

Copper Valley

Ruralite

JULY 2019

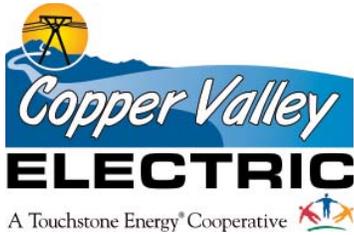


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Incoming, by
photo contest
winner Ed Pinsky.

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2019 Spring and Summer Project Recap



Stuart Creek Project Laydown Area - Kathryn Peltier

It is summer, the busy season for most Alaskan businesses, including CVEA. The Cooperative kicks into high gear with construction and other projects while the weather is on our side. Many projects were completed this spring, while others continue and may be seen by members traveling throughout Valdez and the Copper Basin this summer. Below is a recap of significant projects the CVEA team is working on.

Advanced Metering Infrastructure

Upgraded electrical meters that will increase efficiency and reliability throughout the service territory were installed along the entire CVEA system; first in Valdez in summer 2018, then in the first quarter of 2019 in the Copper Basin. While meter deployment is complete, CVEA continues to work on the project and will implement an outage notification module that notifies dispatch operators of power outages at individual meters, providing additional, specific information to coincide with information provided when a member calls in to report an outage.

Rights-of-Way Clearing/Section Hardening

In an effort to improve reliability, CVEA continues to work diligently maintaining rights of way (ROW) on the transmission and distribution lines throughout the service territory. In 2019 nearly 10 miles of transmission line will be cleared to ground level, to the original 100 foot wide easement, beginning at Mile 45 of the Richardson Highway and heading north. This is part

of an aggressive four-year project ensuring the entire 106 mile transmission line ROW is in good condition.

CVEA has also focused efforts from the Glennallen Diesel Plant substation to Copper Center, clearing over 25 miles of ROW. A new piece of equipment called a Sky Trim, which allows crews to cut the vegetation vertically up to 70 feet above the ground, has been used. It removes the branches and trees that grow into or fall into the lines from outside the ROW. Additionally, sections of line that the equipment cannot reach are being hand cleared by a local contractor.

Finally, CVEA is not only clearing ROW, but hardening sections of line that were more prone to outages. Crews are installing over 20 additional inset poles on a section of line between Pump Station 12 Substation and the Edgerton Highway. The span lengths between poles in this area are long, allowing heavy snow and ice loading to cause significant reliability issues. Increasing the poles and shortening the spans will improve reliability for members along this section of line. This is the second and final year of this project.

Stuart Creek Project

CVEA has partnered with Alyeska, Tsaina Lodge, and Copper Valley Telecom on a project that will provide distribution services in the area of 46 mile of the Richardson Highway, south to the DOT station in Thompson Pass, an area within the service territory that does not currently have distribution, only transmission infrastructure. The 20.3 mile underground extension

will serve multiple Alyeska facilities, Tsaina Lodge, and will also have new fiber optic cabling installed by CVT.

This project will also require a new substation to reduce the transmission voltage of 138kV to distribution level voltages of 25kV. The addition of the substation will make it possible to potentially serve the community of Serendipity in the future. This project is being completed with many CVEA team members and local contractors.

South Harbor Drive

Many upgrades were made in 2018 to allow for more power delivery to South Harbor Drive, where the fish processing plants reside. In the spring of 2019 nearly two miles of line near Bear Creek, along the Richardson Highway, was replaced to allow additional power to flow from the generation plants on Dayville Road into Valdez proper. This was the final step of the two year effort to provide the needed power requirements to South Harbor Drive.

Valdez Line Garage Roof and Siding

Preventative maintenance that maximizes the life expectancy of CVEA's facilities and equipment is constant and ongoing. The roof and siding on the Valdez line garage, where crew offices, tools, vehicles and equipment are stored, reached end of life. To extend the life of this building and improve the energy efficiency, new roofing, siding, windows, and doors will be installed this summer.

Solomon Lake Stop Log Inspection/Modification

Additional preventative maintenance was needed at Solomon Lake requiring the lake to be drawn down below normal levels in the spring of 2019. The project was to remove the stop logs, or slide gates that stop water flow into the penstock, located on the lake side of the dam where the penstocks draw water. The lower lake level allowed divers to assist in the removal efforts.

The penstock intakes will need to be isolated to replace the 40 year old main valves located at the base of the dam at Solomon. Now that the stop logs have been removed, they will be modified and reinstalled in the spring of 2020, allowing for the replacement of the main valves in the near future.

Dayville Road Double Circuit

CVEA began a multi-year effort this spring to rebuild the nearly 40 year old section of line between Solomon Gulch and the Richardson Highway. This section of line is one of the most critical sections of line on the system, transmitting nearly 90 percent of the electricity CVEA produces.

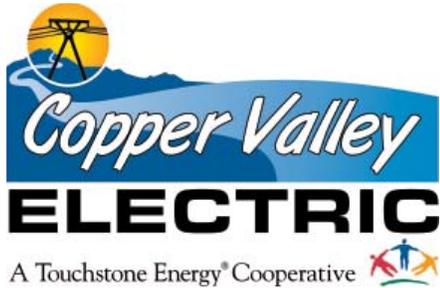
Over two miles of line between the Richardson Highway and the Petro Star switch station, located directly across Dayville Road from the Petro Star Refinery, was rebuilt. The new line is designed with fiberglass poles and crossarms, used to support the conductor (lines), which have nearly twice the life expectancy and higher strength than wooden poles. More poles were added as well, reducing the span lengths between poles, and



increasing ice and wind loading capabilities.

This project provided further benefit by allowing CVT to install fiber optic cables on the CVEA poles. The remaining poles between the Petro Star switch station and the Solomon Gulch Hydroelectric Plant will be replaced in the coming years.

For additional information on these or any other CVEA project, contact Sharon Scheidt at 822-5506, 835-7005, or email scheidt@cvea.org. ■



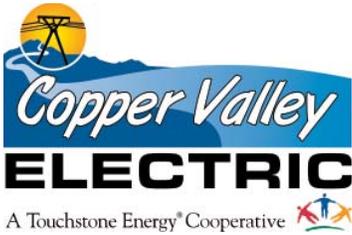
**Left, Travis Million accepting the NWPPA first place safety award in Spokane, Washington
Right, Travis and representatives from McMillen Jacobs Associates accepting the ACED Honor Award in Washington, D.C.**

2019 has already been a very productive year for CVEA, not only as it relates to energy production and projects, but also regional and national recognition.

CVEA was awarded first place in the Northwest Public Power Association safety contest for the second consecutive year; the award was presented at the Northwest Public Power Association (NWPPA) Engineering and Operations Conference on April 11 in Spokane, Washington. The contest compares electric cooperatives and public electric utilities of like size, looking at the annual number of hours worked and their incident rates (number of injuries), of which CVEA had zero for the second year in a row. NWPPA membership includes over 150 electric utilities from Alaska, British Columbia, California, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

CVEA also received an Honor Award from the American Council of Engineering Companies (ACEC). ACEC holds an annual event to recognize the top engineering projects throughout the nation. There was a record number of project submissions, over 250, for the 2019 awards. Of those submitted, there were 130 national Recognition recipients, 20 Honor Awards, and 16 Grand Awards.

The Engineering of Excellence Awards Gala was held on May 7, in Washington, D.C., where CVEA COO Travis Million, along with representatives of McMillen Jacobs Associates, the project contractor, accepted the Honor Award for the design and construction of the Allison Creek Hydroelectric Project.



The Giant Engine That Could, But Almost Didn't



In 2017, when Unit 5 at the Valdez Diesel Plant (VD5) began experiencing main bearing failures, no one could have predicted the unique challenges the team would face before the unit was back online. Main bearing failures could prevent the unit from running and cripple the Co-op's ability to perform maintenance on other units or use it as back up generation when needed for meeting demand, so it was critical the situation was addressed. Sometimes the litany of tasks in a complex project fall into place seamlessly, sometimes there's a different story.

The unit was built in 1974 by Enterprise Engine in Oakland, California. It is a 6-cylinder engine with 17-inch diameter pistons and a 21-inch stroke; weighing in at 18 tons. At full power it produces 3600 Hp and it is used to meet incremental load or for back up generation when primary units are in need of repair or out of service for maintenance.

The tale of VD5 all started with a detailed inspection of the engine, which indicated the crankshaft and the engine base,

which supports the crankshaft, would both need to be either refurbished or replaced. As with any project at CVEA, the team takes cost, efficiencies, and reliability issues into consideration when deciding the best way to move forward. Both the high cost and long lead time for a new crankshaft necessitated a search for options.

A lead on a used crankshaft fell through at the last minute requiring a different option, so the team set out to refurbish the crankshaft and base to as-new condition at a machine shop in Texas, which came at no additional cost and with the same warranty. Unfortunately the entire project was now behind schedule.

To replace the crankshaft, the entire unit had to be disassembled, so the decision was made to do a complete overhaul. It took a 10-ton gantry crane to remove the engine block.

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Giant Engine That Could (Continued from page 25)

The work was performed by CVEA power plant operators with support from machinists from California Marine Diesel.

The engine base and crankshaft were then loaded into a 20 foot shipping container where a shipping company was contracted to load the container on a trailer and deliver it to a machine shop in Texas; one of a few in the country with the capacity to refurbish such huge parts. They loaded the container on schedule and departed Valdez, then onto a barge, and it left Alaska.

Here is where the story got interesting. Who could have imagined a connex containing an 18 ton engine could be 'lost'? After the container was off loaded from the barge in Washington, it went missing. For 10 days, it could not be found. The appointment with the machine shop was missed and the entire project was now significantly behind schedule and in jeopardy of missing the summer high demand season.

It was just by chance the shipping company finally found the container; it had been offloaded into an empty container yard at the loading dock. Luckily, the 'empty' container needed to be moved and the crane operator noted it was heavy. Once found, the container was back on its way, and finally arrived in Corpus Christi two weeks later.

The machine shop went to work thoroughly cleaning the base and crankshaft and took measurements of all critical dimensions. It was determined the crankshaft could be straightened, re-chromed and machined to as-new specifications, but unfortunately the engine base had excessive wear and could not. It would require spray welding before machining, which added weeks to the schedule and significant cost increases to the vendor.

Meanwhile, as the base and crankshaft were being refurbished in Texas, operators at the Valdez Diesel Plant cleaned, inspected, and otherwise made ready hundreds of other engine parts that would go back into the refurbished engine. Additionally, some of the large and major components were transported to Glennallen and refurbished by the Glennallen Diesel Plant operators.

Many of the parts, like the connecting rod above, measuring over five feet and weighing 600 pounds, are so large they could



only be moved with rigging and power equipment.

With the spray welding and initial machining of the engine base complete, the next step was to install and bore-align the bearing caps. During a Magnaflux inspection, a fine crack was found in one of the bearing caps. Unfortunately, parts for these old engines are difficult to find and an initial search was unsuccessful. A concern of not finishing before a second summer high demand season caused tensions to be high.

Finally, a company that could fabricate one to factory specifications was found; the work was complete, the part installed,

and the bore successfully aligned. Work on the engine base and crankshaft were now complete. They were sprayed with protective coating, crated, and successfully shipped to Valdez (without getting lost).

At the diesel plant, it was time to put this giant engine back together. The base was put in place, rigging was used to put the refurbished crankshaft back onto the base, the remainder of the engine reassembled, and wiring and instrumentation were re-installed.

This project was huge, not only in size and scope, but in man-hours. It required, at some point, every single operator in Valdez and Glennallen, as well as the Communications

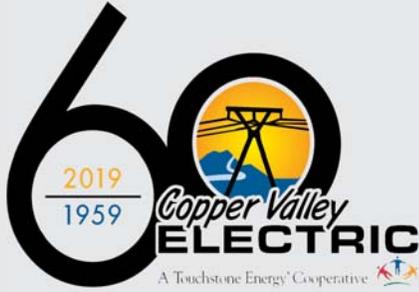
and Controls Engineer, and three mechanics from California Marine Diesel. The team worked on and off, in between other projects, for a year and a half disassembling and cleaning hundreds of parts, putting it all back together again, and performing multiple tests to ensure it works as good as new.

The Co-op is guided by its mission to provide reliable power to the members of CVEA. This important project, with its many delays and challenges, is an example of that, and CVEA is extremely proud of the efforts of the entire team.

If you have questions regarding this project or any CVEA project or issue, contact Sharon Scheidt at 822-5506, 835-7005, or email scheidt@cvea.org. ■



Opposite top, removing the engine base to prepare for shipment
 Opposite bottom, one of six connecting rods that measures over five feet and weighs 600 pounds
 Top left, unwrapping the refurbished base at the Valdez Diesel Plant
 Top middle, rigging the refurbished crankshaft onto the base
 Above, Matt Craig, Plant Operator and Dave Coon, Communications and Controls Engineer, re-installing and wiring the instrumentation
 Left, VD5 like new and back in service in January 2019



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 367 Fairbanks Dr.

After hours outage line
 (866) 835-2832

Important Dates

July

CVEA Offices Closed: The CVEA offices will be closed Thursday, July 4, 2019, for Independence Day

CVEA Board Meeting: The July meeting of the Board of Directors is 1 p.m., Thursday, July 18, 2019, in Valdez

August

CVEA Board Meeting: The August meeting of the Board of Directors is 1 p.m., Thursday, August 15, 2019, in Glennallen

CVEA Member Tours: The Fall Valdez member tours will be Monday and Tuesday, August 12-13, from 10 a.m. to 4 p.m.

**Registration required; contact Sharon Scheidt at 822-5506, 835-7005, or email scheidt@cvea.org for information

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CVEA Community Foundation Contribution Season Begins

The Community Foundation is a 501(c)(3) nonprofit organization that promotes and sponsors the community support activities of CVEA, allowing CVEA to do more for the people it serves. The mission of the Foundation is “to provide scholarships for students and make contributions to educational, scientific, and charitable organizations in our communities.”



This year, the Foundation has \$16,269 available for contributions. The goal is to use this funding to help local nonprofits make an even greater impact in the communities the Co-op serves.

The Foundation’s annual contribution season has begun. If your organization is a local 501(c)(3) nonprofit organization looking for funding for new or expanding projects or programs within the next 12 months, please review the Contribution Guidelines at cvea.org to determine eligibility, and fill out the CVEA Community Foundation Contribution Request Form in its entirety. Incomplete applications may not be considered.

The deadline to submit all contribution requests for funding is Thursday, August 22, 2019, as indicated on the request form available at either CVEA office and at cvea.org/community support.

Applications will be reviewed and scored by a volunteer committee in September, awards will be approved by the Board of Directors in October, and checks will be distributed in November/December.

Please note that the Foundation’s contribution process and guidelines vary from CVEA’s donation process. The requirements for the CVEA program are different and separate from the Foundation, but are also found on cvea.org. Please ensure your organization meets the specific guidelines for Foundation funding and the correct application is submitted.

If you have questions regarding the Foundation contribution process, please contact Sharon Scheidt, CVEA Director of Communications, at 822-5506, 835-7005, 255-1425, or email scheidt@cvea.org.