. Records are required to be kept in secure, fire-resistant structures where temperature and humidity are maintained at levels required to ensure optimum longevity of the records. These records must receive adequate ventilation and protection against insect or mold invasion and must not be exposed to moisture, sunlight or extreme temperature variations.

When evaluating options for storage of records, employee safety is an important consideration. In order to support a safe working environment, staff recommends adequate light, appropriate ventilation, and automation to move boxes down to the height of a work station. Alternatively, a scissor lift could be utilized to raise the employee up to the level of the stored boxes.

Staff considered the following options:

- New construction- Building a stand-alone building. Construction cost estimates include design, construction management, and overhead. Staff would need to purchase shelving and a lift device, as well as consider ongoing maintenance.

Staff also considered including space for records storage in an upcoming construction project at

Hayden Bridge. Cost estimates below do not account for staff time or environmental impacts inherent in travel between sites.

- Use existing space at the Roosevelt Operations Center (ROC). This option is not feasible due to space constraints from consolidation efforts.
- Maintain records off site. Cost estimates consider the upcoming organizational consolidation efforts that are expected to impact on-site storage availability and increase demand for offsite storage.

**Figure 1. Storage Options Cost Summary**

	Construction	Equipment and maintenance over 10 years	Total over 10 years
New Construction : stand alone	\$200,000 – 350,000	\$60,000 – 215,000	\$260,000 – 565,000
New Construction : add to Hayden Bridge Project	\$150,000 – 300,000	\$60,000 – 215,000	\$210,000 – 515,000
DocuTRAK			\$124,000 – 200,000

The present vendor’s fees have been lower than anticipated due to fewer boxes being requested from, and added to storage than was previously experienced. Additionally the level of service provided by this vendor has exceeded staff’s expectations. As a result of the savings in fees, staff has reduced annual budget requirements for records storage by \$20,000. Management believes the most prudent option is to continue storing records off-site at DocuTRAK.

**Recommendation and Requested Board Action**

This item is for informational purposes only. No Board action is requested.





# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

*Rely on us.*

TO: Commissioners Brown, Carlson, Mital, Simpson and Helgeson  
FROM: Sue Fahey, Chief Financial Officer; Deborah Hart, Interim Finance Manager;  
Sarah Creighton, Enterprise Risk Supervisor  
DATE: June 27, 2018  
SUBJECT: SD20 Annual Enterprise Risk Management (ERM) Update  
OBJECTIVE: Information Only

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## **Issue**

SD20 calls for a periodic report on the status of Enterprise Risk Management (ERM) activities. The following is a status report on projects completed in the last year, in progress, and planned.

## **Background**

EWEB's risk management efforts are embedded across the utility. These efforts include the Safety program, Power Risk Management Committee (RMC), and the Dam Safety program.

With the adoption of SD20 in 2015, EWEB began moving toward an enterprise-wide approach to risk management. Enterprise risk management is designed to support the achievement of operational and strategic objectives, including responsible stewardship of our customer-owners' financial and natural resources, safety, and regulatory compliance. Managing risk is an integral part of decision-making across EWEB and is not a stand-alone activity. ERM staff coordinates EWEB's ERM efforts, which include identifying and analyzing existing risks, monitoring emerging risks, and creating and implementing mitigation strategies.

## **Discussion**

At the end of 2017, an updated risk analysis was completed by ERM staff and Management to determine which risks ERM should focus on from an organization-wide perspective. Top risks were selected based on projected impact and likelihood of occurrence after mitigation strategies were applied. These risks were determined to be:

- Complying with contracts other than those for goods and services
- Legal and regulatory compliance
- Cyber security
- Enhancing a risk-aware culture
- IS project execution

*Contractual Compliance:* The Contract Governance program has been operational since January 2017 and is designed to address non-standard contracts developed outside the Purchasing department. The program helps ensure stakeholders have an opportunity to provide feedback during contract development. Staff continues to use the tool that was created to track these contracts, providing increased visibility throughout the contract term. This tool also supports reporting functionality to aid in work planning. Presently, over 230 contracts have been identified and tracked.

Earlier this year, staff initiated a contract management software project. The goal of the project is to select a cost effective way to provide a digital repository for the contracts and tools to support proactive management of contractual obligations. This project is presently in the planning phase, and business requirements are being gathered to ensure the chosen solution best fits EWEB's needs.

In March 2018, ERM staff, in conjunction with other subject matter experts, developed and implemented a grants policy to ensure relevant stakeholder feedback and understanding are obtained and Board policies are followed before a grant application is submitted. If a grant is awarded, staff utilize a tracking mechanism to ensure compliance with various grant obligations.

*Legal and Regulatory Compliance:* ERM staff report monthly to Management on compliance activities, helping to ensure real time conversations on compliance opportunities. ERM staff also monitors legal and regulatory compliance changes. Training continues to be a strong focus. Moss Adams delivered Internal Controls training to managers and supervisors in April 2018. Comprehensive ethics training is required for all new hires, and all staff complete an annual ethics refresher training.

Privacy of employee and customer personal information remains a high priority. Staff revised the Identity Theft Prevention Policy in to reflect changes to Oregon's Consumer Identity Theft Protection Act that went into effect June 2018. Annual identity theft prevention training is required for staff whose jobs require access to personal information. Training last took place in August 2017 and is scheduled again for the fall of 2018. The Privacy Committee continues to investigate and respond to potential breaches of personal information. Over the past year, two potential events were reported and investigated. In both instances an investigation revealed no data breach occurred.

ERM staff maintains responsibility for compliance with public records archival and request laws. Over the past year, ERM staff has responded to over 40 public records requests.

*Cyber Security:* Employee awareness is a critical component of cyber security. Teaching users to know when something does not look right is an integral piece of ongoing cyber security strategy. The identity theft prevention training scheduled for later this year has a strong focus on cyber security. Staff employ a variety of communication methods including posters, emails, articles, and online training modules to help keep cyber security in the forefront of staff's minds.

*Risk-Aware Culture:* Decisions are made every day at all levels of EWEB. ERM staff is in the beta-testing stage of a risk-aware decision-making tool. This tool walks users through the risk assessment process to help ensure decisions are made by considering a variety of perspectives and potential outcomes. ERM staff frequently consult on projects to support risk-based decisions. A recent example includes a review of the process for managing mandatory unclaimed funds reporting, which enabled impacted staff to increase efficiency in a risk-aware fashion.

*IS Project Execution:* EWEB's Project Management Office recently standardized the Project Management Lifecycle. Use of the standardized lifecycle will lead to a consistent approach and more predictable outputs by implementing best practices to reduce risk and improve quality and value. IS and ERM staff partner on certain IS projects, including disaster recovery and response planning, electronic data retention, and data governance.

*Other Functions:* ERM staff are also responsible for claims, insurance procurement, responses to subpoenas, and internal reviews for operational efficiencies, internal controls, and effectiveness. The majority of liability and recovery claims EWEB experiences are within the self-insurance threshold and are resolved internally. EWEB maintains a broad portfolio of insurance policies to cover a variety of other exposures. This portfolio is evaluated at least annually to ensure the types and levels of coverage purchased continue to be adequate.

Internal review continues to focus on assessing internal controls, operational efficiencies, and effectiveness for a variety of processes. An evaluation of EWEB's loan program was completed to ensure compliance with internal controls. As a result of this review, staff made adjustments to processes to ensure compliance. ERM staff reviewed the miscellaneous accounts receivables process and recommended efficiency and internal controls enhancements. Future reviews are being planned to focus on customer-facing operations to support our strategic plan phase of fostering customer confidence through consistent performance and service responsiveness.

**Requested Board Action**

This item is information only and accordingly, there is no requested Board action.



# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD



TO: Commissioners Brown, Carlson, Mital, Simpson and Helgeson  
 FROM: Rene Gonzalez, Customer Solutions Manager; Anna Wade, Business Line Manager  
 DATE: June 27, 2018  
 SUBJECT: Septic System Financial Assistance  
 OBJECTIVE: Information Only

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### Issue

As directed by the Board following public testimony at the May Board Meeting, Customer Solutions staff evaluated EWEB’s Septic System Financial Assistance (SSFA) Program to develop improvements for ongoing funding and delivery efficiency. This memorandum provides an update to the direction of this program.

### Background

The SSFA has been in existence since 2011. Participants include both EWEB customers and non-EWEB homeowners located above EWEB’s drinking water intake, within the McKenzie watershed. Financial need (income requirements) are not an eligibility criteria for assistance.

Two products are available under this program:

- 1) Cost Share - EWEB will reimburse 50% of the cost to inspect and pump septic systems which have not been inspected in the past 3 years.
- 2) Zero Interest Loan – Loans of up to \$10,000 are available to homeowners to help replace or make major repairs to septic systems or drain fields.

EWEB’s loan offering has not attracted material interest. As indicated in the table below, Cost Share has experienced a significant increase in demand the past two years. At current levels, allocated funding and processes require evaluation and adjustment.

	2018	2017	2016	2015	2014	2013	2012	2011
Participants	111	68	18	17	29	46	39	47
Average Incentive	\$281	\$291	\$291	\$298	\$294	\$254	\$278	\$227
Annual Budget	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$10,000	\$10,000	\$5,000
Total Allocation	\$31,142	\$19,772	\$5,231	\$5,073	\$8,536	\$11,700	\$10,851	\$10,436

86% of incentives paid under this program were for services rendered by Best Septic.

**Discussion**

Comprehensive changes to program characteristics and processing are still under review. Recommendations are likely to include the following:

**Incentive:** Flat incentive of \$250. This amount would capture over 60% of incentives paid under the program, without requiring manual calculation for each customer.

**Eligibility:** Residential units located within the Pure Water Partners boundary. Relative to the entire watershed, this boundary more surgically captures the area of highest risk for water quality and source protection. This new boundary would reduce the eligible population to 2,195 from approximately 4000, thereby allocating funds to priority areas.

Customer Solutions is working closely with Finance staff to address internal processes and financial reporting mechanisms to better support this program and to maintain ease of use on behalf of EWEB customers and community partners that contribute to water quality through participation.

**TBL Assessment**

Not at this time

**Recommendation**

None at this time

**Requested Board Action**

None at this time



# MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

*Rely on us.*

TO: Commissioners Brown, Carlson, Mital, Simpson and Helgeson  
FROM: Mel Damewood, Chief Water Engineering & Operations Officer;  
Karl Morgenstern, Water Quality & Source Protection Supervisor; and,  
Ray Leipold, Water Supply & Treatment Supervisor  
DATE: June 26, 2018  
SUBJECT: Update on Harmful Algal Blooms in the McKenzie Watershed  
OBJECTIVE: Information Only

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## **Issue**

Harmful algal blooms are present in Cougar and Blue River Reservoirs and have been producing cyanotoxins. Cyanotoxins have been detected in the McKenzie River, but not in EWEB's treated drinking water. The following is an update on harmful algal blooms and what EWEB is doing to monitor for cyanotoxins and address this threat to drinking water.

## **Background**

Blue-green algae are found naturally in surface waters. Algal blooms occur in Oregon reservoirs on a somewhat regular basis under favorable conditions for growth, which include light intensity and total sunlight duration, nutrient availability (especially phosphorus), warmer water temperatures, higher pH, precipitation events, and slow moving water. Some species of blue-green algae can produce cyanotoxins. The conditions that produce cyanotoxins are not well understood, in fact, even when toxin-producing algae are present, they may not actually produce toxins. Oregon Health Authority (OHA) has established health advisory levels for toxins if they are detected in drinking water.

In late May 2018, the City of Salem detected one of the cyanotoxins, cylindrospermopsin, (syl-indro-spur-mop-sin) in their drinking water at a level above OHA health advisory levels for children under 6 years old and other vulnerable populations. These health-based advisory levels for two cyanotoxins, cylindrospermopsin and microcystin, assume a 10-day exposure period. As a result, Salem issued a do not drink notice for those affected populations and has been under this notice for about the last 4 weeks.

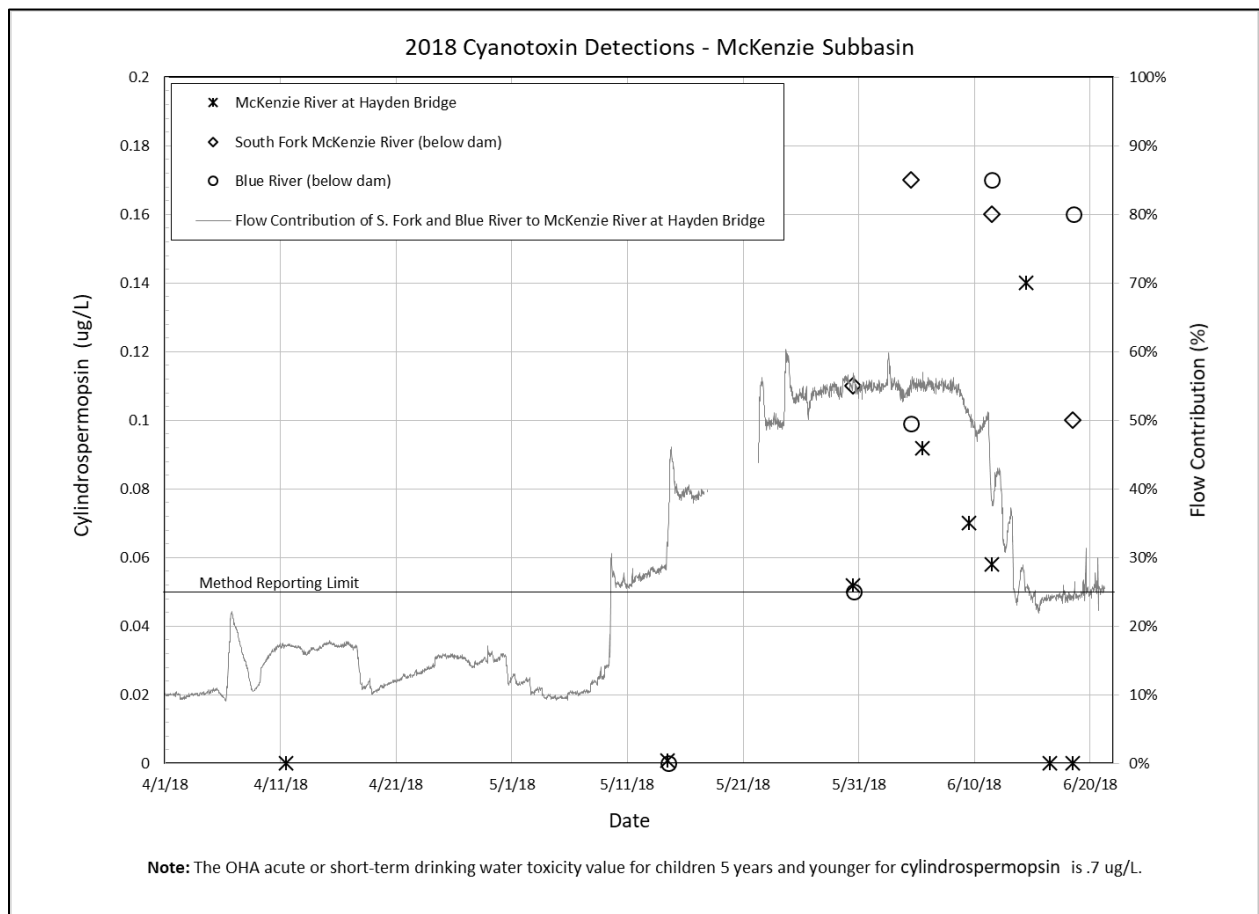
## **Discussion**

Since 2011, EWEB has been actively monitoring reservoirs and reservoir outlets for harmful algal blooms (HABs), and raw water at the intake for effects of HABs on water quality, including the presence of cyanotoxins. Since monitoring started in 2011, no cyanotoxins have been detected in the McKenzie River until recently. On May 30, 2018, EWEB detected cylindrospermopsin in the raw water at the intake at low levels (see <http://www.eweb.org/outages-and-safety/water-safety-in-your-home-or-business/drinking-water-quality/algae-blooms>). Once laboratory results were received, EWEB staff notified the Oregon Health Authority and initiated increased sampling intervals to every

2-3 days for raw and finished water (we requested a rush, or 2-day turnaround on these samples). Analytical results were published on EWEB’s website to provide our customers direct access to this information and avoid any potential confusion given the situation with Salem’s water supply. No detections of cyanotoxins were found in the treated drinking water and toxins ceased being detected in the raw water on June 16, 2018.

Staff were also monitoring harmful algal bloom conditions and toxin levels in Cougar and Blue River reservoirs, as well as reservoir operations. Apparently, Army COE operations at Cougar and Blue River Reservoirs may have been the main reason for cyanotoxin detections in the McKenzie River. As indicated in Figure 1, Cougar and Blue River accounted for over 50% of the flow in the McKenzie River during the time of the toxin-producing algal blooms (normal reservoir contributions at this time of year range from 20-30%). This appears to have caused toxin levels in the river to be significant enough for detection in raw water samples at Hayden Bridge. Once the Army COE reduced flows from these reservoirs, toxin levels in the river decreased significantly and were not detected above laboratory reporting limits in raw water samples. It appears the Army COE was releasing large amounts of water from Cougar Reservoir and Blue River Reservoir to meet minimum National Marine Fisheries Service (NMFS) BiOp flow requirements in the Willamette River at both Albany and Salem.

**FIGURE 1: Summary of Flows from Cougar and Blue River Reservoirs and Cyanotoxin Detections**



EWEB did two things in response to this event: 1) set up monitoring regiment and tools that alert water quality staff and Hayden Bridge operators when future similar conditions are occurring in the watershed to trigger increased monitoring and an appropriate treatment response; and 2) shared data with the Army COE and began conversations on the observed impact and whether there can be flexibility in reservoir operations during times of toxic algal blooms. Although algal blooms are common in lower McKenzie reservoirs, cyanotoxins have not been observed until recently in the McKenzie River. Given that the expected impacts of climate change directly affect the conditions that favor algal blooms, reservoir operations will play a bigger role in downstream water quality during these blooms.

Analytical results of finished water confirmed that EWEB's treatment process at Hayden Bridge effectively removed low level toxins from the raw water. As a proactive measure, Hayden Bridge changed its treatment process to protect against cyanotoxins found in the McKenzie River by adding activated carbon, eliminating pre-chlorination before filters, and increasing chlorine following filtration. These adjustments to EWEB's treatment process stayed in place until June 25, 2018 following confirmation of three consecutive non-detections of toxins in the raw water at the intake.

Now that cyanotoxins have been detected in the McKenzie River, EWEB is increasing its analytical capabilities at its Water Quality Lab to include an ability to test for cyanotoxins. Having to depend on shipping samples to an out-of-state analytical laboratory to conduct rush cyanotoxin analysis created delays in decision making and significantly increased costs. EWEB has placed an order for analytical equipment that will allow its Water Quality Lab to run an EPA-approved method for the specific cyanotoxins. This will provide EWEB with the ability to get same day results 7 days a week and conduct more extensive testing during harmful algal blooms at a fraction of the cost.

In response to Salem's do not drink notice for toxin levels above OHA advisory levels, OHA is in the process of drafting new cyanotoxin rules. EWEB and other water utilities have been involved in reviewing these new rules and providing comments to OHA to make sure the rules are focused and effective in protecting public health. Based on a review of the draft rules, it appears that EWEB is well positioned to be in compliance with these new requirements. Once EWEB's Water Quality Lab is set up for the specific cyanotoxin analysis using the EPA-approved method and accredited through the Oregon Laboratory Accreditation Program (ORELAP), these results can potentially be used for compliance with the new OHA cyanotoxin rules.

### **Recommendation and Requested Board Action**

No action requested, information only.