



CITY AND BOROUGH OF SITKA

A COAST GUARD CITY

ELECTRIC DEPARTMENT QUARTERLY REPORT

3rd Quarter Report

Ending June 30, 2024

Report Submittal Date July 17, 2024

OVERVIEW:

This Electric Department Quarterly Report will address Management and Staffing Issues, Deferred Maintenance Concerns, Ongoing Projects & Contracts, provide a Budget Status Update and updated Organizational Chart. **PLEASE NOTE THAT ALL SIGNIFICANT CHANGES TO THIS 4th QUARTER REPORT, RELATIVE TO THE 3RD QUARTER REPORT, ARE SHOWN BELOW IN BOLD, ITALIC UNDERLINED YELLOW HIGHLIGHTED FONT.**

Management & Staffing:

The Department remains significantly understaffed. The following summarizes Management and Crew staffing:

- Interim Utility Director: **THE CBS IS ADVERTISING FOR A UTILITY DIRECTOR AND COMMENCED INTERVIEWING APPLICANTS. SINCE NOVEMBER 27, 2023, THE DEPARTMENT REMAINS UNDER THE DIRECTION OF AN INTERIM UTILITY DIRECTOR, WHO IS SCHEDULED FOR RETIREMENT BY AUGUST 2, 2024.**
- Transmission & Distribution (T&D) System Manager: This position has been vacant since mid-2022, and is currently supported by a qualified contractor, but on a part-time basis.
- Generation System Manager: This position is vacant, and only the most mission critical duties assigned to this position are being addressed by the Interim Utility Director.
- Project & Regulatory Engineer: This position is currently staffed.
- Office Administrator: This position is currently staffed.

- Project Engineer: On April 8, 2024, Dean Orbison officially resigned from part-time Project Engineer with CBS. The department has relied heavily on Dean, a retired former Electric Department Generation Manager, who has been assisting us as a Temporary Employee. Dean's technical skills and extensive historical knowledge of our dams and power plants were instrumental to our operations. Dean was the Project Manager for our most significant and critical upcoming project, the \$5M Green Lake Phase II/III Rehabilitation, and he provided technical expertise to support our multitude of deferred, ongoing, and planned capital projects. The department will be submitting a Resource Proposal for one (1) Project Engineer to support the Department.
- Transmission & Distribution: The department is funded to fully staff five (5) positions: a General Foreman, a Journey Lineman Foreman, two Journey Linemen, and one Apprentice Lineman. February 2024 marks the first time in the department's history that we have not staffed a licensed Journey Lineman crew. Currently, the department is staffed by a General Foreman, Apprentice Lineman, and a former Journey Lineman who is on a modified work schedule due to health issues and injuries and is not expected to return to full Journey Lineman status. All Journey Lineman responsibilities are currently being performed by Northern Power Constructors under contract.
- Power Plant Operators: all positions are fully staffed with one (1) Lead Operator, four (4) Operators, one (1) very experienced Relief Operator, and three (3) Temporary Relief Operators in training. **IN MAY 2024, THE POWER PLANT OPERATORS SWITCHED TO A 7-TWELVE SCHEDULE TO MORE ALIGN WITH INDUSTRY STANDARDS WHILE PROVIDING A SIGNIFICANT INCREASE IN ONE-ON-ONE TRAINING TIME BETWEEN THE LEAD OPERATOR AND OPERATORS. THE NEW SCHEDULE IS WORKING VERY WELL FOR THE DEPARTMENT, LABOR RETENTION, ETC.**
- Mechanics: The department is supported by three (3) Mechanics. Two of our Mechanics are within approximately 3 to 5 years of planned retirement. All our Mechanics have long tenure with the department and a wealth of experience and knowledge in the operation and maintenance of our dams and power generation systems, both hydro and diesel.
- Electricians: The department is supported by three (3) Electricians. One of our Electricians is planning to retire within one year. The Management Team is preparing to actively recruit an Electrician and will advertise the job when our current employee establishes a retirement date.
- **METERING: THE DEPARTMENT IS FULLY STAFFED WITH 2 METER TECHNICIANS AND A METER READER.**
- **WAREHOUSE: THE DEPARTMENT WAREHOUSE IS FULLY STAFFED.**

Deferred Maintenance

The department is in a prolonged period of excessively deferred maintenance, and based on staff experience, extends back at least 5 or more years.

Transmission & Distribution System: The most critically deferred operation in the CBS Electric Department is the T&D System.

To date the department is continuing to focus resources, as time allows, on developing a usable GIS map identifying our pole and asset locations for our T&D System. Having an accurate GIS map of our T&D system is critical for personnel safety and protection of expensive equipment during emergency outages, as well as routine operations and maintenance. In February of 2024 the department developed a plan, and identified team responsibilities, to complete a GIS map and inventory of all T&D system assets by June 30, 2025.

The transmission lines from Green Lake to Blue Lake, and Blue Lake to Marine Street Substation, are over 40 years of age and past their expected life. Many poles are compromised by numerous hollow cavities created by nesting birds. Transmission poles are susceptible to avalanche, landslide, falling trees, high winds, heavy snow, etc. The Thimbleberry Bypass from Blue Lake to the 2600 Block of Sawmill Creek Road is particularly susceptible to avalanche and landslide without vehicle access to the system (see Ongoing Projects & Contracts, Thimbleberry Bypass Relocation Project, below).

The Green Lake and Blue Lake Switch Gear are 40+ years old and need to be replaced. The Department tested and upgraded 7 Switches in April and May of 2024.

The Downtown Business District underground power distribution system is in very poor condition. Water infiltration, corrosion, and is near the end of expected life. The Department is developing a plan for upgrades in FY25.

Green Lake Switchyard Transformers are 40+ years old and the current spare transformer is taking moisture, will not hold nitrogen, and is failing. Our team is currently working on repairs and will have a better understanding of the utility of his transformer within the next few weeks. The Department is also currently soliciting quotes for a replacement transformer and obtaining estimates for rebuilding. To maintain an appropriate spare the Department is likely required to purchase a new transformer and rebuild

Strategic Plan: The second most critically deferred item in the department operations is the lack of any type of adopted strategic planning document. Southeast Alaska Power Authority (SEAPA) operations are directed by a 5-Year Strategic Plan. Golden Valley Electric Association (GVEA) maintains a 20-Year Strategic Generation Plan. Kodiak Electric Association (KEA) managers meet with their Board of Directors in January of every year to conduct a Strategic Planning

Meeting. The CBS Electric Department submitted a Project Charter for a 20-Year Strategic Plan in the FY25 Budget Request.

Jarvis Diesel Power Plant: The Department's two (2) primary generators units can reliably maintain a peak generation out of approximately 18 megawatt-hours (MWh). The D5 Solar can produce approximately 13.5 MWh depending on ambient temperature, while the D4 Caterpillar can produce approximately 4.5 MWh. Both D4 and D5 units are in very good, well-maintained condition. The department also has three (3) Fairbanks Morse Diesel Generators, D1, D2 and D3, that were installed in 1980. D1 has been permanently removed from service due to extensive wear and high cost to rebuild. Based on recent manufacturer inspections, D2 shows extensive liner and piston ring wear and requires a major overhaul, while D3 requires a blow unit major overhaul.

Diesel fuel storage for power generation is currently limited to about 34,000 gallons (approximately 85% of the 40,000-gallon storage tank volume, x 2 tanks = 68,000 gals). If, for example, the Thimbleberry Bypass Transmission Line is lost due to a natural disaster, the department will rely entirely on our diesel generators to meet electric demand. Depending on seasonal conditions, daily demand could range from a low of 12 to 14 MWh to a high of 18 to 24 MWh. Fuel consumption would range from a low of 1,000 gallons/hour (gph) with Unit D5 online, to a peak of 1,700+ gph with all units online. Given our limits on fuel storage, near continuous 24-hour per day refueling operations would be required with all diesel units running. Delta Western and Petro Marine maintain 100,000 to 225,000 gallons of diesel in Sitka, respectively. In the event of a catastrophic emergency that requires CBS to run all diesel units, the department could easily exhaust the island diesel storage reserves in less than 2 weeks without resupply.

Blue Lake and Green Lake Power Plant: Currently much of the Green Lake Power Plant is operating on 1980s technology and equipment and routine maintenance and upgrade projects have been largely deferred through the decades. However, the department is in a very strong position with the Green Lake Phase II/III Hydroelectric Rehabilitation Project fully funded (see project description below). Green Lake Plant controls are a combination of digital and analog. The department needs to design and implement a project to upgrade all controls systems to digital.

Projects & Contracts:

The following is a summary of the Department's pending and ongoing projects and contracts.

The Pursuit of Grant Funding Opportunities: This supports Goals 1.3 and 4.1 of the Strategic Plan as follows:

The Electric Utility is collaborating with the Planning and Community Development Department's Sustainability Coordinator to critically evaluate the long-term sustainability of CBS's hydroelectric infrastructure via the National Renewable Energy

Lab's (NREL) Clean Energy-to-Communities (C2C) in depth partnership. This 3-year project aims to maximize the efficiency of existing renewable energy resources, increase infrastructure resiliency to remain 100% renewable, and build the workforce to support renewable energy production. **THE SUSTAINABILITY COORDINATOR IS FINALIZING COMMUNITY ORGANIZATION PARTNERSHIPS AND WILL BE TRAVELING TO DENVER IN AUGUST TO PRESENT THE PROGRESS OF THE PROJECT TO THE DEPARTMENT OF ENERGY.**

THE CBS STAFF APPLIED TO THE ENERGY PRODUCTION ACT SECTION 247: MAINTAINING & ENHANCING HYDROELECTRICITY INCENTIVES IN OCTOBER 2023 FOR ~\$2.7M, OR 30% OF THE GREEN LAKE PROJECT REHABILITATION. THE PROPOSAL WAS DEEMED ELIGIBLE AND AN AWARD DECISION IS ANTICIPATED LATE SUMMER OR EARLY FALL.

The CBS staff reapplied to the Energy Production Act Section 242: Hydroelectric Production Incentive Program for calendar year (CY) 2023. The application submitted for CY21 and 22 was successful and resulted in \$1M per year for a total of \$2M. It is anticipated that CBS will receive the full \$1M incentive payment for qualified electricity production from the Blue Lake Hydroelectric Project during CY23. **AN AWARD DECISION IS ANTICIPATED IN OCTOBER. CY24 IS THE BLUE LAKE PROJECT'S FINAL QUALIFYING YEAR AND CBS PLANS TO REAPPLY A FINAL TIME IN EARLY 2025.**

Thimbleberry Bypass Relocation Planning & Design: This supports Goals 4.1, 4.3 and 5.3 of the Strategic Plan as follows:

ON MAY 8, 2024, CBS'S ENGINEERING CONSULTANT, GREGORY ERRICO, DELIVERED THE 35% ENGINEERING DESIGN (NARRATIVE, DRAWINGS, STAKING SHEETS) AND CONSTRUCTION COST ESTIMATE FOR RELOCATING THE THIMBLEBERRY BYPASS TRANSMISSION LINE ALONG THE HPR RIGHT OF WAY. THROUGH ANALYSIS OF OPTIONS THIS ALTERNATE PATH WAS IDENTIFIED AS THE MOST ECONOMICAL AND VIABLE LONG-TERM SOLUTION TO PROVIDE GREATER RELIABILITY AND LOWER RISK TO THE SYSTEM AND PUBLIC. THE MANAGEMENT TEAM MUST DECIDED ON HOW BEST TO MOVE THIS PROJECT FORWARD, EITHER BY TRADITIONAL DESIGN-BID-BUILD, OR BEST VALUE DESIGN-BUILD. FUNDING IS NOT SECURED.

Blue Lake Tunnel Dewatering: This supports Goals 1.3, 4.3 and 5.3 of the Strategic Plan as follows:

Dewatering the Blue Lake Tunnel is not a FERC regulatory requirement, only a recommendation. With FERC approval the CBS is delaying the tunnel dewatering to approximately May 2025 to allow additional time for the Public Works Department to ensure the Critical Secondary Water supply system is properly functioning during low flow levels in Sawmill Creek. The Utility along with our consultants will develop a detailed plan for future penstock work including dewatering, inspection of the tunnel, cleaning of the

rock trap, making valve and penstock repairs and modifications, and interior mapping of the tunnel to evaluate options for improving hydraulic efficiency. There is a lot of misinformation regarding the lining of the penstock to improve hydraulic efficiency, increase flow, and thus increase power generation. Extensive assessment has shown that lining of the tunnel is cost prohibitive, with preliminary cost estimates exceeding \$10M, and with little increase in hydraulic gain. In addition, the Blue Lake Hydropower Plant was designed for the operation of 2 turbine/generators with one unit in standby. Lining the penstock tunnel would also take a considerable amount of time during which Sitka would be relying on diesel-generated power.

Green Lake Phase II & III Hydroelectric Rehabilitation: This supports Goals 1.3 and 5.3 of the Strategic Plan as follows: **THE RFP FOR GREEN LAKE PHASE II & III HYDROELECTRIC REHABILITATION WAS NOT SUCCESSFULLY COMPLETED AND ADVERTISED IN APRIL OF 2024. MISSING THIS NARROW WINDOW HAS FORCED A DELAY IN THIS PROJECT, WHICH WILL BE ADVERTISED IN APRIL 2025.**

The Green Lake project was placed in service in 1982, and since has been in nearly continuous service. A general rehabilitation of the Green Lake project was begun in 2021 with the work divided into three phases:

- Phase I – Full Inspection of the Turbine/Generator Units and Rehabilitation of Turbine Gates and Waterways (*General Contractor - Knight Construction; Turbine Subcontractor – HCMS; Generator Subcontractor - Sidewinders. Project completed in 2021*).
- Phase II & III – Major Overhaul Rehabilitation of Turbine Generator G-1 (Phase II) and G-2 (Phase III).

THE PHASE II & III WORK IS NOW SCHEDULED TO ADVERTISE IN APRIL 2024, COMMENCE IN OCTOBER 2025, WITH AN ESTIMATED COMPLETION BY MARCH 2026. A more detailed schedule will be developed after the contract is awarded. This work will include; disassembly, cleaning, hydraulic lubrication system repairs, draft tube concrete and grout repairs, turbine scroll case repairs and parts replacement, painting, modification of bearing and greaser systems and generator air baffles, winding and component inspections, reassembly, and commissioning.

Green Lake Generator Excitation System Upgrades: This supports Goals 1.3 and 5.3 of the Strategic Plan as follows:

The Green Lake Generator Excitation Systems are original equipment to the plant and are near the end of their expected operating life. **ON MAY 6, 2024, THE CBS COMPLIANCE OFFICER, THE ELECTRIC DEPARTMENT OFFICE ADMINISTRATOR AND INTERIM ELECTRIC UTILITY DIRECTOR MET WITH OUR CONTRACTOR, ELECTRIC POWER SYSTEMS INC. (EPS), AND SPOKE WITH MANAGERS DAVID BURLINGAME AND DAVID BUSS. CBS REQUESTED EPS PROVIDE US WITH A PROPOSAL TO**

DESIGN, OVERSEE INSTALLATION, TESTING AND COMMISSIONING OF NEW EXCITATION SYSTEMS FOR THE G-1 AND G-2 GENERATORS. EPS MANAGERS CONFIRMED THEY WILL SUBMIT A PROPOSAL TO CBS TO DESIGN THE UPGRADED SYSTEMS, PROCURE EQUIPMENT, AND DIRECT THE INSTALLATION AND COMMISSION THE UNITS. TO DATE THE CBS HAS NOT RECEIVED A PROPOSAL FROM EPS.

CBS Electric Department System Wide Relay Testing Project: This supports Goals 1.3 and 5.3 of the Strategic Plan as follows:

Background/History: *Protective Relays are our most powerful defense against long, costly outages and extensive equipment damage, protecting critical and expensive assets during stressed system conditions, providing “last line” of defense for valuable electrical system assets. These situations include accidents in the field, such as vehicles, trees falling through power lines, or generation failure leading to voltage or frequency issues. In the event of a fault, relays keep the damage to a minimum, and most importantly, protect people. The Power Industry Standard is to test relays at least every 5 to 10 years.*

- The Blue Lake Power Plant and Switchyard: Relays at the Blue Lake Power Plant, Fish Valve Unit and Switchyard have not been tested since their 2014 commissioning and are a priority during this testing project.
- Green Lake Power Plant: All relays will be tested during this project.
- Marine Street Substation A: Relays will not be tested during this project as they have been in service past their useful life expectancy and are scheduled for replacement in FY25.
- Marine Street Substation B: All relays will be tested during this project.
- Jarvis Street: All relays will be tested during this project.

ALL RELAY TESTING WAS SUCCESSFULLY COMPLETED IN APRIL AND MAY OF 2024 BY AM-POWER SOLUTIONS IN COORDINATION WITH DEPARTMENT STAFF.

CBS Electric Department System Wide Battery Bank UPS Testing: This supports Goals 1.3 and 5.3 of the Strategic Plan as follows:

In power generation plants, the UPS plays a vital role in maintaining power continuity and protecting critical and expensive infrastructure in the event of a loss, or fluctuation, in primary house power. The UPS units are used in the period of outage from when the outage begins until the back-up generation units are brought online to take over the supply. Load Bank Testing provides a controlled environment to assess the UPS's capabilities and identify potential issues prior to an emergency, simulating a discharge

scenario using the load bank to assess the UPS's capacity and performance. Monitor parameters such as voltage, current and runtime are used to ensure the UPS system meets the expected backup requirements for emergencies.

Load bank testing should be a regular part of a comprehensive Operation and Maintenance Plan. A reasonable industry standard for load bank testing frequency of critical facility UPS battery banks is 2 to 3 years. The Department maintains load banks at all facilities including Green and Blue Lake Power Plants, Jarvis Street and Marine Street.

IN MAY OF 2024 THE ELECTRIC DEPARTMENT STAFF COMMENCED WITH CONDUCTING LOAD BANK TESTING AND COMPLETED ALL WORK BY JULY 16, 2024. ALL BATTERY BANKS TESTED WERE FOUND TO BE OPERATING CORRECTLY WITH NO PROBLEMS NEEDING TO BE ADDRESSED. OUR DEPARTMENT WILL CONTINUE TESTING OUR UPS BATTERY BANKS ON A 1-YEAR PREVENTIVE MAINTENANCE SCHEDULE, EVERY JULY 17TH WITH NO TERMINATION DATE.

CBS Electric Department System Wide Breaker Testing: This supports Goals 1.3 and 5.3 of the Strategic Plan as follows:

The following summarizes Department Breaker Testing background/history:

- Generator Breakers are located between electric generation equipment and power transmission systems and provide system protection for customers and equipment during stressed conditions such as a vehicle accident involving a pole, trees falling on lines, etc.
- Feeder Breakers are located within switchyards and provide protection for customers and equipment during stressed conditions such as a vehicle accident, trees falling on lines, etc. Seventeen Feeder Breakers sectionalize Sitka, thus a stressed condition on HPR will open that specific Feeder Breaker and isolate the power outage to only that portion of town. Similarly, if a stressed condition occurs on Japonski Island, that specific Feeder Breaker will open and isolate the outage to only Japonski Island.

A reasonable Power Industry Standard is to test breakers on a 1-to-3-year cycle. Testing of CBS Electric Department System Generator Breakers was last conducted in 2016. CBS resurrected our breaker testing program in 2023. ELECTRIC DEPARTMENT STAFF IS MEETING WITH OUR CONSULTANT EPS ON JULY 22, 2024, TO FINALIZE A SCHEDULE FOR THIS WORK. CURRENT PLAN IS SEPTEMBER THROUGH OCTOBER 2024 TIMEFRAME TO PERFORM TESTING ON ALL MEDIUM AND HIGH VOLTAGE BREAKERS AT THE BLUE LAKE AND GREEN LAKE POWER PLANTS, MARINE AND JARVIS STREET SUBSTATIONS, JARVIS STREET DIESEL PLANT AND SAWMILL COVE.

CBS Electric Department Meter System Upgrades: This supports Goals 4.3 and 5.3 of the Strategic Plan as follows:

Electric meters currently in use are manufactured by Landis+Gyr and the company no longer manufactures, and provides limited support, of these “Legacy Meters”. The metering industry is moving toward mesh network systems that utilize RF and Cellular Service. The department Meter Technician in coordination with the IT Department completed a propagation study with Landis+Gyr in 2023 and received a quote for upgrading our system for a Network Gateway, new radio frequency (RF) and cellular technology meters, and a technical support contract. CBS Meter Technicians and IT Department will procure and install the Network Gateway System and procure and install new meters. A total of 5,294 residential meters and 340 Commercial Meters will be replaced, commencing in FY25, with the work conducted over multiple phases based on allocated funding. **THE DEPARTMENT IS CURRENTLY ENTERING INTO A CONTRACT WITH LANDIS+GYR AND IS COMMENCING WITH THIS PROJECT.**

Generation:

Additional customers continue to be added to the system, leading to higher power sales.

CALENDAR YEAR	TOTAL POWER SALES – GWH	BILLED AMOUNT
2021	113.0	\$18.5M
2022	115.7	\$19.5M
2023	116.7	\$20.5M
2024	To Be Provided by Finance	To Be Provided by Finance

Transmission & Distribution

THE SEARHC DEDICATED 12KV FEEDER WAS SUCCESSFULLY TESTED AND BROUGHT INTO SERVICE IN MAY AND JUNE OF 2024.

City-wide our electrical demand continues to increase. New electrical services continue to be added to the system on a regular basis. There has also been a significant amount of work in upsizing existing services to supply additional capacity to customers. Equipment costs continue to rise but at a slower rate from previous years. Equipment purchases, particularly transformers, remain long lead time items.

Regulatory Compliance

Diesel Generation: The Department has submitted on time, all 2023, year end and semi-annual compliance certifications and reporting to the Alaska Department of Environmental Conservation (ADEC), U.S. Energy Information Administration (EIA), and Federal Energy Regulatory Commission (FERC).

Hydropower Generation - Blue Lake: THE FERC REQUIRED ON-SITE 5-YEAR PART 12D SAFETY INSPECTIONS WERE COMPLETED IN MAY 2024.

HYDROPOWER GENERATION – GREEN LAKE: FERC ISSUED SCOPING DOCUMENT 1 MAY 20, 2004, AND CONDUCTED ENVIRONMENTAL, AGENCY AND PUBLIC SITE VISITS IN SITKA JUNE 12, 2024. THE DEADLINE FOR FILING ALL REQUESTS FOR INFORMATION AND STUDIES IS JULY 24, 2024. THE DEPARTMENT HAS INITIATED THE FERC RELICENSING PROCESS FOR GREEN LAKE, WHICH IS A 5-YEAR PROCESS. THE GREEN LAKE 2029 FERC RELICENSING PRELIMINARY APPLICATION DOCUMENT (PAD) WAS FILED IN MARCH 2024, WITH INITIAL FERC & PUBLIC CONSULTATIONS IN SITKA EXPECTED IN LATE JUNE 2024.

ALTERNATIVE GREEN LAKE LAND USE ISSUES HAVE BEEN CLARIFIED. THE ORIGINAL 1979 QUICK CLAIM DEED THAT CONVEYED LAND TO CBS FOR THE GREEN LAKE PROJECT CONTAINED THE FOLLOWING REVERT CLAUSE: “THE . . . DESCRIBED LANDS SHALL REVERT BACK TO THE STATE OF ALASKA IF RESTRICTED FROM PUBLIC USE AND PUBLIC ACCESS.” SUBSEQUENTLY IT WAS FOUND THAT THE STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES COMMISSIONER’S ISSUED A DECISION, DATED OCTOBER 8, 2019, DETERMINED THAT WAVING THE STATE’S REVERSIONARY INTEREST CREATED BY THE ABOVE CLAUSE WOULD BE IN THE PUBLIC INTEREST.

ACCORDINGLY, THE STATE OF ALASKA, EXPPRESLY RELEASES AND REMOVES THE REVERT CLAUSE. ALL THE LAND CONVEYED TO CBS FOR THE GREEN LAKE PROJECT IS NO LONGER ENCUMBERED.

Budget:

Departmental budget execution is performing as expected. In general, the account trajectory is healthy with some areas of higher execution over previous years. Equipment and material costs and availability continue to cause concern. Contracted Services expenditures have increased, while Labor expenditures have decreased, as several Electric Department Positions critical for operations remain unfilled, such as Journey Linemen, and Generation and Transmission & Distribution System Managers, resulting in higher rates of contracted services.