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TRANSMITTAL MEMORANDUM

TO: The Honorable Mayor and City Council

FROM: Lacey G. Simpson, Acting General Manager

DATE: July 12, 2022

RE: **Project Status Reports of the KPU Division Managers – June 2022**

Attached for City Council review are the project status reports of the KPU division managers for the month of June 2022. Should the City Council have questions regarding the division managers' reports, staff can respond accordingly.

MANAGER'S REPORT
SALES, MARKETING & CUSTOMER SERVICE DIVISION
June 2022

KPU's net Internet accounts ended flat to May, but 6% higher than May of last year. There were many customers who signed up for service but the number of customers who were moving out of town, and businesses who closed in June were significantly higher than in previous months and years. The number of TV accounts declined slightly due to people switching to streaming service. Standalone, no phone-line internet accounts increased by a few percentage points from last year, as people cut phone lines in order to save money, approximately 31% of customers have standalone internet. Between free unlimited internet that comes with TV, and add-on unlimited, 62% of KPU internet customers have unlimited service.

The KPUtv Crew filmed and live streamed the Revilla Graduation in June. The crew also filmed the relocation and raising of a donated totem to the Totem Heritage Center, filmed Haida Potato Planting, the Coast Guard Change of Command, Cooking Basics with Jason, the Race to Alaska finishers/interviews, Healthy Minds Pride month/mental health, Ketchikan Evergreens (lettuce growers).

In June, all Customer Service and Customer Sales representative positions were filled. Interviews were conducted for the open Media and Communications manager position. A candidate is in background check and it is hoped that the position will be filled by the end of July with a local hire.

As sales of complex business services increases, there has been a need for the Business Sales Engineer to have assistance. Two promotional opportunities exist for existing KPU CSS staff, to advance to a senior position that will help the Business Engineer demonstrate, sell and audit hosted products and business services. A business center has been created in the old Verizon sales space, which will house the business products, and will allow staff to work with businesses directly in the store location.

KPU Directory for 2022-23 was finalized in June, with last minute audits and changes as new businesses opened and others closed. The outcome of this directory will determine whether or not KPU will continue with the directory in future years. There were many requests for directories over the pandemic, when KPU did not produce a directory. It is especially important for businesses, since the internet is not an accurate source the correct phone number for a business.

KPU Marketing has launched new on-screen advertising in the Mall location in June, using the exiting TVs to show KPU products, promotions, and videos. The images change using slides every 20-40 seconds and have been well-received. The ads are changed via a cloud based connection and are updated real-time.

KPU social media for June consisted of notice of new and dangerous fraud alerts, electric outages, sneak peeks of KPUtv newest video releases, Local KPUTV new video channel and air time schedule, notification of KPU's filming high school graduation. Marketing staff also shared the Wellness Coalitions social media posts on the City of Ketchikan pages, as requested.

MANAGER'S REPORT

ELECTRIC DIVISION

June 2022

Electric Shop and Meters

- Meters. During the month, there were fifty-three (53) meter exchanges/installs.
- Operations. Investigated, performed troubleshooting, made repairs, performed maintenance and/or installed equipment at KPU facilities:
 - 3rd Ave. lighting.
 - Married Man's trail lighting.
 - SCADA server room temperature alarm.
 - Beaver Falls Powerhouse Unit No. 1 exciter rheostat.
 - Bailey 115kV transformer 86T trip coil.
 - Ketchikan substation BE-951 feeder relay replacement.
 - Ketchikan powerhouse move 35kv breakers.
 - Silvis lower lake level transducer.
 - Silvis substation Form 4D controller.
 - Silvis generator brushes.
 - Silvis generator main valve.
 - Silvis powerhouse louver actuator.
 - Silvis powerhouse RTU power.
 - Whitman valve 7 inspection.
 - Whitman powerhouse Unit No. 2 NDEB oil RTD.
 - Whitman powerhouse Unit No. 2 cooling water.
 - Whitman powerhouse station service temporary power.
 - Whitman outage report.
 - Whitman lake level transducer.

Continued the metering upgrade for the Yukon system with Eaton/Cooper. Service disconnects and reconnects, system print updates, and station readings.

- SCADA Operations. Coordinated ongoing projects, investigated, performed troubleshooting, made repairs and/or installed equipment at KPU facilities:
 - Network equipment upgrades.
 - SCADA (OSI) upgrade and network, final stages.
 - System radio testing.
 - Warehouse radio testing and replacement.
 - Meter communications system testing.

SCADA file server maintenance, system password verifications, and NTP server configurations. Supported SCADA upgrade meetings. Coordinated and worked with the electric shop on SCADA networks. Continuing training in the SCADA system and PLC's (Programmable Logic Controllers). Records management activities and SCADA upgrade planning.

- Water Department. Installed, Investigated, performed troubleshooting for Water Department at chlorination plant rectifier, Chlortec diaphragm pump motors, and UV plant backup generator.
- Harbors. Conducted work on harbor pedestals at Thomas Basin float No. 5 for re-decking & cleared sixteen (16) harbor trouble tickets.
- Telecommunications. No new activates.

Outages and Events

- On Tuesday, June 28, 2022, at 6:48 AM, an outage affected nine (9) substation feeders and electric services in Ketchikan. This outage was caused by a lightning strike on the Swan-Tyee intertie (STI) and a loss of generation during the event. Initially all 6,056 customers were affected by the outage. Within forty-six (46) minutes, power was restored to all customers.

Powerhouse & Fleet Maintenance

- Conducted spring maintenance on the Silvis Access Road, including clearing the roadway of snow and avalanche debris.
- Continuing spring maintenance on powerhouse facilities.

Regulatory and Dam Safety

- Prepared for and participated in the annual FERC inspections of the Ketchikan Lakes Project and Whitman Project.
- Prepared and submitted plans to address FERC comments regarding KPU's Owner's Dam Safety Program and Emergency Action Plans.
- Submitted tunnel/penstock dewatering plans for the Silvis and Beaver Falls project developments.
- Ongoing work to mitigate fish stranding in the Whitman powerhouse tailrace.

SEAPA

- The annual KPU/SEAPA maintenance outage occurred from June 13-17, 2022; work was completed three days ahead of schedule.
- The next regular board meeting is scheduled for September 23, 2022, in-person in Petersburg, Alaska.
- For additional information please visit SEAPA's web site at:
<https://www.seapahydro.org/>

Transmission & Distribution Work

- Issued a request for bids (RFB) for distribution transformer. Supply chain issues and storms have resulted in transformer prices sharply increasing and lead-times reported up to three years. KPU must ensure it maintains an adequate inventory for maintenance and new services installations. Bids will be opened in late June, and the Division will bring forward an award recommendation at the first meeting in July. A budget transfer is anticipated.

- Continued work associated with ADOT's Herring Cove Bridge project in preparation of major milestones occurring in early June.

Division Staffing

- The Electric Division continues to be short staffed; the Division is currently staffed at 33.4 Full Time Equivalent (FTE) of the authorized 43.4 FTE, or seventy-seven percent (77%).
- Staffing by Department/Section:

FTE	Authorized	Current	
Management, Front Office, and			
Regulatory	6	5	83.3%
Operations	8	5	62.5%
Metering and Generation	7.5	5.5	73.3%
Service and Line	8	6	75.0%
Maintenance	9	7	77.8%
GIS/CADD	1.4	1.4	100.0%
Warehouse	1.5	1.5	100.0%
SCADA	2	2	100.0%
	43.4	33.4	77.0%

- For the month with scheduled vacations and sick leave, the Division operated with an effective capacity of sixty-two percent (62%) of the authorized FTE.
- The Division continues to work with the City Human Resources (HR) Department for employee recruitments.

System Loads and Weather

- KPU loads for the month were above the 10-year average. The 10-year average total system load is 11.77 GWh; this month was 11.05 GWh, 6.1% below the 10-year average.
- The diesel generation total was 0.49 GWh, this was required for the KPU/SEAPA scheduled outage.
- The normal monthly precipitation is 4.73 inches; this month was 4.22, 10.8% below the normal value.
- The normal monthly degree days heating is 296 (a measure of how cold the temperature is in a given month); this month was 232, 21.6% below the normal value. This indicates a warmer month than normal or less heating required.

**MANAGER'S REPORT
TELECOMMUNICATIONS DIVISION
June 2022
Operational Issues**

**TELECOMMUNICATIONS DIVISION MANAGER
Summary**

As the Acting KPU Telecommunications Division Manager, I am excited and eager to continue the excellent work of the Telecommunications Division in providing exceptional communications services to the community. The Division is in good shape both operationally and financially. It will be key to continue the legislative efforts outlined below in order to continue the long term success of the Division.

KetchCan1:

Subsequent to repair of various terrestrial fiber optic cables in southern British Columbia (in late December, 2021), KetchCan1 continues to perform flawlessly.

Personnel:

I continue to be impressed with the Telecommunications Division's employee work ethic and dedication.

At present, the following positions remain vacant:

- Plant Manager (on 'permanent' hold through the end of 2022).
- KPU Telecommunications Division Manager
- Administrative Assistant

Legislative:

I continue to be engaged on legislative and regulatory issues working with the Alaska Telecom Association - participating in video meetings in Juneau and DC (with Alaska's Congressional Delegation and staff) - regarding Alaska telecommunications / broadband funding issues which may affect KPUTel indirectly or directly. Approximately 29% of KPUTel's annual revenue is derived from USF (Federal) and AUSF (State) - and the 'ground' under these programs is always shifting, and requires constant attention - particularly now that proposed federal infrastructure legislation has billions of dollars targeted toward broadband - it is critical to ensure that the Alaska Plan is not altered or threatened via the legislative process.

**REGULATORY UPDATE
Summary**

The industry is anxiously awaiting the opening of the Federal Communications Commission's Broadband Mapping portal. Carriers will need to report the locations that they serve with broadband. This is a precursor to the release of the BEAD Broadband Equity, Access, and Deployment funding that will be available in the coming years. BEAD is part of the IJJA Infrastructure Investment and Jobs Act which has \$65B in funding.

Other regulatory issues of interest are as follows:

Commissioner Robert A. Doyle was appointed by Governor Mike Dunleavy to the Regulatory Commission of Alaska (RCA) for a six-year term beginning May 23, 2022. Before his appointment to the RCA, Commissioner Doyle served on the Matanuska Electric Association, Inc.'s Board of Directors from 2010-2022, presiding as president from 2020-2022. Commissioner Doyle also served as a past member at the Alaska Labor Relations Agency and a past member of the Alaska Worker's Compensation Board.

Reports and filings:Form 507 Data Submission

KPU Telecommunications submitted data to the National Exchange Carrier Association (NECA). This data submission includes line counts for specific type of service. The submission was completed on June 21, 2022.

Annual Essential Networks Support Report

KPU filed its report regarding essential network support on June 20, 2022 with the Regulatory Commission of Alaska (RCA).

FUSC Rate Change

On June 16, NECA filed a revised tariff based on the FCC Public Notice released on June 9, 2022, increasing the Federal Universal Service Charge (FUSC) from 23.8% to 33.0%, effective July 1, 2022.

TELECOMMUNICATIONS PLANT DEPARTMENT

Summary

Outside Plant Construction and Splicing:**Projects Completed in June 2022**

- Ward Cove Bike shed fiber install.
- 2 splicing jobs completed.
- Verizon cell site preventative maintenance repair.
- Additional support for Herring Cove DOT bridge project.
- FCC Broadband mapping efforts.
- (2) Fiber jobs and (1) work order.

Installation and Repair:

- The installation and repair crews completed:
 - 83 service orders
 - 94 trouble tickets
 - 17 fiber drops

2022	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
SO	64	64	74	64	68	83						
TT	86	78	94	97	101	94						
FD	21	16	25	17	21	17						
Total	171	158	193	178	190	194						

OSP Installation & Repair Scorecard: May 2022	SO	TT	FD
Employee			
Brad C.	0	2	0
Ryan J.	0	0	0
Ryan C.	7	3	1
Alan M.	0	66	0
Nate L.	0	0	0
Jared A.	0	3	0
Zach S.	25	13	4
David F.	11	2	2
Brad/Jared/Ryan C.	0	1	0
Ryan C./Mike/Jay/Paul	1	0	0
Ryan C./Zach	0	0	1
David/Ryan C./Zach	4	0	3
David/Ryan C.	15	1	6
Alan/Zach	4	3	0
Alan/David	6	0	0
Alan/Ryan	4	0	0
Total	83	94	17

Safety:

KPU Telecommunications held a Safety Meeting on June 8th at the Ted Ferry Civic Center. The safety instructor was not present.

TELECOMMUNICATIONS ENGINEERING DEPARTMENT

Summary

Engineering:

- 4G/LTE
 - Verizon KPI's good for the month of June.
 - 12 months of successful Verizon KPI's
 - Cranberry Rd cell site project in-progress with an eta in the Fall.
 - Realignment of Knudson cell site.
- IP Engineering
 - CO network redesign project ongoing.

- KPU Electric Scada redesign 85% complete.
- Residential FTTH standardization project started.
- Subsea Fiber Damage SOP draft complete.
- Fiber failover solution meetings.
- Infinera coherent optical switching upgrade.
- Enhanced internet monitoring solutions product evaluations.
- Video Engineering
 - Ongoing removal of remaining 150/550 STBs to complete Minerva M10 upgrade.
 - Migrated 45 channels to 3 new receivers.
 - A&E, Lifetime, and Lifetime Movie Network migrations.
 - Picture quality improvements to KGB Channel and Kayhi Live Sports channel.
- Voice Engineering
 - Webex for Broadworks deployment project in-progress.
 - SIP registration optimization project still in-progress.
 - Evaluation process for Acme Packet SBC replacement options.
- Systems Engineering
 - Windows AD domain migration project in-progress for MFA.
 - DNS re-architecture with SCN research 95% complete.
 - 15 additional servers patched and upgraded.
 - New Domain Controllers complete.
 - Mail relay servers for Broadworks 90% complete.
 - TFTP server replacement in-progress.
- Facilities
 - Mountain Point Remote generator scheduling for cutover.
 - New 10G Adtran chassis in-progress.
 - Additional fiber capacity for Tongass Towers and Knudson Cove.

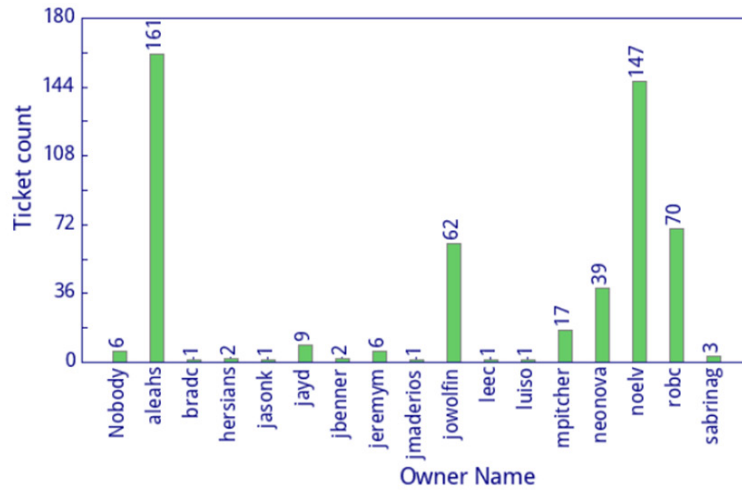
Service Delivery & Network Operations:

- 90 Resolved PBX tickets.
- 16 service orders.
- New internet, 1x new hosted install, POTS, IPTV, and managed router orders at 6 businesses.

CSS Overview:

Total CSS Calls:

- Calls to Customer Support in Jun 2022
 - Total Calls to 225-2111 = 603
 - Calls forwarded to NeoNova 984-244-5721 = 234
 - Calls Answered by Customer Support = 369



Owner Name	Ticket count
Nobody	6
aleahs	161
bradc	1
hersians	2
jasonk	1
jayd	9
jbenner	2
jeremym	6
jmaderios	1
jowolfin	62
leec	1
luiso	1
mpitcher	17
neonova	39
noelv	147
robc	70
sabrinag	3
Total	529

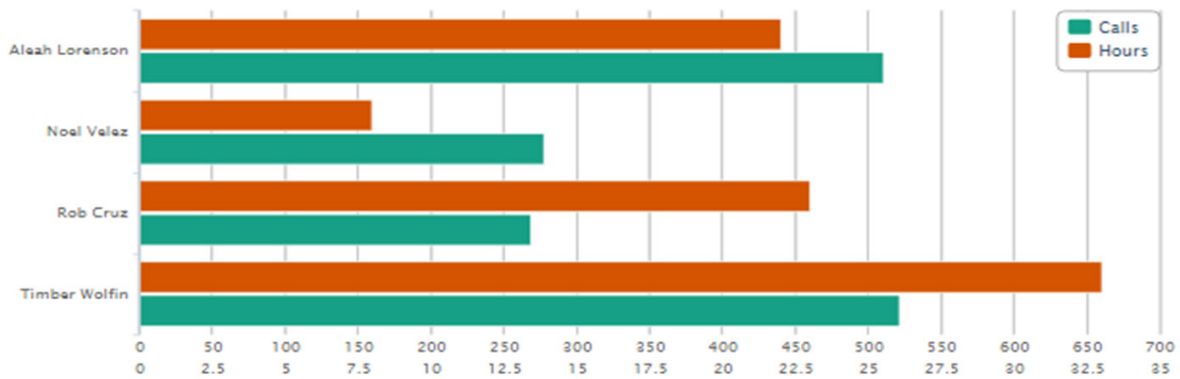
Query: Status != 'SPAM' AND Status != 'rejected' AND Queue != 'OSP' AND Queue != 'CompHQ' AND Queue != 'CustomerService' AND Queue != 'MSM' AND Queue != 'Maintenance' AND Queue != 'BattRepl' AND Queue != 'Support_Level3' AND Queue != 'Billing' AND Queue != 'CustAtRisk' AND Queue != 'TESTT2' AND Queue != 'Support_Level2' AND Resolved < '2022-06-30' AND Resolved > '2022-06-01'

Users

CSS Users



2022/06/01 - 2022/06/30



USER	RECORDED CALLS	DURATION (HOURS)
Aleah Lorenson	511	22
Noel Velez	278	8
Rob Cruz	269	23
Timber Wolfen	522	33

**MANAGER'S REPORT
WATER DIVISION
June 2022**

FILTRATION AVOIDANCE

At their meeting of May 20, 2021 the City Council approved the draft Compliance Order by Consent (COBC) prepared by the Alaska Department of Environmental Conservation (ADEC). It contains provisions that KPU must demonstrate in order to qualify for a Limited Alternative to Filtration (LAF). They are:

- a. The system has “uninhabited, undeveloped watersheds in consolidated ownership.”
- b. The system has control over both “access to, and activities in, those watersheds.”
- c. The system’s source water quality and the alternative treatment requirements established by the state must ensure greater removal or inactivation efficiencies of pathogens than would otherwise result from the treatment requirements stipulated by regulations.

Each of the five Action Items that are listed in ADEC’s COBC are as follows:

Items A - Watershed Control Plan, and Item B – Consolidated Ownership Report, have been combined into a single report by Jacobs Engineering. It has been completed and transmitted to ADEC on February 4, 2022.

Item C – Source Water Quality Study and Item D – Water Treatment Report, were both completed and delivered to ADEC. Item C on March 17, 2022 and Item D on March 11, 2022.

Item E – Provisions for Public Involvement, has already been completed and transmitted to ADEC on November 23, 2021.

ADEC personnel have completed their reviews of each of these Action Items and updates incorporating their comments are being made to Item A, the Watershed Control Plan and Item D, the Water Treatment Report. The revised and final Watershed Control Plan was submitted to ADEC on June 28th and the revised Water Treatment Report will follow in July. The next step will be ADEC’s transmittal of these documents to the EPA Region 10 Administrator for the EPA’s review.

The EPA will undoubtedly have further questions during their individual reviews or requests for supplementary information about these Action Item submittals. This will likely occur over an extended amount of time, perhaps another year or more. Additional funding is needed for this subsequent work and on March 17th, the City Council adopted a motion authorizing Amendment No. 4 in the not to exceed amount of \$130,000 to Contract 19-44, Professional Services Agreement for Negotiation of a Compliance Order by Consent for Water Filtration.

On June 1st, Cindy Christian, ADEC’s Drinking Water Program Manager, confirmed that the COBC entered into by the City of Ketchikan has been closed effective March 17, 2022 and noted that Ketchikan has opted to pursue a Limited Alternative to Filtration. Although completion of each of these COBC Action Items has been an arduous task, each is another decisive step towards Ketchikan’s long-sought issuance of a LAF.

Final LAF approval still depends upon the EPA's approval of ADEC's acknowledgement that each of KPU's five submitted Action Item studies have fully met the provisions listed in Ketchikan's COBC, the EPA makes an affirmative decision that Ketchikan is to receive a LAF, and ADEC must adopt LAF provisions which do not exist today into the Alaska Drinking Water Regulations.

OPERATIONAL ISSUES

Contract 21-01 - Ketchikan Raw Water Transmission Main Replacement

DOWL Engineers, who have already completed the earlier design work for the replacement for Schoenbar Road's distribution water and wastewater mains have designed a replacement for the failing portion of the 36-inch raw water transmission main in Schoenbar Road. It will be a single, permanent 42-inch HDPE pipeline to be located between the southwesterly edge of Norman Walker Field (adjacent to Park Avenue parking area), and the Ketchikan Charter School. Beginning at the westerly edge of Norman Walker Field, it will cross above Schoenbar Creek adjacent to where Schoenbar Creek's 96-inch multi-plate culvert begins, and then remain buried under Schoenbar Middle School's driveway, passing beneath the School District's Maintenance Shop parking area and the Ketchikan Charter School's playground before reconnecting to the remainder of the existing raw water transmission main.

Following BAM's completion in May of the two massive tie-ins at each end of the construction project which consist of the installation of new 42-inch wyes cut into the existing 36-inch ductile iron pipe in the vicinity of the Valley Park field and Ketchikan Charter School, their work began on June 7th with excavation through the Charter School's parking lot and extending eastward adjacent to the School District's Maintenance Shop. Due to the necessity of routing the 42-inch HDPE raw water main beneath a large existing storm drain located to east of the access road, the pipe trench had to be excavated about 10-feet deep and also stepped to be much wider on both sides due to the unstable organic soils encountered. Although the design for this area anticipated substantial groundwater being present in the excavated trench, it wasn't present. As a result, instead of using geofoam blocks needed to provide additional pipe support in a wet environment, they were omitted and the trench was backfilled with a sufficient base layer of crushed rock to support the HDPE pipe.

Simultaneously, the McElroy TracStar fusing machine shown in this photograph below began welding 50-foot segments of 42-inch HDPE pipe which weighs 202 lbs. / foot into a continuous 250-foot length.



On June 16th, this entire segment was carefully lowered into the trench by three large excavators. By June 20th, it had been completely bedded with fine gravel all-around, and the trench backfilled to the finish elevation with larger material and compacted.



By the end of June, another 500-feet of additional trenching will be completed and have reached the middle of Schoenbar Middle School's parking lot. During the past two weeks, this trench excavation has been very productive for its entire length. Unlike the earlier need to step the trench much wider on both sides due to the presence of unstable organic debris and blue glacial silt, here the excavation materials were primarily composed of just loose rock, boulders, and soil which also allowed vertical sidewalls to the trench. Now backfilled with a base layer of crushed rock to support the pipe, it is ready to install the next segment of 42-inch HDPE pipe. After the July 4th holiday, the TracStar will begin fusing the next long segment of HDPE pipe. Once it is installed in the new trench and connected to the existing 250-foot segment of HDPE pipe with an electrofusion coupling, the entire exposed length will be backfilled. It is first bedded with fine gravel to provide uniform support all-around, then backfilled with larger material to finish grade, and finally compacted.

Work has also started at the other end of the School's parking lot where galvanized steel pilings and concrete pile caps are being installed that will support the next segment of this water main as it crosses over Schoenbar Creek. This water main crossing assembly requires the combination of both buried HDPE and exposed ductile iron pipe in order to ensure the top of this insulated iron pipe doesn't obstruct a driver's view of any oncoming Schoenbar Road east-bound traffic before safely turning left and leaving the School's parking lot.

Further complicating this difficult project, in July 2021, our former Utilities Inspector tendered his resignation and thus far, we have been unable to hire a qualified replacement for this position. Consequently, as BAM continues construction of the new 42-inch HDPE pipeline and until a replacement Utility Inspector is hired, it will be necessary for other members of the Water Division staff to provide the critical daily construction inspection services in addition to their usual customary operating and maintenance duties.

Contract 20-25 – Continuation of Water Meter Design / Build – Business & Commercial Customers

Ketchikan Mechanical Inc. (KMI) was awarded Contract 20-25, the installation of another 50 water meters using the same design-build contract method as before, by the City Council on February 4th. KMI's first task is to conduct individual audits of each of the businesses that were identified in the Bid Documents and from these audits, then prepares a simplified design for each individual meter installation for review and approval by KPU. After KPU's approval is issued, the contractor begins installation of the new meter. Since its inception in 2019, this step-by-step method of installing water meters has proven to be entirely satisfactory for everyone involved.

Like so many other manufactured items affected by the coronavirus pandemic, this inadvertent delay required an extension to KMI's Contract 20-25's completion date to October 9, 2021 and was approved by the City Council at their meeting of July 1, 2021. As before, this contract was completed on-time and under budget. With a total of 183 meters now installed, it is apparent that using the design/ build concept for meter installation has been both cost-efficient and successful, with minimal difficulties encountered.

However, KPU's present supply of Cooper Power nodes remaining in inventory is exhausted. Complicating the matter, the 80 additional nodes that were ordered back in October 2020, continues to experience further delays in their estimated delivery date. Cooper Power's March 22, 2022 email stated that 50 of our backordered nodes should be shipped the second week of June, another 80 nodes shipped by the end of June, and the last 160 backordered nodes will be shipped by the end of July. Although Cooper Power has assured KPU that it has priority to receive the nodes that are on order once the manufacturing production problems at their factory in Mexico are resolved, another recent email stated that our node deliveries will not begin until December 2022.

Until these new nodes finally arrive and are installed by KPU employees, most of the 50 new water meters that KMI has installed in Contract 20-25 won't become fully functional and begin reporting. The reporting procedure itself consists of each node interrogating its associated water meter hourly and reporting the results to one of KPU's nearby Cooper Power "smart" electric meters which then in turn transmits the water flow measurements to the Electric Division. Ultimately, this water consumption information will be transmitted to Finance's New World Financial Management System for the purpose of preparing monthly billings to our ratepayers.

As it stands now, achieving the goal of having all of the remaining approximately 225 unmetered businesses, commercial buildings, and large residential apartment complexes fully metered before the end of 2022 is not likely. At least a partial shipment of these nodes must be received and installed before the remainder of Contract 20-25's meters that are now lacking nodes will be able to begin reporting their daily water consumption. Completion of this project is now likely delayed into mid to late 2023. The next water meter installation contract will not be issued until an adequate supply of nodes has been received and is ready for installation.

However, despite the delay caused by lack of these critical nodes, KPU's draft 2023 Budget will still propose completion of this project in 2023. It will propose carryover of Drinking Water and Wastewater Loan Funds for the installation of the remainder of the water meters, an update to the 2016 Water/ Wastewater Rate Study, with provisions for amendments made to the Ketchikan Municipal Code.

Contract No. 21-10 – Programmable Logic Controller Upgrade – Phase II - UV Disinfection Facility

Although Jacobs Engineering has completed earlier Contracts which made the initial upgrades to our SCADA server and program software, there still remain a number of outstanding automation and cybersecurity risks existing within the disinfection system that also need to be addressed. The recently completed Contract 21-03 – Water Cyber Security Evaluation identified areas in urgent need of cybersecurity improvements including the planned multi-year project to replace all three of our present Allen-Bradley Programmable Logic Controllers (PLCs) which have reached the end of their useful service life. Collectively, KPU has three Allen-Bradley Programmable Logic Controllers (PLCs) installed at the UV Facility, the Chlorination Plant, and the Ammonia Addition Facility. They are each providing continuous supervisory control over specific critical components within KPU's complex, computer-controlled, disinfection process.

Although this project had been approved for construction in the division's 2020 CIP program, by that March everyone suddenly found themselves in the midst of the worldwide coronavirus pandemic and all that entailed. Accordingly, to minimize the Utilities' annual operating expenditures during 2020, KPU elected to defer any planned PLC upgrading until 2021. Included in Water's 2021 CIP Budget, Contract 21-10 is the first phase of this project and approved by the City Council at their meeting of July 15, 2021. These PLC replacements will be the new Allen-Bradley ControlLogix PLCs which have long-term manufacturer and industry support. They use a modern control system infrastructure that offers several improvements for communications, stability, ease of maintenance, and reliability. This is the reason, when the Two-Point Chlorination Facility was being designed in 2015, the latest ControlLogix PLC's were chosen instead to operate the two new ClorTec sodium hypochlorite generators.

Continued delays of critical material deliveries that will likely continue through the summer months are affecting completion of this project at the UV Facility (CP-100). Several project meetings have been held with Jacobs Engineering's staff, most recently on April 7, 2022, to discuss the preparatory work progress that is necessary before the equipment installation phase can begin. The final testing of the control system, the PLC and HMI programming, and the implementation planning must all be completed before shipping the components to Ketchikan and physically beginning the installation. Rather than having any potential impact on 2022's fish processing season, the installation, commissioning, and cutover of the new CP-100 equipment in the UV Facility is now planned to occur this fall.

The next PLC to be replaced will be at the Old Chlorination Building (CP-300) in 2023 followed by the third and final PLC at the Ammonia Building (CP-400) in 2025. This will allow all of these critical PLC's to migrate to the modern Allen-Bradley ControlLogix PLC platform while also spreading the capital expenditure over several years.

Baranof Zone Pump Station Switchgear Improvements

Approved in the 2022 CIP Budget, this project is making necessary improvements to the switchgear in the Baranof Zone Pump Station. The oldest of KPU's pump stations, it has been in service for 35 years and is well overdue for an upgrade; particularly to the motor starters themselves. Mechanical motor starters depend on moving contactors to supply electricity to the pump motor and the sudden in-rush of electricity causes some heat. Over time, starting pumps to refill the reservoir has slowly but continuously has degraded the individual contractor mechanisms.

With direct replacement mechanical starter contactors now becoming very difficult to find, each of KPU's pump stations are proposed to have their motor starters replaced with modern solid-state soft starters beginning with the Baranof Pump Station. Not only do solid-state soft motor starters have a smooth acceleration, they have no moving components and cost about half as much as a mechanical motor starter.

Two Allen-Bradley soft starters that were ordered earlier this year have been shipped to RMC Engineering Services in Juneau who are fabricating their metal enclosures. Once assembled they will be returned to Ketchikan for installation in the pump station this summer.