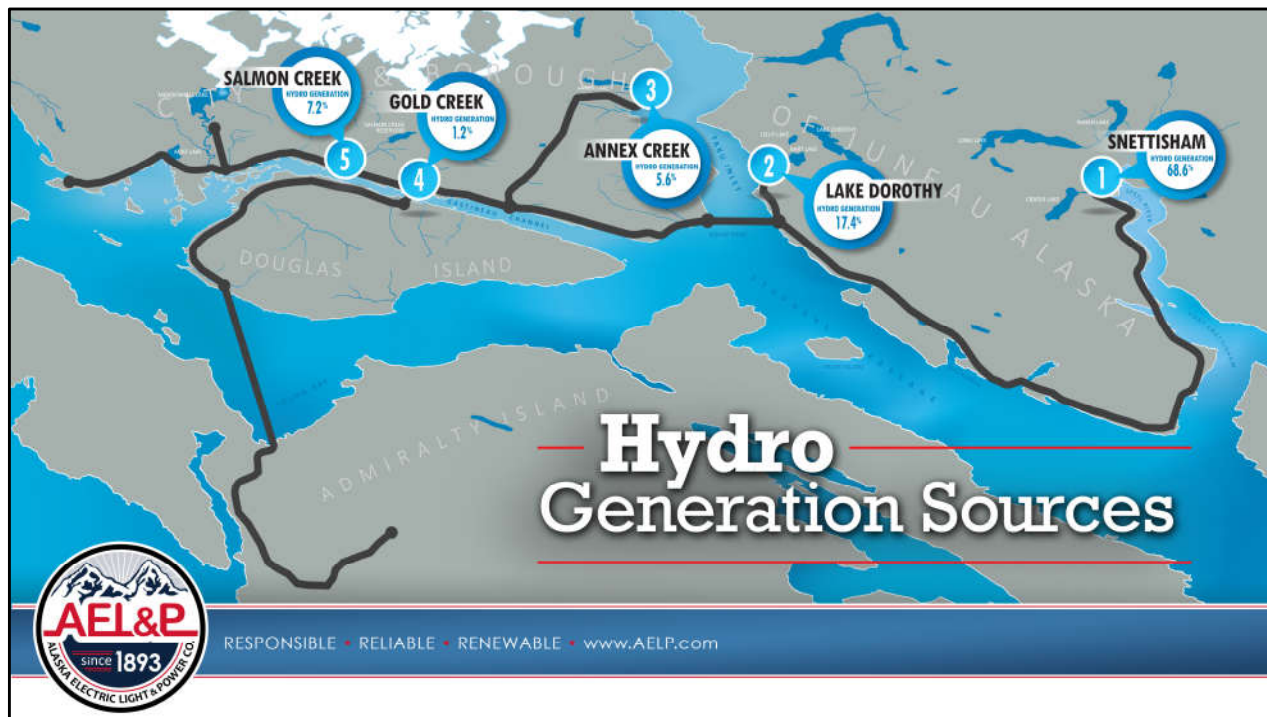




AEL&P last presented to the Assembly in June of 2021, and we are happy to be back to provide another update.



This graphic indicates where we get our hydropower in Juneau. About two-thirds of Juneau’s hydroelectric energy comes from the Snettisham project. The low-cost energy from Snettisham plays a significant role in keeping AEL&P’s rates lower than the national average since 2014.

Bill Corbus and AEL&P staff devoted a lot of time and expense to helping secure the output of Snettisham for Juneau via the acquisition of the project by the Alaska Industrial Development and Export Authority (AIDEA). AEL&P started operating the Snettisham project in 1996, and in 1998 AIDEA purchased the project from the federal government. AEL&P continues to operate the project under agreements with AIDEA.

The other one-third of Juneau’s hydroelectric energy comes from projects owned by AEL&P: Gold Creek (1893), Salmon Creek (1914), Annex Creek (1915), and Lake Dorothy (2009).



CURRENT OPERATIONS AND UPDATES

- AEL&P Management

- Alec Mesdag – President and Chief Executive Officer
- Darrell Wetherall – VP and Transmission and Distribution Engineer
- Bryan Farrell – VP and Generation Engineer
- Debbie Driscoll – VP and Director of Consumer Affairs and HR
- Brandon Cullum – VP and Chief Financial Officer
- Ron Duvall – VP and Director of Information Technology
- Lori Sowa – VP and Director of Energy Services and Metering

Since the last update AEL&P gave in 2021, we have had three retirements in our management team.

Alec Mesdag took over as CEO at the start of this year following Connie Hulbert's retirement at the end of 2022. Connie spent most of her 26 years at AEL&P as the chief financial officer, and she was promoted to president in 2017 as only the second woman to serve in the role in the company's 130-year history. Connie's dedication to her job and the community are a big part of why AEL&P is able to serve Juneau with nearly 100% renewable electricity at a rate lower than the national average.

We had two other retirements in early 2022. Christy Yearous, VP and generation engineer, and Rod Ahlbrandt, VP and director of IT, both retired after 20 years with the company. Bryan Farrell, who has been with AEL&P for 15 years, now leads AEL&P's generation department, and Ron Duvall, who came to AEL&P after working for the State of Alaska, now leads the IT department.



CURRENT OPERATIONS AND UPDATES

- **AEL&P Corporate Goals:**

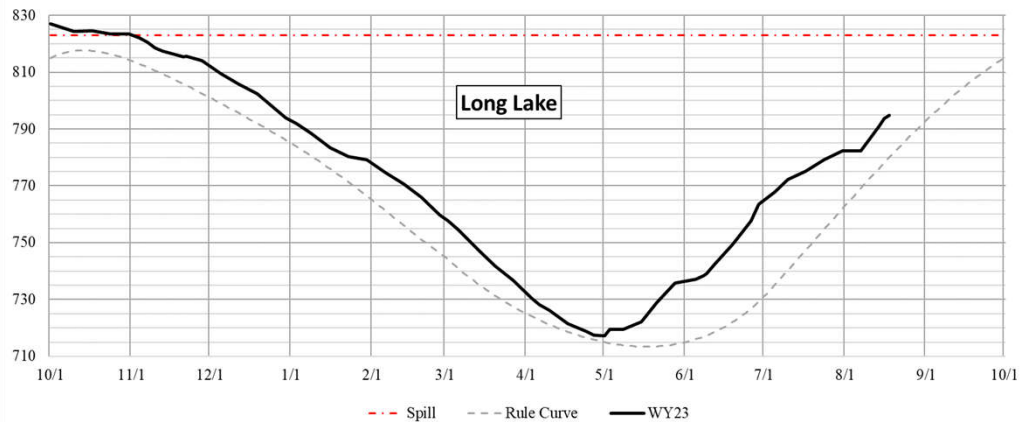
- To provide reliable and safe service from electric energy generated from renewable resources.
- To provide among the lowest average electric rates of major regulated utilities within Alaska over the long run while maintaining financial integrity.
- To utilize electric resources efficiently.

While AEL&P has lost three people who made substantial contributions to the company over the course of their careers, we have great confidence in our management team, and our corporate goals remain unchanged.



CURRENT OPERATIONS AND UPDATES

- Generation – Storage Lake Levels



This graph shows the rule curve for Long Lake, the larger of two lakes serving Snettisham. The rule curve shows the operating guidelines for maximum firm flow – how to get the most energy out of the reservoir – over the “water year,” which runs from October 1st to September 30th. From June to August, lakes are generally filling due to snow melt in the early spring and summer. From August to November, lakes are filling due to rain in the late summer and fall. AEL&P manages reservoirs using tools like the rule curves to maximize energy production.

One aspect of lake levels that is important to understand is that reservoirs only receive about one-quarter of annual inflows from November through May, when nearly two-thirds of annual electricity is consumed. The seasonal nature of inflows is one reason why AEL&P encourages a thoughtful approach to electrification of space heating loads.



CURRENT OPERATIONS AND UPDATES

- Generation – Annex Creek Penstock Replacement



The Annex Creek project was constructed by the Alaska Gastineau Mining Company between 1913-1916. The original penstock – the penstock is the steel pipe that carries water from the reservoir to the powerplant – operated until this year, when AEL&P removed the upper half of the original penstock so it could be replaced.

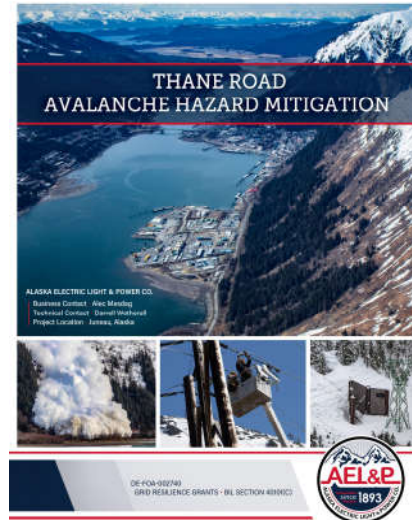
A heavy lift helicopter arrived last week to begin moving new sections of pipe to the project for installation. AEL&P intends to have the new pipe installed to allow us to put the plant back in service through the winter, and then we will replace the lower half of the penstock in 2024.



CURRENT OPERATIONS AND UPDATES

• Transmission

- DOE Grid Resilience Innovation Partnerships (GRIP) grant
- Dock electrification
- LiDAR surveys for vegetation management along Snettisham line



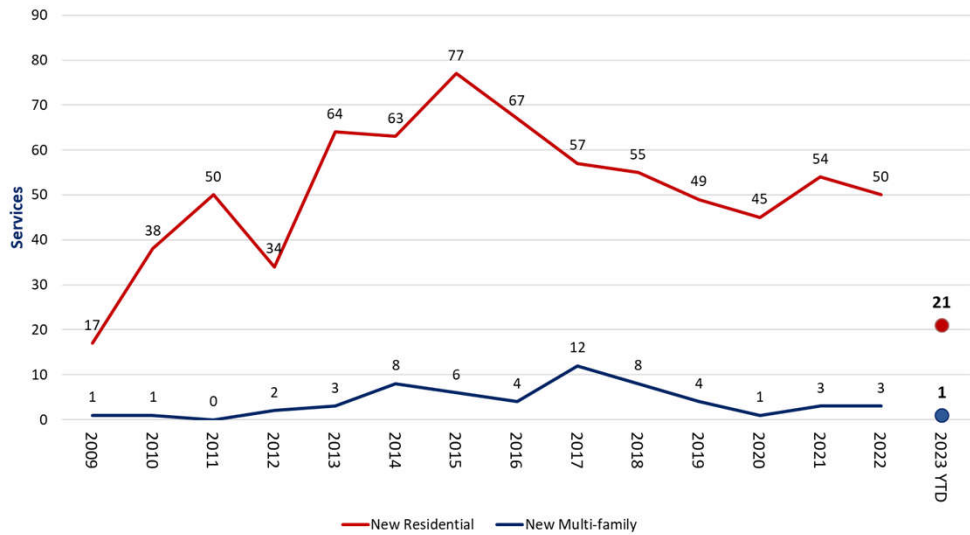
AEL&P intends to prepare a grant application for a project to underground additional sections of the parallel transmission lines that run along Thane Road. Currently only one section of the uphill line is underground, and burying the lines in additional slide paths would provide additional resilience in the transmission system.

A new transformer, funded through a CBJ marine passenger fee grant, is on order to replace the existing transformer that supplies the South Franklin Dock. This transformer upgrade is a necessary step to enabling service to additional cruise ship docks. AEL&P is working with Docks and Harbors to identify the right path forward to electrify the city-owned docks.

Another project aimed at improved transmission reliability is LiDAR surveys of vegetation on the Snettisham transmission line. This project will help inform AEL&P's tree-clearing program to protect the line that carries the large majority of Juneau's electricity supply.



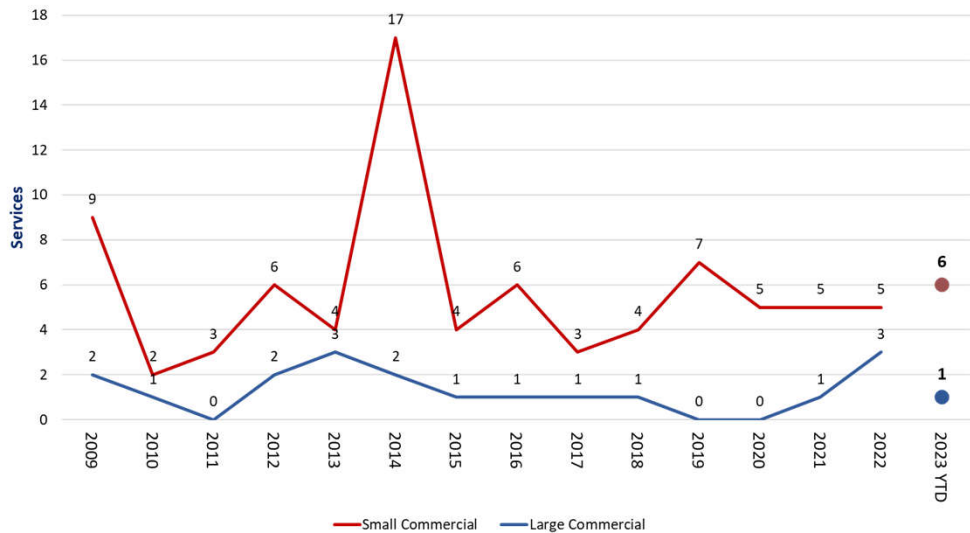
NEW RESIDENTIAL SERVICES



AEL&P tracks the number of new services installed each year. We have had fairly steady new home construction over the last five years. Each multifamily project noted here represents the entire complex, so the number of individual housing units associated with each cannot be discerned from this graph.

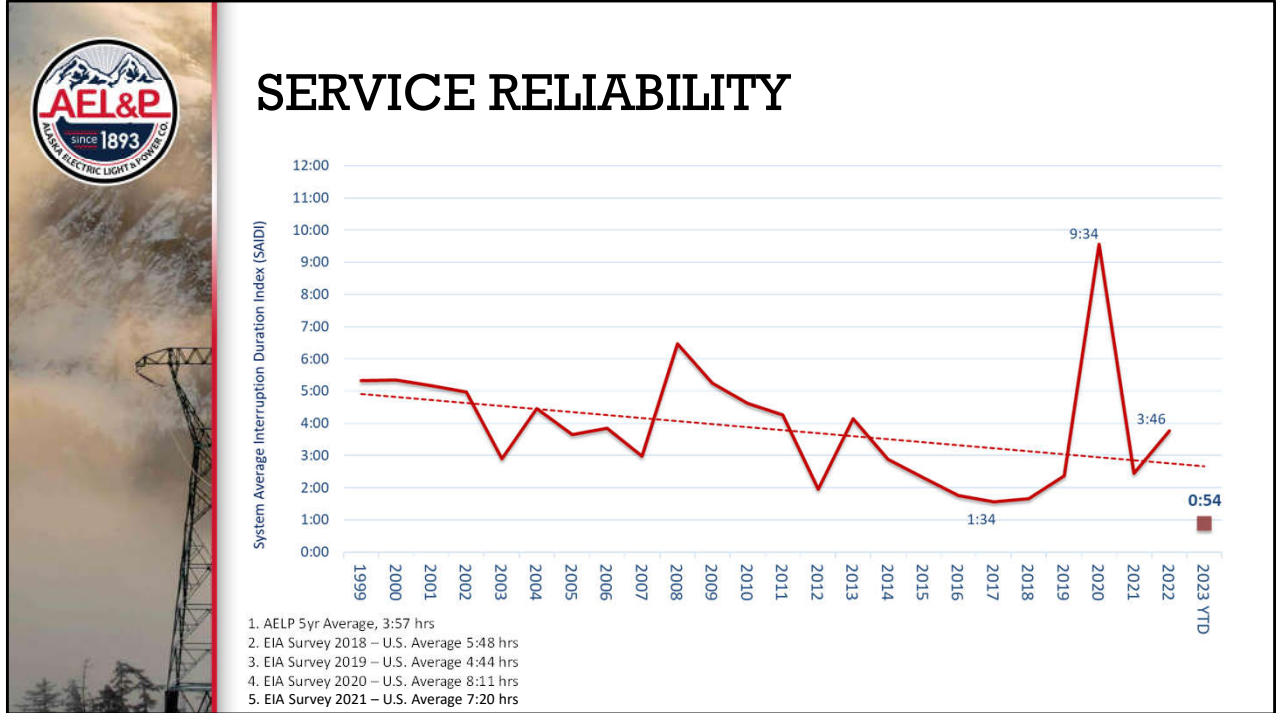


NEW COMMERCIAL SERVICES



Commercial services are those operated for business, and Small Commercial services are those less than 50 kilowatts – the vast majority of commercial services classify as Small Commercial.

Large Commercial services are those with demand greater than 50 kilowatts, and a number of the new large commercial services installed in recent years are associated with healthcare facilities.



Utilities keep reliability statistics, including the System Average Interruption Duration Index (SAIDI), shown here, which uses the number of customers and duration of every individual outage to calculate how long a single areawide outage would have been to create an equivalent impact. Here’s how our 5-year average compares to the most recent data available for the US.

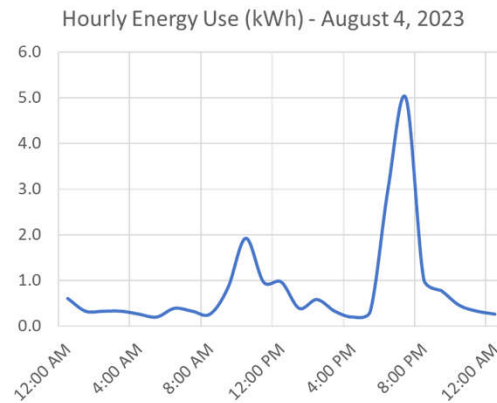
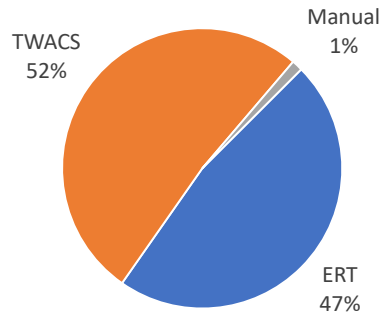
- AEL&P 5-year average – 3:57 hours/customer/year
- EIA Survey 2021 – US average – 7:20 hours/customer/year

Tree clearing activities as well as other improvements to the system have reduced the duration of outages in recent years, with 2017 being the year with the lowest outage hours in the last two decades, but outages caused by storm damage toward the end of 2020 were the most significant in years. Certain things will always be outside of our control when it comes to power outages, but if we continue our extensive tree clearing activities, investments to improve system protection, and quick response times when outages occur, we hope to continue the downward trend in outage hours.



METERING

- Advanced Metering Infrastructure (“AMI”)



In 2021, AEL&P removed the last of the “Turtle” meters, and we continue to replace the remaining Encoder Receiver Transmitter (“ERT”) meters. ERT meters use a weak radio signal to communicate reads from a handheld device that a meterman takes on a route. Turtle meters used powerline carrier communication, which is a high-frequency signal that travels on existing powerlines.

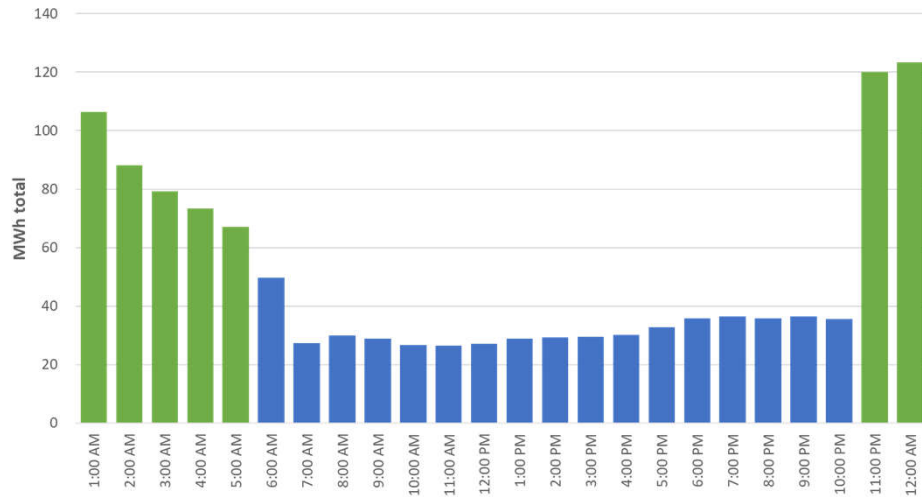
In place of these older meter technologies, AEL&P is installing TWACS meters, which use powerline carrier communication, instead of radio signals. TWACS meters transfer data much more quickly than the old Turtle meters, and they provide interval data, which can be useful to homeowners who want to diagnose issues with their electricity use.

The graph on the right shows a typical single-family home’s energy use throughout the day. Energy use is concentrated in the morning and evening, with the higher of the two peaks occurring in the evening. In the example shown on this slide, adding an EV charger to the evening peak would double the home’s power usage during that period.

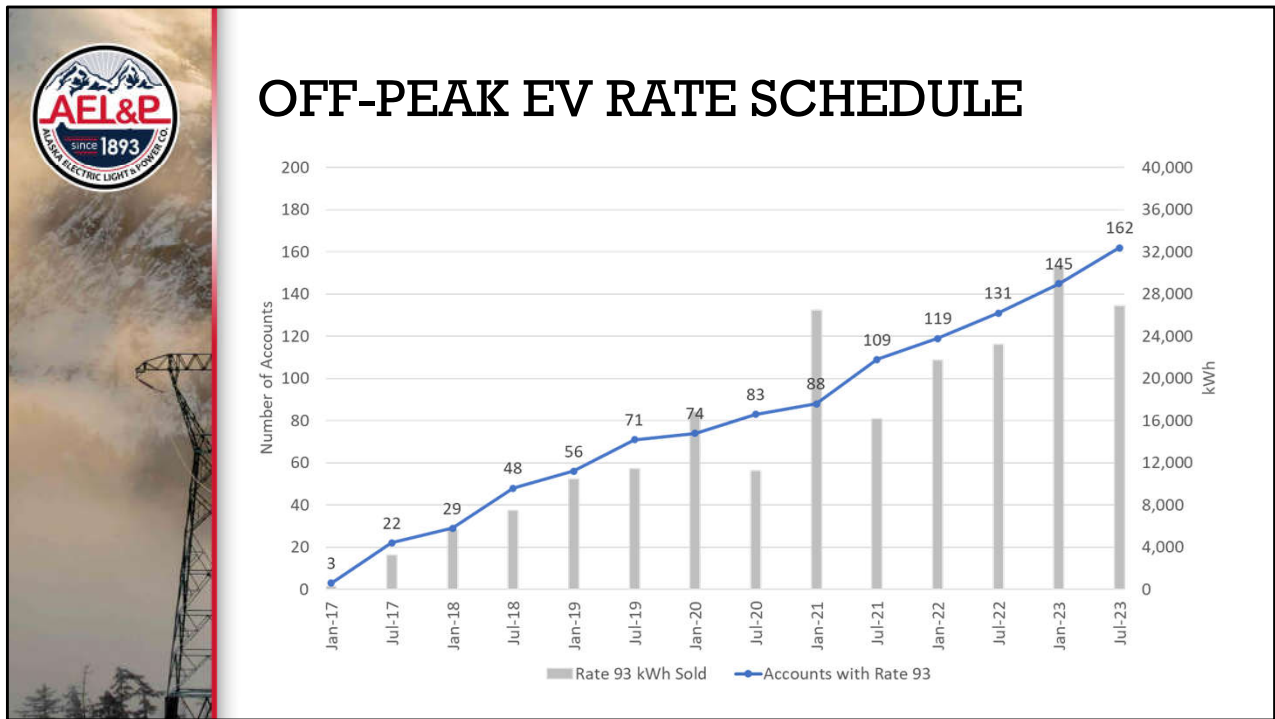


OFF-PEAK EV RATE SCHEDULE

Hourly EV Charging Activity 2021-2022



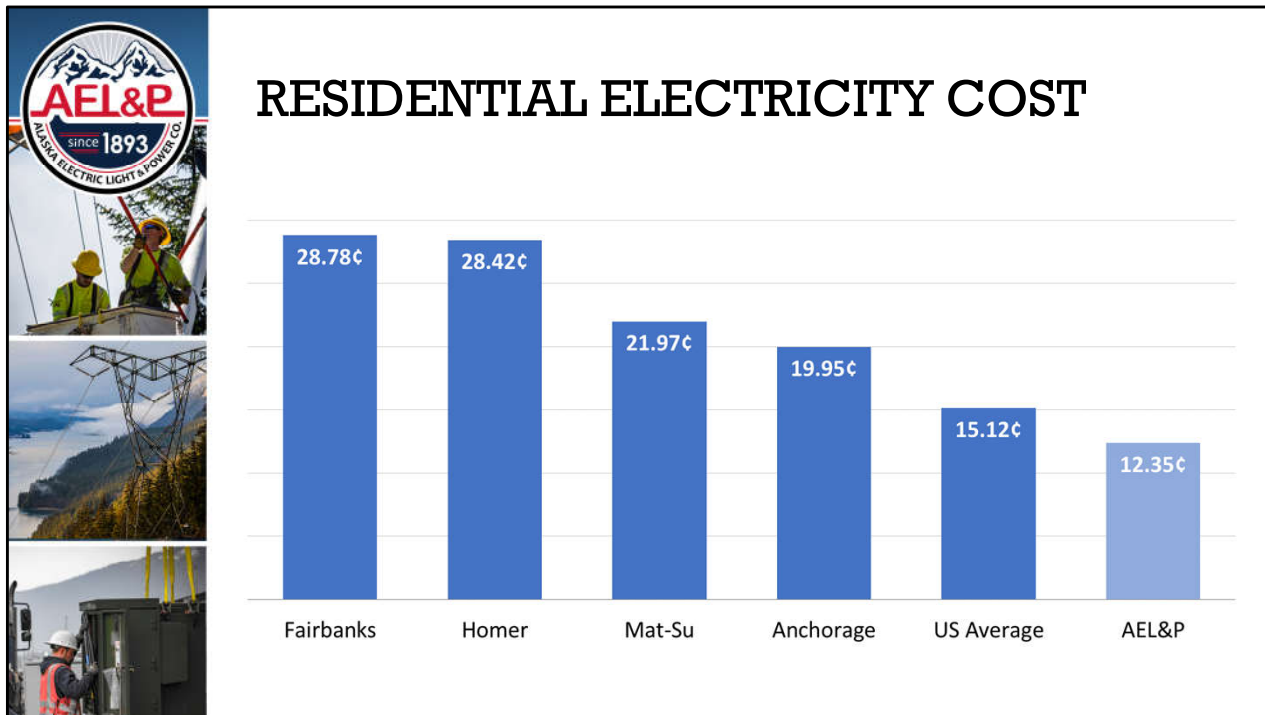
To help alleviate the potential issues created by too many EVs charging during the evening peak, AEL&P created an Off-Peak Electric Vehicle Rate Schedule in 2017. The graph here shows the total charging done by participants in AEL&P's off-peak EV charging rate over 2021-2022. The program shifts a significant amount of charging away from the evening period, when we typically see our highest loads.



Since the off-peak charging rate became available to all customers in early 2017, AEL&P has seen growth in participation in the rate that corresponds to the growth in EVs in Juneau overall. Along with the off-peak rate schedule, AEL&P has charging equipment available for rent for a monthly fee of \$10.59. This continues to be a popular choice for customers, especially those who are looking for a simple solution to participating in the off-peak charging rate.

The energy sales shown here are the monthly totals for charging done by participating EVs from 10PM-5AM only – this does not include the charging done during other times of day. Given what AEL&P understands about the total number of EVs in Juneau and the energy use information we collect through our EV rate, we estimate that energy sales to EVs make up less than 1% of AEL&P’s total energy sales to firm customers.

In 2022, AEL&P also received RCA approval for a high-power EV charging rate that will allow services dedicated to EV charging to choose an alternative to being billed under one of AEL&P’s demand rate schedules. This provides certainty about the cost to provide charging for DC fast chargers or large banks of Level II chargers.

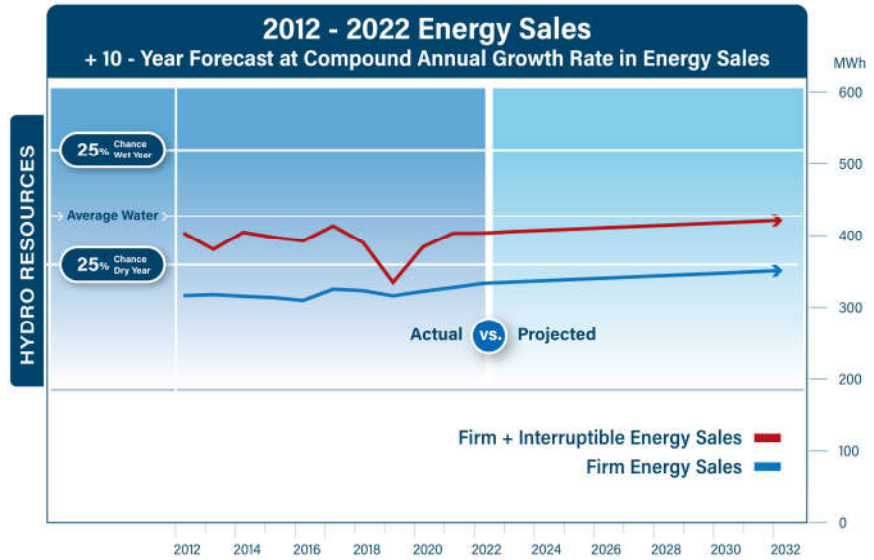


AEL&P’s rates remain the lowest among the large, regulated utilities in Alaska. Our rates are also comparable to the national average, which is due in large part to our ability to sell surplus energy to interruptible customers. The average electric cost for residential customers of Alaska utilities comes from each respective utilities’ annual report filed with the Regulatory Commission of Alaska. The US Average electric cost for residential customers is from Table 5.3 of Electric Power Monthly with Annual Totals for 2022 published May 2023 by the US Energy Information Administration.

AEL&P’s rates shown in this chart are an average for all of 2022, including a 4.5% interim rate that went into effect in September 2022, following AEL&P’s July 2022 request to increase rates by 9%. AEL&P’s rate cases are adjudicated by the Regulatory Commission of Alaska (“RCA”) and have a 15-month timeline. The Office of Regulatory Affairs and Public Advocacy (“RAPA”) represents AEL&P’s customers in the proceedings, and a hearing was held in Anchorage in July 2023 to argue issues related to AEL&P’s request. A final order is expected to be issued by the RCA in October 2023.



LOOKING FORWARD

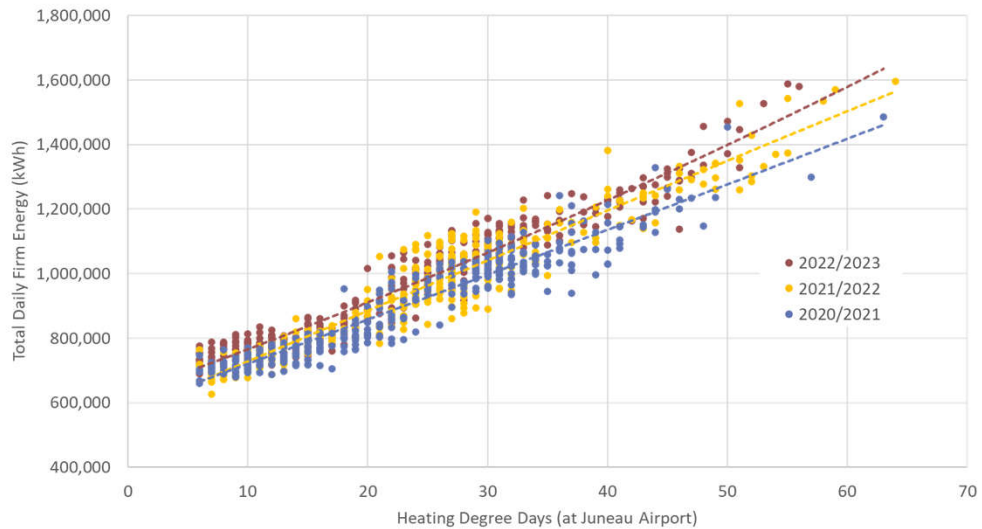


Over the past 10 years, the compound annual growth rate in energy sales is about 0.5%. If that rate of growth in energy sales continues for the next 10 years, AEL&P expects that we will continue to have enough water to serve all customers – firm and interruptible – in an average water year.

Factors that tend to increase sales of electric energy are things like new construction, moving from oil to electric heat, and increasing adoption of EVs. Factors that tend to decrease sales of energy are efficiency improvements like replacing electric resistance heat with heat pumps, or upgrades to ventilation and refrigeration equipment.



CHANGES TO HEATING LOADS

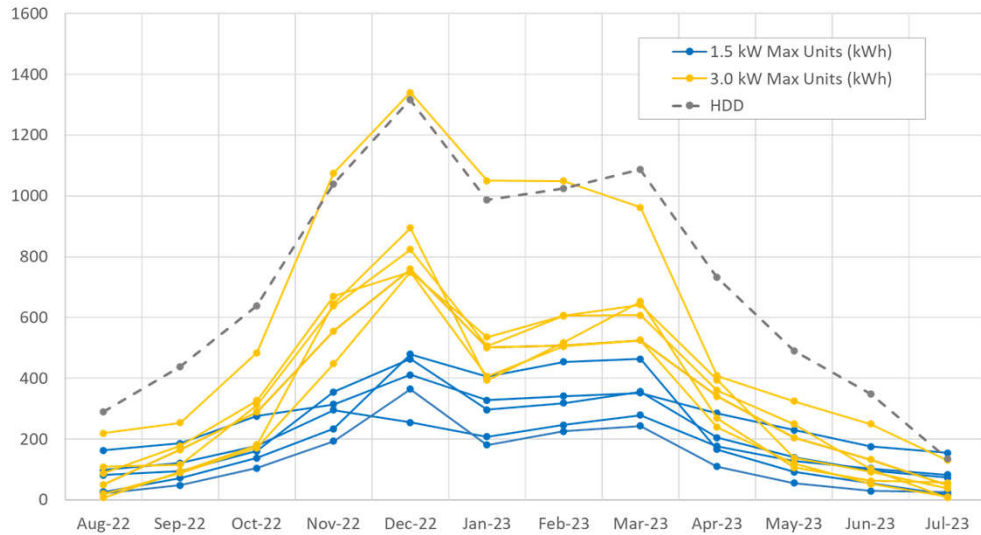


The growth in energy sales that AEL&P sees occurring appears in part to be connected to growth in the use of electricity for space heating. The graph on this slide shows the amount of energy consumed each day over the past few years compared with the Heating Degree Days (HDD), which represents the magnitude of the heating load. In each of the past few years, the amount of energy used as the weather gets colder, represented by higher values of HDD, increases. This likely indicates that we are seeing more energy used for heating.

The increasing use of electricity for space heating will, more than any other single change in how the community uses electricity, cause a need for investment in new infrastructure that will need to be incorporated into rates.



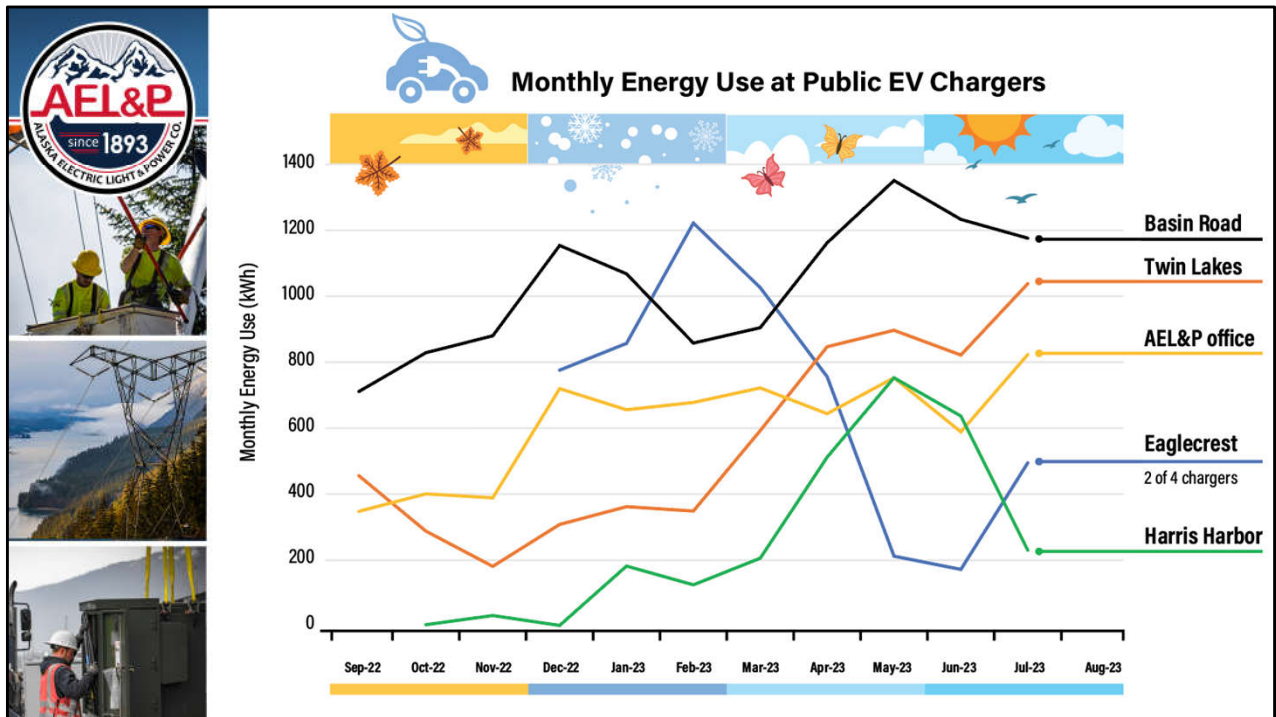
UNDERSTANDING HEAT PUMPS



Because of the potential for the electrification of space heating to impact AEL&P's need to respond with new infrastructure, AEL&P is involved with efforts to better understand how heat pumps use energy. This graph shows monthly electricity consumption for 11 heat pumps that were installed as part of the Thermalize Juneau program.

This data is useful for both customers and for the utility to understand the costs and electricity demands associated with heat pumps. While there is manufacturer data and estimates that can be calculated, this operational data shows the variability and influence of other factors, such as home size and insulation, supplemental heat sources, unit placement, and customer preferences.

AEL&P is also performing a study to measure the electricity used for heating in residential apartments with electric baseboards. After collecting baseline data in these apartments, AEL&P will install heat pumps in the main living area of each and continue to measure the energy used for heating after the heat pump is installed. This will help the utility understand what reductions in energy and power requirements occur when an apartment is converted from solely being heated with resistance baseboards to receiving much of its heat from a heat pump.



The use of public EV charging stations throughout Juneau is increasing. The graph on this slide shows the monthly energy used at a handful of charging locations around town where the chargers are metered separately. No surprise here that the Eaglecrest stations have usage that peaks during the ski season, and the chargers at Basin Road have not taken long to become the most heavily utilized of the locations where their usage can be separately identified.

AEL&P is working with its meter manufacturer to develop an EV charging station that will allow for metering individual charging sessions using AEL&P’s existing meter collection system. If a suitable product is developed, we hope to create a public charging network that will make EVs accessible to a larger share of Juneau’s population by making reliable charging more accessible at an affordable rate.



FLEET VEHICLES



AEL&P continues to look for opportunities to integrate electric vehicles into our fleet. The company purchased a Chevy Bolt a few years ago as an office vehicle, and we have two Ford Lightnings on order for our meter department. As we looked to providing charging for the new electric trucks, we realize we have a problem that the city is familiar with: crossing sidewalks with charging cables. AEL&P will be testing a couple of different solutions for this and looks forward to sharing which do or don't work well.

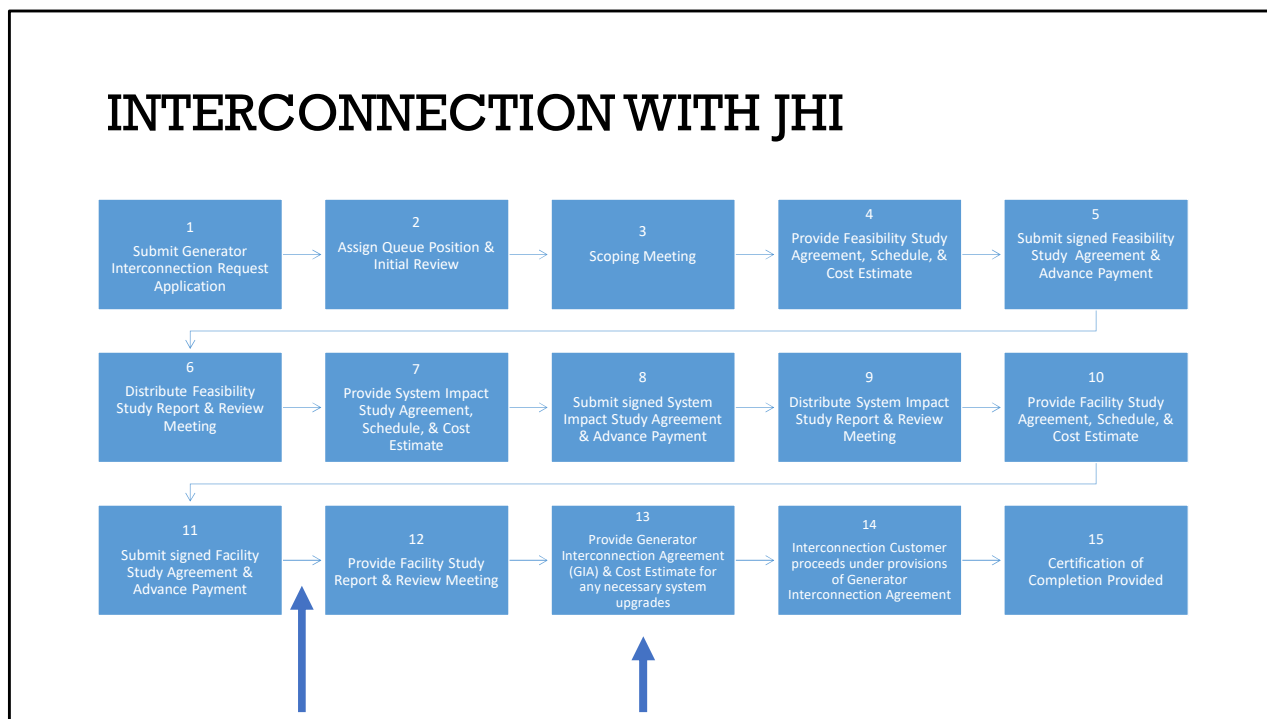
The collage features several key elements:

- Home Power Protection:** A graphic showing houses and power lines with the text "Home Power Protection".
- Credit Card Autopay is here:** A blue notice with logos for Visa, Mastercard, and American Express, stating "Register your account online at AELP.com and click pay by credit card. There, you'll find easy-to-follow steps to set up automatic payments with your credit card. Go Paperless!"
- 2022 Letter to the Community:** A photo of five AEL&P staff members in blue uniforms standing together.
- Flood Response:** A photo of a utility truck in a flooded area.
- EV RATE OPTIONS:** A graphic titled "EV RATE OPTIONS" with a flowchart asking "Do you have a Level 1 Charger?" and "Would you prefer to use a wireless (RFID) card to pay for electricity?" with "See Option 1" and "See Option 2" buttons.
- Kids, Be Safe Around Electricity:** A colorful educational graphic for children with icons for "Look up!", "Keep liquids away!", and "Don't poke appliances".
- Social Media Posts:** Three tweets from @AELPIJUN:
 - 8/6/23 9:35 am: All locations that could safely be turned back on have now been reenergized.
 - 8/16/23: More updates: Mendenhall campground and the CBJ lift stations are back on.
 - 8/16/23: Flooding update: power is back on to Meander and View Drive. Power is being restored to areas where...
- Juneau Economic Development Council (JEDC) is with Alaska Electric Light & Power and 8 others.** A graphic thanking sponsors for the 2023 Technical Trades Camp.
- Exciting collaboration alert!** A graphic announcing a partnership with Frontier Precision Unmanned and the Alaska Department of Transportation & Public Facilities for the Voyager LIDAR system.
- ARE YOU CURIOUS About Heat Pumps?:** A vertical graphic with icons and text explaining the benefits of heat pumps.
- Shore Power - Electrifying More Docks:** A photo of a cruise ship docked.
- AEL&P since 1893:** The utility's logo and tagline "RESPONSIBLE • RELIABLE • RENEWABLE • www.AELP.com" are prominently displayed at the bottom.

Sharing information about energy use and what the utility is up to is a big part of what AEL&P does. This slide shows many examples of the different things we do to get information to our customers and the public at large about efficient use of electricity and other forms of energy, power outages, events and projects happening at AEL&P, and to provide educational opportunities to kids.

One thing to highlight on this slide is that AEL&P is now able to accept payments by credit card with no fees. This can be done for one-time payments or automatic payments. AEL&P has offered automatic payments by checking account for many years, and we now also offer automatic payment by credit card. Customers can set up autopay by credit card through their online account. Please contact the office if you have questions.

INTERCONNECTION WITH JHI



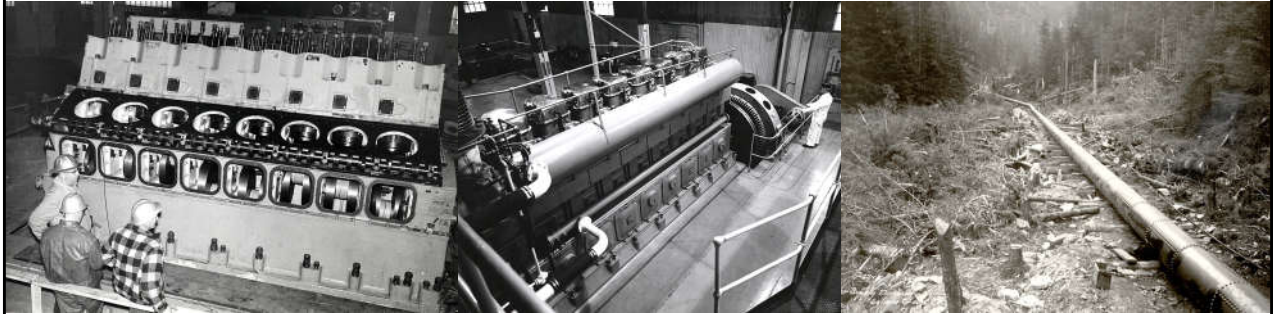
The only change on this slide from AEL&P's presentation in 2021 is that so much time has passed since completion of steps 7-9 that AEL&P has informed JHI of need to update the System Impact Study to reflect current system conditions.

This chart shows the industry-standard interconnection process developed by the Federal Energy Regulatory Commission. There are three studies that must be completed prior to interconnection:

1. Feasibility Study: this was completed by AEL&P in 2017.
2. System Impact Study: this was completed by AEL&P in 2018 but needs to be updated to reflect current system conditions.
3. JHI began work on the Facility Study with their consultant in 2018 and has yet to complete it (between steps 11 and 12).

AEL&P and JHI have also worked on draft versions of the generator interconnection agreement (step 13).

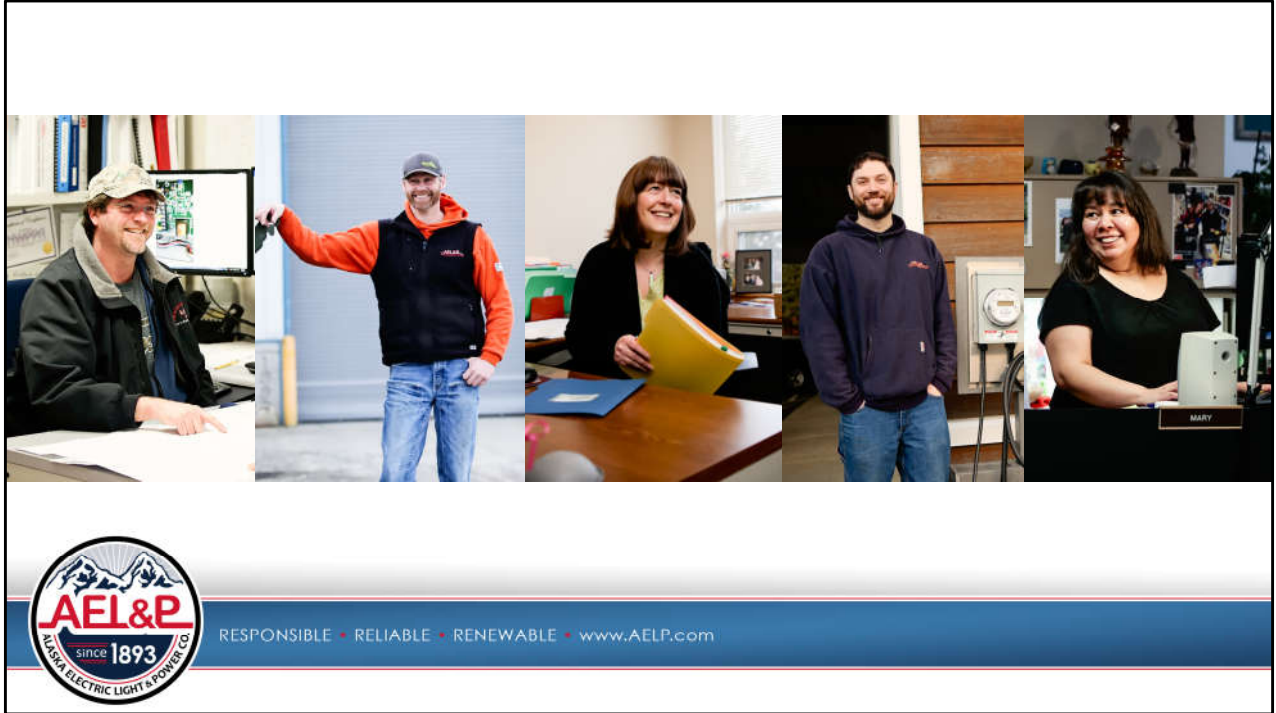
ADDITIONS AND RETIREMENTS



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Every two years, AEL&P files with the Regulatory Commission of Alaska (“RCA”) a list of all significant planned additions or retirements in the next ten years. AEL&P will file this report next in April of 2024. Currently, the only significant planned retirement is the same one we mentioned in 2021 – the retirement of the Gold Creek Diesels.

In addition to the Annex Creek penstock replacement mentioned earlier, AEL&P is also planning to replace the upper Salmon Creek penstock in 2025. AEL&P has filed a letter of intent to apply for a DOE Section 247 grant for the Salmon Creek penstock replacement. The grant application is due in October of this year and, if awarded, will reduce the cost of the project for customers – all benefits of any grant award flow to AEL&P’s customers.



AEL&P is proud to serve Juneau. The company has operated here for 130 years. We encourage everyone to reach out anytime they have questions about anything related to energy or the utility – there are good people at AEL&P who are ready to help.