

1A: Description of GHG Reduction Measure

The ACES - AK Program will accelerate the adoption of heat pumps in Alaska's southern coastal communities to significantly reduce the quantity of oil used for heating, and its associated GHG emissions. Installing heat pumps in 6100 buildings in this region's 50 communities will cost-effectively eliminate 3.3 million gallons of heating oil and 80,000 MTCO₂e through 2030. Longer term, this effort will have a greater cumulative impact by transforming the regional heating market to make heat pumps the default residential heating system.

Air source heat pumps are a proven, but underutilized, heating source in coastal Alaska. Most space heating in the region uses delivered fuels such as diesel heating oil and propane. Calculations for this project show that on average a single-head air source heat pump will displace 547 gallons of oil and 4.5 tons of CO₂e annually for an average residential building.

Shifting from burning oil for heat to electric heat pumps provides not only a highly effective means of reducing emissions, but a range of other economic and social benefits. For most households, the upgrade saves 25-50% on heating bills (\$500 to \$1,500 annually), savings that are of particular significance to households with a high energy burden.¹ Other benefits include improved indoor air quality, reduced risk of oil spills, and the local retention of utility costs. This project will also provide targeted opportunities and resources to Alaska Natives and other disadvantaged and local job seekers and contractors by leveraging relationships with Tribal Governments, local contractors, local utilities, and regional organizations. Over half of program benefits will go to applicants in tribal and disadvantaged communities.

Project Region ([See map: Fig. TA.1](#))

The Gulf of Alaska is defined by the rugged and remote curve of the southern Alaska Coast that stretches from Ketchikan at its southern end to Kodiak Island at its western edge. Scattered along this 1000 mile coast are 50 small towns, many with indigenous roots reaching back more than 10,000 years. Rich with culture and history many of these places lie within the largest remaining intact temperate rainforest on the planet, the Tongass National Forest. This thin strip of rain-soaked mossy forest clings to the continent's edge between the cold waters of the Gulf and the glacier-wrapped mountains of the coast range that stretch along the Alaska-Canada border. Other communities lie in or near the Chugach National Forest and the Kodiak National Wildlife Refuge.

Most communities nestled into this rich landscape are remote and only connected to a road system by ferries. Many are located on islands. They share a relatively moderate climate, fifty to two hundred inches of rainfall annually, and scant sunshine. The population of the region is about 85,500, occupying 38,600 housing units.² Alaska Natives make up a significant proportion of the population which is spread

¹[ACES - AK CJEST census tract spreadsheet](#)

² American Community Survey -U.S census 2020

across tribal lands and communities of the Tlingit, Haida³, Chugach⁴, Eyak⁵, Dena'ina⁶, and Koniag⁷.

The region is characterized by residents' high reliance on marine resources, and by the high value placed on them for subsistence, commerce, recreation and cultural continuity. A majority also share strong interests in protecting the natural environment and concerns about potential oil spills.

A whopping 93% of the communities in the region qualify as fully or partially disadvantaged according to CJEST data⁸. High costs of fuel for transportation and heating create a major economic burden.⁹ Oil heat dominates the region, along with scattered propane or wood heating and significant electric space heating in communities with low-cost hydroelectricity. Half of the housing stock is old and energy inefficient, further exacerbating the reality that heating costs are some of the highest in the nation. In 2023 heating fuel prices across the region ranged from \$4.70/gallon all the way up to \$7.50/gallon.¹⁰

Priming the (Heat) Pump: The ACES - AK Program Approach

The ACES - AK Program, to be implemented by Alaska Heat Smart in partnership with the Southeast Conference and the Alaska Municipal League, will achieve significant GHG reductions by accelerating and incentivizing the installation of air source heat pumps in residential buildings. It is based on the following strategies:

1. Reducing friction. Currently homeowners must navigate a complex web of technical details, incentives, tax credits, and contractors associated with unfamiliar technology. Our goal is to simplify the process and experience of heat pump installations for homeowners, and to provide incentives that significantly reduce the barrier of first cost.
2. Providing consumers with reliable and actionable information about the realities of heat pumps. Long term success of the program depends on happy heat pump owners.
3. Aggregating consumer demand. Work with communities, non-profits, tribes, local governments, utilities, financial institutions and contractors to bundle opportunities to create market leverage, reduce project prices, and transform heating system markets.
4. Coordinating affordable financing solutions. Built on previous experience and existing relationships with regional community development financial institutions, the program will establish transparent, fair, and affordable financing solutions to make loans easier to obtain.
5. Supporting a more equitable and sustainable future by reducing heating costs, improving air quality in homes, and coordinating development of the workforce, local businesses and jobs that provide direct benefits to Alaska Native and disadvantaged communities and households.
6. Creating a wide range of partnerships. Leveraging the experience of AHS, SEC and AML in

³ <https://www.ccthita.org/about/history/>

⁴ <https://www.chugachmiut.org/about-us/about-chugachmiut/>

⁵ <https://www.eyak-nsn.gov/>

⁶ <https://www.ciri.com/our-corporation/ciri-lands/cook-inlet-region-villages/>

⁷ <https://www.koniag.com/about-us/>

⁸ [ACES - AK CJEST census tract spreadsheet](#)

⁹ <https://live.laborstats.alaska.gov/trends-articles/2023/07/the-cost-of-living-in-alaska> p.9

¹⁰ <https://live.laborstats.alaska.gov/trends-articles/2023/07/the-cost-of-living-in-alaska> p.14

working with a diversity of other organizations to attract additional resources to the effort to decarbonize even more Alaska homes over the long term.

Alaska Heat Smart's (AHS) experience in assisting over 1000 homeowners demonstrates that a 'concierge service', with comprehensive education and advice, combined with a diverse slate of financial incentives, can work together to successfully shift significant numbers of homes from heating oil to heat pumps. Educational efforts will lay a foundation of understanding beneath the financial incentives provided by the ACES - AK Program that will accelerate heat pump uptake substantially.

Relationship to Alaska's PCAP

The [Alaska Priority Climate Action Plan](#) (PCAP) identifies residential energy use as contributing 7% of statewide GHG emissions, and specifically identifies beneficial electrification in coastal Alaska, including heat pumps, as a priority GHG reduction measure.¹¹ Acceleration of heat pump adoption was selected as a priority measure for the ACES - AK Program because of its easily quantifiable GHG reduction benefits, cost-effectiveness, direct cost-savings, positive benefits for economically disadvantaged households, and associated improvements in indoor health, air quality, and moisture mitigation.

This approach builds on the experience of AHS' existing programs in Juneau and Sitka, adding incentives, expanding programs to reach additional households in these and other communities, and extending the program's educational and financial benefits to communities across the broader Gulf of Alaska region.

Major Features, Tasks, and Milestones

The ACES - AK Program is designed to address the major barriers to heat pump adoption in the region: lack of familiarity with the technology and the need for homeowner/consumer education; high upfront equipment and installation costs; uncertainty about benefits and costs; poor understanding of heat pump integration with existing legacy home heating systems; and lack of contractor capacity. **Please see Section 3 for a detailed description of the ACES - AK Program features, tasks, and milestones.**

Major Assumptions and Risks

Levels Of Program Uptake And Heat Pump Installations

The program's calculations of GHG reductions are based on the assumption that it can significantly accelerate heat pump adoption in the region. This is based largely on Alaska Heat Smart's experience with the grant and foundation funded assessment, incentive, and home retrofit programs it currently leads, combined with assumptions about the effect of significant financial incentives from the experience of programs such as those of Efficiency Maine, which addresses conditions of high levels of oil heating in rural areas similar to those in the ACES - AK Program region.¹²

A major risk is whether the program can achieve its projected level of heat pump uptake; specific assumptions, risks, and program design features related to this question are addressed below.

¹¹ State of Alaska Priority Sustainable Energy Action Plan p. 25

¹²<https://www.efficiencymaine.com/efficiency-maines-residential-heat-pump-initiative-is-labeled-groundbreaking>

Costs Of Heat Pumps And Heat Pump Installations

Program success depends on overcoming the hurdle of high upfront costs for homeowners, which is why significant incentives are critical. Costs for heat pump equipment and installations have risen steadily in recent years and are higher in the project region than other parts of the country due to transportation shipping, and higher costs for goods and services in general. This inflation is assumed to continue over the project period. By increasing local demand and making the job of heat pump installation a more reliable source of contractor income, the project will contribute to increased scale of operations and efficiencies that may help moderate price increases.

Relative Costs Of Oil And Electricity

In addition to the initial equipment costs, the relative costs of oil, natural gas, and electricity play a key role in homeowner's perceptions of the attractiveness of heat pumps and their willingness to shift to them. Rates of heat pump adoption will be highest in communities with low-cost electricity and high cost alternative fuels. AHS observed this directly when rising oil prices in 2022-23 resulted in greatly increased demand for advisory services and heat pump installations in Juneau.

High levels of rainfall and mountainous terrain provide opportunities for hydroelectric generation and about half of the homes obtain electricity from this clean and typically low-cost source. Some communities have legacy hydro projects that provide low-cost power, while others are paying off newer hydro projects and will benefit from growth in demand. Still other communities rely on either a mix of hydro and diesel generation, or on diesel or natural gas-powered generation.

Increasing electrification of winter heating loads could outstrip local generation capacity in small communities and result in higher electric rates. Several analyses related to these issues have been conducted in SE communities.^{13 14} Many small utilities will welcome increased demand to help pay for the fixed costs of new hydro projects, or to compensate for declining electrical demand due to shifts in local industry, as in the recent case of the closure of a major seafood processor on Kodiak Island.¹⁵

The ACES - AK Program advisory committee will include representatives of local utilities who can advise the project on these topics and help head off conflicts. Most of the potentially negative situations are in smaller communities where the small number of heat pump installations to be incentivized will not pose problems for meeting the program's GHG reduction goals or have adverse impacts on community grids.

Availability and Capacity of Heat Pump Installers

As described in Section 3C, some communities in the project region are home to experienced and qualified installers. Others lack them. The presence of workforce will result in differences in the pace and scale of uptake of heat pump incentives and of heat pump installations across the region. One way to address the risk of lack of needed installers and electricians will be developing Thermalize campaigns¹⁶

¹³ https://www.uaf.edu/acep/files/projects/Kake_HeatPumpRate_Analysis.pdf

¹⁴ http://cchrc.org/media/ASHP_SE_Report.pdf

¹⁵ [kmxt.org/2024/02/lower-energy-sales-partially-responsible-for-kodiak-electric-associations-impending-rate-increase/](https://www.kmxt.org/2024/02/lower-energy-sales-partially-responsible-for-kodiak-electric-associations-impending-rate-increase/)

¹⁶ <https://storymaps.arcgis.com/collections/3d626f877dac4505ae88694469a1f905>

that organize a batch of installations at one time to make it economically feasible to bring an installer to the community. Growing demand over time will allow development of a workforce. In some cases the project will coordinate with the Tlingit Haida Regional Housing Association, which has experienced weatherization and heat pump crews.

Ability To Provide Advisory Services In Project Communities

In addition to financial incentives, a major driver of success in the program will be AHS' concierge approach. This personalized home energy assessment and educational approach provides house specific information to homeowners about key considerations in heat pump adoption, including expected changes in oil use, electricity requirements, and costs, as well as operational benefits and limitations.

AHS has proven the value of its home energy assessment service in Juneau and Sitka in more than 1000 homes. We expect to be able to provide a similar level of service in other larger communities. Our experience in applying services in smaller, more remote communities is less extensive. However, AHS has successfully worked and installed heat pumps for Alaska Native applicants in Juneau, Sitka and Angoon. AHS also has staff who have worked with remote communities in other contexts across Alaska. Southeast Conference staff have extensive experience in a diversity of communities throughout the region which will be of aid, as will the program advisory committee.

The costs and logistics of providing in-person home assessments in smaller and more remote communities will be considerably greater than providing them in more populous places. AHS is developing a remote home assessment software process, drawing from the best practices of these types of programs around the country, and from its own experience during the pandemic, to develop a video-telephony based version of its successful assessment program. This will broaden the reach of AHS services to people who may not want in-home consultations, as well as allowing more cost effective delivery of services in communities without on-the-ground AHS staff.

Organizational Capacity

Southeast Conference (SEC) will be responsible for providing administrative and fiscal oversight. SEC has decades of experience in administering a wide range of state and federal grants. It has numerous experienced key staff and an engaged and diverse 13-member board of directors. Additionally, SEC is the process of hiring a new energy coordinator position that will assist with the ACES - AK Program

Alaska Heat Smart, as sub awardee, will implement and operate the ACES - AK Program. It will significantly expand in order to carry out the program, doubling its staff. AHS has an active nine-member board of directors, which over the past year has recognized the need and opportunity to grow the program and has prepared for growth by formalizing and updating policies, procedures and fiscal controls and establishing a new program development committee.

The project will depend on a competent set of key employees. Without good people in the right places the project will experience delays. For five years, AHS has been successful in finding and keeping committed and talented staff. It has also developed relationships with a wide range of individuals and

organizations involved in energy, housing affordability, and economic development throughout the region that will help facilitate the program, as well as help find needed employees and other partners. The organization's flexibility and the good work it is engaged in are expected to give it an edge in attracting new employees to implement the ACES - AK Program.

Section 1B: Demonstration of Funding Need

Economic Need

The coastline of Alaska is one of the most beautiful, wild, and rugged regions of the North American continent. Along with these positive natural attributes is the reality that coastal Alaska communities face a range of unmet economic needs. These include inadequate infrastructure, access to capital, limited workforce and ability to retain a workforce, climate resilience, access to healthcare, cultural preservation, affordable housing, and greater investment in renewable sources of energy.

Addressing these unmet needs requires a comprehensive approach that involves collaboration among government agencies, private sector stakeholders, non-profit organizations, and local communities. By investing in infrastructure, promoting economic diversification, supporting workforce development, and addressing social and environmental challenges, the ACES - AK Program can help to create more resilient and sustainable coastal Alaska communities and meet many of these challenges.

The depth of the region's urgent housing and energy needs are abundantly documented. Housing plans, economic development reports, and regional energy analyses have identified a high unmet need for improvements in energy efficiency in buildings and for reducing the cost of space heating.¹⁷ A few unfortunate highlights include:

- Regional community energy costs are 1.8 - 2.2 times the national average or greater.
- Many households experience very high energy burdens. 25% of the AK population is very cost burdened, with >35% of household income directed at home expenses, including energy.
- An estimated 10 percent of occupied homes are rated 1-star for efficiency.
- SEC's 2021 economic analysis determined that 4 out of 6 'weaknesses' relate directly to cost of living, housing, and energy¹⁸.
- Roughly 50 percent of housing stock in the region was built before 1980.
- Over 40% of homes are at risk of poor indoor air quality due to inadequate ventilation, resulting in the prevalence of excess moisture, mold, and mildew.

Most communities in the project region have no energy efficiency or heat pump programs, there are relatively limited financial resources available to invest in promoting and incentivizing energy efficiency, and no region wide or statewide programs exist to address these diverse needs.

¹⁷ Kodiak-Island-Borough-Housing-Needs-Assessment-Final.pdf; SE Conference-CEDS-2025.pdf; Southeast-Regional-Tribal-Housing-Survey-Analysis.pdf; JEDC_Juneau_Housing_Needs_Assessment.pdf; https://www.ahfc.us/download_file/view/5123/853; <https://cchrc.org/media/HA-Housing-Assessment-TLINGIT-HAIDA.pdf>

¹⁸ <https://www.seconference.org/wp-content/uploads/2021/05/Final-CEDS-2025.pdf?399dc1&399dc1>

Current Funding Available and Reach

Federal, state, local, and private funding opportunities come and go on. Funding streams are volatile and fluctuate with the political climate. Currently, federal opportunities abound, while Alaska state support is limited. Local funding is scant and often inadequate to move the needle of need in any significant way. Private funding is elusive and hard to locate, and requires extensive time and energy to obtain. Funding related to heat pump acceleration that is currently available includes:

- IRA 25C tax credits - region wide / post upgrade / for those with tax liabilities
- HUD Healthy Homes Programs - lower income retrofits, limited reach through 2025
- Alaska Senator Lisa Murkowski-initiated 'Congressionally-Directed Spending' grant - heat pump incentives in Juneau and Sitka through late 2025
- IRA HOMES/HEERA Rebate Programs - '24 or '25 statewide rollout / limited reach / ten year funding spread. While a rollout strategy is unclear, if funds are distributed on a per/capita basis, the ACES - AK Program region would see about 435 \$12K rebates (312 in SE, 125 in PWS, Homer, Seward, and Kodiak) reaching 1.5% of the region's population over 10 years.
- DOE Tribal Electrification Rebate Program - formula-funded electrification rebate program available to Alaska tribes or tribal corporations. Limited administrative capacity for many tribes makes it difficult to apply for this funding. Potentially very limited uptake.
- AK Carbon Reduction Fund¹⁹ - limited and voluntarily-raised private capital to finance lower income heat pump installations in Juneau, Sitka, and Ketchikan (\$500K raised since 2019)
- Utility Rebate Programs: AK Power and Telephone heat pump rebate (\$500); Sealaska Corporation heat pump rebate (\$500); Homer Electric homeowner and installer rebates (\$500/\$500); Kodiak electrification rebates (\$2,000 off 2 years of electric bills)
- RuralCAP - AK nonprofit serving lower income Alaskans with advocacy, education, affordable housing, weatherization. Funding erratic, very limited presence in coastal Alaska communities. The majority of RuralCAP housing work has addressed weatherization vs home heating.
- Low-interest traditional financing heat pump loan programs developed by AHS in partnership with regional credit unions.²⁰

Fulfilling Unmet Financial Need with the ACES-AK Program / CPRG Funding

The approximate cost to add heat pump heating to all of the 22,400 homes in the ACES - AK Program region, assuming \$8,500 for a 1-head 15K air source heat pump, with electrical work, is \$190,400,000. Current available funding, important for building a foundation of awareness and familiarity with heat pumps and energy efficiency, barely scratches the surface of this impressive need.

The ACES - AK Program addresses this significant unmet need in two ways. First, its information, advice, and substantial financial incentives directly encourage and enable a wide range of households to install heat pumps. Targeted incentives will deliver the largest financial boost (\$8,500) to those most burdened

¹⁹ akcarbonreduction.org

²⁰ <https://www.tongassfcu.com/personal/loans/mortgages/heat-pump-loans/>
<https://www.truenorthfcu.org/borrow/personal/heat-pump-loan-program;>

by home heating costs, with a \$6,000 incentive helping many to clear the high upfront costs of heating upgrades. The smallest incentive, \$4,000, will be available to a larger percentage of households and will not be income limited.

Secondly, it will increase the value of the related programs listed in the section above by serving as a 'one-stop-shop' for consumer information as well as by catalyzing coordination between limited local utility rebates, AHS's existing programs, and the upcoming IRA rebate programs. These are each important but inadequate to make transformational change. The ACES -AK Program will help leverage these efforts as well as coordinate with existing and proposed weatherization and whole-house efficiency programs.

Most local and regional government bodies have energy-related goals and strong interests in energy efficiency programs, but limited resources. SEC's 2025 Comprehensive Economic Development Strategy²¹ identifies beneficial electrification as a top priority for the region. Strong tribal housing associations are active in some regions and are actively involved in improving housing and energy efficiency. THRHA runs federally-funded weatherization programs in their twelve Tribal communities. In other regions, nonprofit RuralCAP provides weatherization services to lower income homes, primarily in non-coastal communities. These programs have been poorly funded in recent years, but new federal funding may revitalize them. The ACES - AK Program will coordinate closely with these various efforts.

Section 1C: Transformative Impact

Over the next five years, acceleration of heat pump adoption spurred by the ACES - AK Program will significantly slash GHG emissions, reduce the cost of living, improve indoor air quality and health, reduce household and community vulnerability to oil price shocks, and reduce the risks of oil spills in sensitive coastal environments, across Alaska's coastline and in the homes of thousands of Alaskan families.

Breaking Down Barriers

This transformative potential of the ACES - AK Program is well demonstrated by Juneau and Sitka's experience with systematic acceleration of heat pump adoption. Over the past five years, AHSt has led the promotion of heat pump adoption in these communities through a diversity of programs designed to overcome the major barriers to heat pump adoption: uncertainty and confusion about 'new' heat pump technology; unknown potential economic benefits; high upfront costs; lack of understanding of integration with legacy home heating systems; and lack of available workforce and installer capacity. With relatively modest levels of program funding and incentives, Juneau has experienced an almost ten-fold increase in the number of heat pumps in the past decade.

Market Transformation

The ACES - AK Program is designed to transform local markets for heat pumps sequentially across the coastal Alaska program region. Initial program roll-out will begin in key hub communities to capitalize on existing industry momentum. This will send an immediate market signal to both community contractors,

²¹ <https://drive.google.com/file/d/1tYQjgULHiszatzSzwD0BywM6EoioXsdX/view?usp=sharing>

unions, and workforce development organizations and provide necessary assurances that investments in training, inventory building, and marketing efforts will be sustainable and long-lasting. Subsequent program efforts will be expanded to adjacent smaller communities having the best economic cases, and finally to those areas with sub-marginal economics and less access to a contractor base or supportive community partners. Over time, we expect market signals and demand realities to boost growth in contractor workforces across the region, as has occurred in Juneau in recent years.

Ripple Effect

Successful GHG reduction measures and acceleration of new technology that differs from entrenched norms often requires change in individual and organizational behavior. Despite its drawbacks, the use of oil for heating has a long and successful history. Decades of oil heating have made homeowners complacent and comfortable with what is now an expensive and dangerous means to an end. Changes to entrenched building practices, such as home heating systems can be particularly challenging.. The concierge services of the ACES - AK Program will help homeowners overcome fears of heating system change. AHS has learned from our successful programs that a strong change agent is the realization of the technology in action. When friends and neighbors implement positive changes for others to see and experience, a ripple effect is created, spurring additional change and in this case, the accelerated adoption of heat pumps. Further emission reductions will result as this new 'behavior' becomes ingrained in societal norms and practices.

Research indicates that the two most effective interventions in pro environmental behaviors are social comparisons and financial incentives.²² The 'Thermalize' ²³ concept will be employed as a motivational tool in communities where educational and awareness needs are greatest. This neighborhood-centric approach , based on 'Solarize' campaigns across the country, proved successful in Alaska's first Thermalize program, led by AHS in Juneau in 2021 and 2022. A winning combination of lower costs, economies of scale, and neighbor-to-neighbor support led to the installation of 75 heat pumps and completion of a dozen home energy retrofits.

Collaborative Partnerships

Accelerating heat pump adoption along Alaska's coast will hinge directly on collaborative efforts across different sectors, amongst varied stakeholders, and across diverse jurisdictions. Partnerships are essential to program success and allow the leveraging of collective experience, networks, resources, influence, and support systems not available within each siloed organization. The ACES - AK Advisory Committee (see Sections 3C,4B) will help facilitate these connections and collaborations.

SEC and AHS will use the advisory committee as a bridge to provide access to key community players. Committee members will be available to project staff and will provide insights, data, and connections that allow staff to hit the ground running in project area communities.

²² <https://www.pnas.org/doi/10.1073/pnas.2214851120>

²³ <https://storymaps.arcgis.com/collections/3d626f877dac4505ae88694469a1f905>

2. Impact of GHG Reduction Measures

2A: Magnitude of GHG Reductions from 2025 through 2030

The ACES-AK Program and resulting increase in heat pumps will result in cumulative reduction of 80,253 MTCO₂e during 2025- 2030. These projected reductions are based on the impacts of installations incentivized by the project as discussed in Section 2D.

These reductions will be highly durable over this period as owners become aware of heat pump reliability and improved comfort and indoor air quality. Their cost savings, minimal maintenance, typical 14-year or greater lifespan, 10-12 year parts warranties, combined with the stability of electric rates compared to volatile oil prices, make them more affordable and predictable than oil. Ongoing support and guidance for program participants regarding heat pump operation and maintenance will provide additional assurance of durability for the equipment and emissions reductions. This will include phone support, reminders on tasks such as filter cleaning, clearing outdoor units of debris and snow, and optimizing heat pump performance during cold weather months.²⁴

2B: Magnitude of GHG Reductions from 2025 through 2050

The ACES-AK Program and resulting increase in heat pump installations will result in cumulative reductions of 633,858.30 MTCO₂e from 2025 through 2050.

These savings are expected to be durable over this period. Most ductless heat pump manufacturers project up to a 15-year life for their equipment, with some stretching this to twenty years. The five year project period will give homeowners familiarity with equipment and its operation as described in section 2A. Their experience of heat pump advantages, including lowered heating costs and improved air quality and comfort, will lead to continued use of heat pumps. When current heating equipment needs to be replaced, most homeowners will purchase a newer heat pump which is likely to be more efficient due to technological advances.²⁵ Increased heat pump adoption is also expected to lead to growth of the heat pump contractor workforce, making it easier to have equipment installed, repaired, or replaced.

GHG savings are also likely to grow through 2050 as the comparative advantage of stable electricity rates over volatile oil prices continues.²⁶ Many communities in the region are working to replace electrical generation from oil with renewable sources. Several small hydroelectric projects are expected to come online within the region during this period, for example the community of Angoon recently received funding for the Thayer Creek hydro project.²⁷ In some places increased demand for electricity from increasing numbers of heat pumps will contribute to stability in electricity rates and help cover a greater proportion of the fixed cost of developing renewable sources .

²⁴ <https://akheatsmart.org/heat-pumps/using-heat-pumps-in-cold-climates/>

²⁵ <https://www.energy.gov/articles/doe-announces-leading-heat-pump-manufacturers-successfully-develop-next-generation>
AND <https://www.rewiringamerica.org/historic-action-to-boost-domestic-production>

²⁶ https://rooseveltinstitute.org/wp-content/uploads/2022/05/RI_EnergyPriceStability_IssueBrief_202205.pdf

²⁷ <https://www.ktoo.org/2024/03/04/40-years-in-the-making-angoon-hydroelectric-project-wins-27m-in-federal-funding/>

Additional GHG emissions reductions through 2050 are expected as program participants add additional heat pumps to heat the whole home. The program's calculations for fuel and GHG emission reductions are based on a single-head ductless heat pump that displaces the majority of oil heating in homes. As remaining legacy oil heating systems reach their end of life, heat pump owning homeowners are likely to replace that capacity with heat pumps. All of these factors support durable GHG reductions with the potential to exceed the calculated estimates through 2050.

2C: Cost Effectiveness of GHG Reductions

The ACES-AK program expects to reduce GHG emissions by 80,253 CO₂e over the period 2025-2030 if awarded \$38,646,543.43 through the CPRG implementation grant, resulting in \$481.56 per MTCO₂e.

Factors Affecting Cost Effectiveness of the ACES - AK Program

For the majority of homes in Alaska's coastal regions, ductless heat pumps are more cost effective than other heating systems. They provide substantial energy savings, improve comfort and indoor air quality, and reduce moisture problems. When homeowners understand these advantages and are aware of available financial incentives to help reduce upfront costs, they are inclined to seek incentives, pay for a significant share of the heat pump, or seek low-interest traditional financing options.

The cost-effectiveness of the program measure is enhanced by the fact that homeowners pay for a significant portion of it, since incentives for many program applicants will only cover a portion of the total cost of equipment and installation. Additionally, though not included in calculations of direct benefits of the CPRG funding, the project will lead to increased familiarity with heat pump benefits and increases in contractor capacity that will accelerate market transformation.

The relationship between the price of oil and the price of electricity is an important determinant of the cost-effectiveness of a heat pump for a given household. This relationship varies across the project region due to the varied electrical generation sources, with hydropower providing the lowest rates.

Coastal Alaska communities experience high costs for heat pump installations in part due to higher transportation costs and limited workforce competition. These issues are exacerbated for smaller, remote communities. Most communities in the region have no highway access and depend on marine and air transportation. Shipping costs for a heat pump from the lower 48 states can add \$400 to unit prices. When possible, this program will work to minimize shipping costs through bulk purchasing via a Thermalize model. It is important to note that the same factors of isolation and high transportation costs that increase equipment costs also result in high prices for heating oil delivery..

Along with the rest of the U.S., the ACES - AK Program region has recently experienced significant increases in costs for heat pump equipment and installations. If this inflation continues it may adversely impact the program's cost-effectiveness. However, the increasing scale of heat pump manufacturing due to national momentum, combined with increasing levels of heat pump adoption in the project region, should lead to stabilization of costs for heat pump installations over the project period as more equipment options become available, local installers gain experience, and competition increases.

2D: Documentation of GHG Reduction Assumptions

Methods Used to Calculate GHG Reductions

Levels of GHG emissions reduction resulting from substituting heat pumps for oil heat were calculated using a web-based Alaska specific heat pump calculator.²⁸ An 'average' house was characterized for each community and inputs brought to the calculator for attributes like existing heating source, square footage, configuration, and insulation level. The calculator provides a wide range of default inputs for each community, including HDD's, electrical generation mix, oil costs and electric rates.

As described in the Technical Appendix, runs of the calculator were made for each targeted community to identify projected reductions in oil use, projected increases in electricity use, and calculated changes in heating cost and GHG emissions. These values were imported into a spreadsheet to calculate potential fuel savings and GHG reductions for the 'average' house in each community and subregion. For purposes of program design, communities were aggregated into eight subregions based on census tract areas. Each subregion includes at least one 'hub' community that can serve as a base for cost-effectively administering the program and providing access to available workforce.

A set of program conditions was designed to support and incentivize heat pump adoption, drawing from: AHS' experience in developing and administering heat pump programs; regional data on energy costs and economics; the experience of similar programs in other states; and interviews with energy experts and community representatives. The resulting program design combines AHS' concierge service with a range of incentives to reach a wide spectrum of potential heat pump buyers. (See Tech Appdx: TA.1).

The program subregions provided the basis for allocating incentives and calculating the program's resulting average fuel and GHG reductions. Incentives and program costs were allocated among the project's eight subregions proportionally to the number of homes currently heated by oil in each. This distribution results in the projected levels of reductions in oil use and GHG emissions. The levels of heat pump adoption and GHG reductions resulting from the ACES - AK Program, above and beyond the BAU, were identified and incorporated into the conclusions in Sections 2.1 and 2.2. **For more details about these methods and assumptions see the attached Technical Appendix.**

Section 3: Environmental Results – Outputs, Outcomes, and Performance Measures

3A: Expected Outcomes and Outputs and 3B: Performance Measures and Plan

The expected outcomes and outputs for the ACES-AK program include the environmental, economic and social benefits summarized in Table 3.1. Performance measures for the ACES - AK Program are also listed in Table 3.1. These will be tracked, measured, and reported throughout the duration of the program.

Accounting for reductions in heating oil use over time will rely on multiple data points. Three years of oil purchase history feed into the assessment calculator. Annual post install follow up outreach will seek to determine any subsequent need for oil. Data from hundreds of AHS post-install 're-assessments' indicate that the addition of a single head heat pump results in an annual elimination of 547 gallons.

²⁸ <https://heatpump.analysisnorth.com/>

At a broader level, the ACES - AK Program will participate in a coordinated statewide tracking and reporting system for Alaska CPRG programs led by partner and program subawardee Alaska Municipal League (AML). Coordinated with state agencies, this system will include timelines for reporting and a methodology consistent with the state's GHG emissions inventory. This will ensure a platform for long-term accountability and progress, including an online portal and publicly available dashboard. Reporting will be based on ACES - AK Program outputs and outcomes.

Section 3C: Authorities, Implementation Timeline, and Milestones

Southeast Conference (SEC): Grantee SEC²⁹ will be the overseeing administrator of the ACES - AK Program. SEC will be the lead body responsible for all required federal grant reporting, will oversee program financial management, and ensure compliance with all federal, state, and local regulations

Table 3.1 Summary of Outcomes, Outputs and Performance Measures

Outcomes	Outputs	Performance Measures
Reduction of 80,253 cumulative metric tons of GHG emissions from 2025 through 2030	# Heat pumps installations incentivized	# heat pumps installed in oil heated houses through 2030 / # gals displaced
Reduction of 633,858.30 cumulative metric tons of GHG emissions from 2025 through 2050	# Consumer info and education contacts to ensure ongoing heat pump use # heat pumps in continuing use (% of installed) # long-term contractor businesses	heat pumps in continuing operation Annual community heating oil use Available contractor
Reduction in heating costs, including benefits to low income households and disadvantaged communities.	#Heat pumps installations incentivized, by income levels and disadvantaged classification.	\$/year heating cost savings = (# of gals oil avoided with heat pump installation X \$/gal) - \$ increase in electric bill.
High level of satisfaction with heat pumps	Pre-installation consumer info/ed. Consumer experience.	<ul style="list-style-type: none"> • Reduction in oil used, handled, stored • Energy cost savings \$/yr • Ease of use/maintenance • Quantity quality of contacts

²⁹ <https://www.seconference.org/>

E.P.A. Climate Pollution Reduction Grant Southeast Conference | Juneau, Alaska
Accelerating Clean Energy Savings Across Alaska's Coastal Communities (ACES - AK)

Outcomes	Outputs	Performance Measures
Increased # of jobs/employment	# Heat pump installations incentivized. # Workforce trained	# of heat pump installation jobs/employment
Increased money circulating in community		Average \$/year in energy cost savings X # households with installed heat pumps

including, but not limited to, the National Environmental Policy Act, the State of Alaska Historical Preservation Office, the Internal Revenue Service, the State of Alaska Department of Labor, and the Alaska State Division of Commerce and Economic Development. SEC will be responsible for all necessary permits, insurance, and licensing and certifications required to carry out the ACES - AK Program.

Alaska Heat Smart (AHS): AHS³⁰ will be the agent responsible for implementing and operating the ACES - AK Program. AHS will hire, train, and supervise program staff, will oversee the development of mission-critical remote-assessment software, will develop and coordinate community-centric 'Thermalize-style' campaigns, and will administer incentive programs with applicants and contractors. For detailed information, please refer to the AHS subaward section in the budget justification document.

Alaska Municipal League (AML): SEC will collaborate with the AML³¹, a statewide nonprofit dedicated to strengthening local governments, and meeting the needs of state agencies and Tribes to ensure that Alaska can make the most of federal infrastructure investments, including through CPRG investments. AML will continue to convene and facilitate information sharing, and work with partners to help deliver community benefits and overcome barriers to implementation. AML will assist with project tracking and progress measurement, workforce development initiatives, and subawardee support.

Software Developer TBD: AHS is examining options for leasing and modifying an existing software package or developing a new software tool for the ACES - AK Program remote home energy assessment process. This will complement AHS's in-home assessment and increase program flexibility and cost-effectiveness in remote coastal communities lacking roads and with high travel costs.

Community Survey and Outreach Specialist TBD: In order to accurately assess the current state of beneficial electrification across the region, and to establish a baseline from which to gauge program success, a comprehensive survey of the region will be contracted and conducted.

The ACES - AK Advisory Committee will be instrumental in implementing the ACES - AK mission of rapid

³⁰ <https://akheatsmart.org>

³¹ <https://www.akml.org>

regional heat pump adoption. Members of the committee will advise on local program implementation and act as community points of contact, offering direct lines of communication to and knowledge about the individual personalities, needs, resources, and histories of coastal communities. Attached letters of commitment and support reflect the diverse interest in and support for this critical communications tool.

Workforce: A competent workforce is essential to the success of the ACES - AK Program. Larger coastal communities are home to a diversity of contractors. Smaller communities may be home to a single HVAC contractor or a lone electrician or plumber. When possible, the ACES - AK Program will partner with the Tlingit Haida Regional Housing Authority (THRHA) and utilize their trained crew of mobile and contractors. Additionally, the ACES - AK Program will work with the IBEW, AVTECH, and the University of Alaska to promote education, training, and apprenticeship opportunities.

Work Plan and Timeline

The ACES - AK Program will have five 1-year budget periods, in addition to a six-month pre-award negotiation period where pre-award costs will be incurred and documented for reimbursement. We anticipate 2025 to focus on team building, program design, community outreach, and initial implementation. 2026 through 2029 will see full program implementation.

Budget Period 0: Pre-Award Negotiations / Project Planning

Project staff will participate in award negotiation activities, meetings, preparation of award documents, development of application materials, and initial research into remote home energy assessment tools.

Task 0.1: EPA preliminary award meetings / trainings

Task Summary: SEC and AHS will attend all required NEPA, SHPO, BABA, other trainings as required.

Task 0.2: Finalize all grant award documents.

Task Summary: Work with EPA to finalize grant award documents and complete grant negotiations.

Task 0.3: Preliminary research into remote home assessment software tool

Task Summary: Research programmatic options for the development of a customized home energy assessment tool to eliminate the need to hire large numbers of on-site energy assessors.

Task 0.4: Coordinate with advisory committee on income verification requirement and processes

Task Summary: SEC and AHS staff will determine which state or federal lower income programs could meet the necessary income verification requirements of the ACES - AK Program.

Task 0.5: Coordinate with EPA and grant technical advisors on BABA requirements as they pertain to the ACDS - AK Program.

Task Summary: BABA requirement for the ACES - AK Program underwood and accounted for.

Budget Period 1: Project Initiation, Planning, Design, Budget [M1-M12]

Budget period one will focus on identification of regional program coordinators and SEC-based administrative staff, formalization of the ACES-AK Advisory Committee, work with committee members to assist new ACES-AK staff, and develop homeowner application process and outreach materials.

Task 1.1: Identify regional 'Heat Pump Ambassadors'

Task Summary: Identify and hire four full-time AHS 'heat pump ambassadors', one to serve SE AK, two to serve Juneau, and one to serve the southcentral region.

Milestone: Positions filled

Task 1.2: Research, develop, pilot, and Implement remote home energy assessment software

Task Summary: Analyze existing US remote home energy assessment programs, contract with firm to modify or develop an AK-ready approach, pilot software and Integrate with AHS CMS.

Milestone: Software developed, tested, implemented.

Task 1.3: Conduct broad regional survey to establish beneficial electrification baseline

Task Summary: Contract with Alaska firm for a region-wide survey to 'take the pulse' of the current 'pre-program' state of heat pump adoption and beneficial electrification.

Milestone: Survey performed, report generated, submitted to SEC, AHS, and EPA for review.

Task 1.4: Develop partnerships with regional communities via the ACES-AK Advisory Committee

Task Summary: Formalize the advisory committee and begin community outreach; develop a set of guidelines for program implementation in a customized community by community manner.

Milestone: Advisory committee formalized and advisors identified.

Task 1.5: Develop incentive program process, application materials, and backend CMS.

Task Summary: Create web and print application materials; finalize applicant qualification criteria and verification process; develop robust participant CMS system.

Milestone: Materials developed, verification process complete, CMS system running

Task 1.6: Formalize applicant income verification process and procedures

Task Summary: Determine pathway options for determining income eligibility. Explore the use of lower income assistance program transfers, as well as 1040 AGI, HUD Part 5, etc.

Milestone: Existing programs reviewed and ACES - AK income verification pathways formalized.

Task 1.7: Develop education and outreach plan

Task Summary: Create educational materials and educational engagement plan in order to generate community and regional awareness of program opportunities

Milestone: Materials developed, events planned and drafted

Task 1.8: Outreach and Reporting

Task Summary: SEC and AHS staff will create, as part of the existing AHS web presence, program web pages to be used for recruiting, tracking program progress, material distribution,

community benefit material sharing, and homeowner educational resources for homeowners

Milestone: ACES - AK Program website launched.

Task 1.9: Submit necessary reporting to EPA

Task Summary: Receive data and updated progress reports on project development from staff and advisory committee members for required programmatic reports / deliverables

Milestone: Reports and/or deliverables completed and submitted to EPA for review.

Task 1.10: Expand existing credit union low interest heat pump loan programs

Task Summary: Work with Tongass and True North Federal Credit Unions to expand their existing AHS heat pump loan programs to other communities across the region.

Milestone: Low-interest heat pump loans available at credit unions across the region.

Budget Period 2: High GHG Reduction Rollout / Educational Program Development [M13-M24]

Budget period two will focus on program start up in subregion communities.

Task 2.1: Community / homeowner education and awareness development

Task Summary: Disseminate program educational materials, hold information sessions and workshops, and partner with community organizations to generate program awareness

Milestone: Educational outreach performed.

Task 2.2: Vet workforce and secure contractor agreements; prep contractors for lower income direct assistance process

Task Summary: Meet with contractors to ensure understanding of the program; gather W9, insurance, certifications, licenses; detail direct assistance process for lower income applicants

Milestone: Documentation and agreements secured for qualified contractors

Task 2.3: Open homeowner recruitment/application process

Task Summary: Make program applications available both online and in hard copy form. Perform income eligibility analysis of applicants

Milestone: Application live and income verification process activated.

Task 2.4: Conduct homeowner energy assessments for qualified applicants

Task Summary: Employ remote assessment process for vetting qualified applicant homes

Milestone: Assessments conducted and homeowner reports delivered.

Task 2.5: Assist homeowners with contracting work and applying incentive payments

Task Summary: Work with homeowners to locate contractors, assess quotes, and process incentives. Work with lower income applicants to secure contractors and move projects forward.

Milestone: Applicant or AHS secures contractor / electrification incentive payment to contractor.

Task 2.6: Homeowner follow up and data collection

Task Summary: Homeowner follow up and data collection (survey) for those projects completed

at least six months prior. Information may include: current fuel use; change in electrical costs; changes in home comfort; issues or problems with equipment; satisfaction with program; satisfaction with contractors

Milestone: Survey developed and distributed; results submitted to EPA for review.

Task 2.7: Submit necessary reporting to EPA

Task Summary: Receive data and updated progress reports on project implementation from staff and advisory committee members for required programmatic reports / deliverables

Milestone: Reports and/or deliverables completed and submitted to EPA for review.

Budget Period 3: Smaller Community Rollout / Customized Outreach and Education Approaches [M25-M36] Budget period three will focus on program rollout in smaller communities.

Task 3.1: Continue community / homeowner education and awareness development

Task Summary: Disseminate program educational materials and hold information sessions and workshops to bring program awareness to community members

Milestone: Educational outreach performed and ongoing.

Task 3.2: Develop Thermalize-style group purchase campaigns

Task Summary: Coordinate with contractors to develop cost-effective and efficient heat pump adoption and installation campaigns, aka Thermalize.

Milestone: Campaign organized and homeowners education begun.

Task 3.3: Open homeowner recruitment/application process

Task Summary: Make program applications available both online and in hard copy form. Perform income eligibility analysis of applicants

Milestone: Application live and income verification process activated.

Task 3.4: Conduct homeowner energy assessments for qualified applicants

Task Summary: Employ remote assessment process for vetting qualified applicant homes and making informed decisions about homeowner beneficial electrification options.

Milestone: Assessments conducted and homeowner reports delivered.

Task 3.5: Assist homeowners with contracting work via a Thermalize campaign; apply incentives

Task Summary: Assist homeowners in moving through the steps of a Thermalize campaign, from application to home assessment, to scope of work, to installation.

Milestone: Program running and installation work underway.

Budget Period 4: Budget period four will see the continued operations of BP2 and BP3. Homeowner follow up and data collection (surveys) will begin for those projects completed at least six months prior and those now older than one year. [M37-M48]

Budget Period 5: Budget period five will focus on program wrapup, documentation of program benefits, challenges, successes, and shortfalls. [M49-M60]

Task 5.1: Continue incentive program operations until funds exhausted

Task Summary: Continue work to employ remote assessments for applicant homes, complete community campaigns, complete any direct installation projects, issue final incentive payments.

Milestone: Assessments conducted, homeowner reports delivered, projects incentivized.

Task 5.2: Conduct final data collection and monitoring of program results

Task Summary: Conduct final community assessments and/or surveys of homeowner utility data, participation satisfaction, and advisory committee perceptions of program performance

Milestone: Data collection completed and results prepared for distribution.

Task 5.3: Communicate program results to advisors, participants, communities, and agencies.

Task Summary: Update interested parties with final results, lessons learned, and resources to be utilized by others looking to conduct similar building electrification work

Milestone: Share documentation of program results, including resources and lessons learned

Section 4: Low-Income and Disadvantaged Communities

Alaska's southern coastal region has been inhabited by the Tlingit and Haida, Chugach, Dena'ina, and Koniag peoples "since time immemorial."³² The eight subregions that comprise the ACES - AK Program region range from 10% Native to upwards of 90% Native. A full 62% of the 67 census tracts in the program area are classified as disadvantaged and an additional 31% as partially disadvantaged. The CEJST disadvantaged status was adjusted from the bulk version to reflect the presence of federally-recognized tribes in a community where it was not captured in the original file given CEJST's intent for these tribal communities to be included in their definition of disadvantaged. For communities where there are tribal governments and >50% of the population is Alaska Native, [our list](#) presumes full disadvantaged status; for communities where there are tribal governments and <50% of the population is Alaska Native, [our list](#) presumes partial disadvantaged status.

The ACES-AK Program embraces the aspirations and goals of the Justice 40 priorities identified by the [White House Environmental Justice Advisory Council](#) (WHEJAC), and the Office of Energy Justice and Equity's policy priorities to guide implementation of Justice40 in disadvantaged communities. Program team members will keep these priorities front and center through all phases of program implementation: decrease energy burden; decrease environmental exposure; increase parity in clean energy technology access and adoption; increase access to low-cost capital; increase clean energy enterprise creation and contracting; increase clean energy jobs, job pipeline, and job training for individuals; increase energy resiliency; and increase energy democracy.

³² <https://www.ccthita.org/about/history/>

Life along this remote and wild coast is two-edged - the abundance of rugged beauty and rich natural resources, while sustaining the land's original inhabitants for thousands of years, contrasts with some of the nation's highest costs of living. Electrical rates are often higher than national averages and delivered fuel costs even higher. Many utilities have excess power and are supportive of increased electrification. Shifting homeowner utility expenditures from delivered fuels to regionally-generated electricity keeps revenues 'in town' and places greater demand on the islanded grids. The effects of such a shift can:

- Increase resilience to climate change by reducing community dependence on delivered fuels;
- Improve homeowner and public health from reductions in heating oil emissions;
- Create high-quality jobs and workforce training opportunities in low-income and disadvantaged communities, emphasizing opportunities for individuals facing barriers to employment;
- Decrease energy costs and improve energy resilience; and
- Improved housing quality, comfort, and safety.

The fishing community of Kodiak offers a good example of the benefits of beneficial electrification to local communities. Kodiak was recently dealt an economic blow with the closure of the Trident Seafoods fish processing plant. The city faces a 12.5% increase in electrical costs from this closure due to the loss of power sales. While this compounds the cost-effectiveness of heat pump adoption, increasing electrical demand from switching heating to electric can rebalance the city's electrical rates.³³ Kodiak is eager to increase power sales through increased electrification of space heating.

Section 4A: Community Benefits

The direct benefits to homeowners of heating with heat pumps are numerous. In addition to slashing GHG and other emissions, monetary savings are generally significant unless the electrical generation mix is primarily diesel. According to our heat pump calculator data runs, homes in 44 of the 50 communities lying within the ACES - AK Program region will save annually on heating bills by adding a heat pump to their home's heating mix. 39 of the 50 stand to save over \$500 annually, and 16 of the 50 more than \$1,000 each year. Please see [our data](#) on annual savings and net present value.

Heat pumps directly improve indoor and outdoor air quality³⁴ by reducing or eliminating fuel combustion, providing air filtration and removal of fine suspended particulates, and lower indoor humidity which inhibits the proliferation of mold and mildew. Indirectly, heat pumps eliminate noxious fuel odors, the risk of fuel spills and theft, and eliminate the possibility of fire and accidental burns.

Resiliency

A new ACEEE report³⁵ finds that although there are many resiliency benefits from energy efficiency retrofits and heat pumps, they are undervalued or often missing from program cost-benefit evaluations. Heat pumps and use of locally-generated electricity can reduce vulnerability to spikes in

³³<https://kmxt.org/2024/02/lower-energy-sales-to-fish-processors-partially-responsible-for-kodiak-electric-associations-impending-rate-increase/>

³⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2658826/> BMJ 2008;337:a1411

³⁵ <https://www.aceee.org/research-report/b2402>

heating oil prices and supply interruptions, both important considerations in a region where a significant percentage of homes are heated by delivered fuels. In the case of coastal Alaska, such deliveries are often by ocean-going barge. Cost savings from heat pump adoption, and reduction in vulnerability to oil price shocks, will be increasingly important and help increase resilience by offsetting the 3.2% annual inflation in food prices projected to result from climate change.³⁶

Workforce Development

Workforce development needs to be an underpinning of any decarbonization effort. While workforce growth can be stimulated by an increase in market demand, such a process can be slow and lacking in assurances to prospective laborers. SEC, AHS, and AML have strong relationships with labor unions, municipal leaders, contractors, and workforce development agencies and will build upon increased market demand for electrification services and accelerate workforce growth.

This project aims to create and support multiple jobs across coastal Alaska. As mission-driven organizations, SEC and AHS will prioritize direct hire over contractors, hire union contractors as required or available, support worker's rights to join a union and exercise a collective voice, and provide fair wages and benefits for employees and require the same of contractors. This is currently done with an understanding of the challenges and opportunities of worker recruitment in rural Alaska and with a consistent goal of promoting efficient and effective project deployment that minimizes labor and other disruptions from the start. See additional workforce development information in section 5.

Disbenefits

Heat pumps in general of themselves are nearly risk free. Risks and disbenefits are most commonly associated with human aspects of heat pump installation and ownership. Most heat pump installations will save homeowners on utility bills and provide clean, dry, low-maintenance heat. Lack of proper equipment maintenance or operational awareness, and the potential inability to receive service when needed are valid concerns. AHS information and homeowner education will greatly assist with the first two of these concerns and over time, a growing workforce will help address the third.

Poorly informed or hasty decision making can lead to potential problems. Incorrect unit sizing, unit placement, or the choice of an inappropriate compressor can result in a heat pump installation that may not be able to provide adequate heat when called for. Older homes in particular, with smaller rooms, obstructed airflow, and lacking adequate ventilation, air sealing, and weatherization may not be 'heat pump ready' and their owners should address these issues prior to investing in a heating system upgrade. A high proportion of the housing in ACES-AK communities was built before 1980. Relatively little of it has had energy retrofits and much of it has moisture and mildew issues.³⁷

The project will address most of these concerns through the successful AHS concierge service. AHS also provides technical online resources to assist homeowners³⁸ and will continue with follow up and

³⁶ <https://www.sciencealert.com/scientists-warn-the-price-of-food-is-expected-to-increase-every-year-from-now-on>

³⁷ for example: [Koniag Incorporate, Chugach Alaska Corporation, Sealaska Corporation](#)

³⁸ for example: <https://www.aceee.org/blog-post/2022/07/five-lessons-my-first-year-mini-split-heat-pumps>

periodic reminders about regular maintenance and cold weather operations.³⁹

Another potential risk is that increased electric demand from heat pump installations in communities with limited electricity supplies may result in electricity shortages or the need to increase rates. The Alaska Center for Energy and Power (ACEP) has provided assistance in detailed analyses of these types of capacity issues in at least one Southeast community.⁴⁰ In some cases, the high efficiency of heat pumps 'self regulates' this issue. A home heated by electric resistance that adopts a heat pump generally frees up load, allowing two or three oil home conversions to take place with no resulting grid impact. The project will consult closely with electric utilities to understand these potential limitations and will take them into account when allocating heat pump incentives across the region.

4B: Community Engagement

Southeast Conference (SEC) has six decades of experience in Alaska community engagement. SEC's mission is to promote strong economies, healthy communities, and a quality environment in Southeast Alaska. SEC is the federally-designated Economic Development District for the region and the state-designated Alaska Regional Development Organization. It has over 185 members from nearly every community, chamber of commerce, and economic development organization in the region, representing most municipalities, tribes, businesses, government agencies, organizations, and many individuals located or doing business along the majority of Alaska's coastline.

SEC's Community Economic Development Strategy places beneficial electrification atop its priority list.⁴¹ The plan seeks to, "Work with utilities to support utilizing a wider range of renewable resources in the region and to develop innovative rates and programs that encourage beneficial electrification by consumers. Work with communities to support consumer adoption of technologies that can be added to the electric system in a manner that increases the value of the grid." To support this goal and to engage communities, SEC leads bimonthly meetings of a beneficial electrification working group.

Alaska Heat Smart's (AHS) mission is to reduce the cost of living and increase the use of clean energy in Alaskan households by removing barriers to the adoption of energy efficiency measures and technologies. AHS' programmatic success is due to its active community presence and the organization's role as 'a good neighbor.' AHS offers a diverse menu of programs that seek to reach all socioeconomic strata. From full direct home retrofits, to generous financial incentives, to home energy consultation and education, AHS programs strive to leave no homeowner behind.

While developing the ACES - AK Program, SEC and AHS staff spent considerable time reaching out to community members across the region. Input from Tribes, electric utility experts, housing authority employees, union representatives, and community members was sought to gain an understanding of specific regional needs. This led to creating the advisory group that will help to guide program implementation. Year one will involve an extensive outreach campaign to share the program and its

³⁹ for example: <https://akheatsmart.org/heat-pumps/using-heat-pumps-in-cold-climates/>

⁴⁰ [Take Heat Pump Rate Analysis for Inside Passage Electric Cooperative](#)

⁴¹ <https://www.seconference.org/publication/southeast-alaska-2025-economic-plan/> p29.

benefits with coastal residents. This will include community listening sessions, live social media webinars, posting of radio PSAs, and associated print media flyers and handouts. Regional utilities have offered use of their regular mail outs to ratepayers as a means of disseminating program information widely. Educational efforts of this nature will continue as needed throughout the five-year program term.

AHS will employ its deep expertise to coordinate lower income assistance. Based upon experience with Thermalize Juneau, Healthy Homes, and the AK Carbon Reduction Fund projects, AHS will work side-by-side with qualified applicants to seamlessly create work plans, secure contractors, and oversee permitting and heat pump installation and associated electrical work.

Broad Regional Support and Community Input

Building broad support for expanding existing SEC and AHS programs has catalyzed outreach efforts to community leaders, energy experts, and trusted partners. The success of existing SEC and AHS community programs is built on trust and mutual understanding of community goals and needs. Community loyalty and pride are strong along Alaska's rural and remote coast and the success of any new endeavor depends on putting community input and understanding at the forefront. The ACES - AK Program will build on support for renewable energy and decarbonization where it exists, and set wheels in motion in communities just beginning their lower-carbon journeys.

Many Alaska coastal communities have decarbonization goals or energy plans. Most have not had the resources needed to implement them. The remote and isolated nature of Alaska's coastal communities has led to duplicative efforts and the need to 'join forces'. The ACES - AK Program will contribute to building a common foundation that will assist communities in meeting their goals, employing the power of partnerships to avoid reinventing wheels and to build upon existing momentum and intent. The success of SEC and AHS programs is directly attributable to strong partnerships and relationships with federal agencies, city governments, Tribal institutions, regional utilities, privately owned data and engineering firms, community non profit organizations, and members of the contractor workforce.

SEC and AHS are forming the 'ACES - AK Advisory Committee'. During the grant application process, prospective committee members have been instrumental in providing an understanding of community needs, housing concerns, utility analysis, workforce development, as well as offering an open door to deeper community engagement. The ACES - AK Advisory Committee will be a vital outreach mechanism and source of input and members will assist with outreach, marketing, and partnership building.

SECTION 5: Job Quality

SEC and AHS are equal opportunity employers and ensure an appropriately skilled and credentialed workforce through thorough, posted job descriptions and established hiring methods and HR policies.

Fair & Prevailing Wages: SEC and AHS will follow federal guidelines by including clauses in any contracts that require construction contractors and subcontractors to pay wages at rates not less than those prevailing, as determined by the Davis-Bacon Act wages. Applicable wage scales and overtime payment

practices for all union employees expected to be directly involved in construction will follow union standards. For direct employees and subcontractors, this information will be established upon hiring.

Disadvantaged, Minority, Local Hire & Procurement: For all direct and contractor hire, SEC and AHS will prioritize union, small, disadvantaged, minority-owned, women-owned, veteran-owned, and disabled veteran-owned businesses. This is a program commitment, which will be implemented through partner organizations' hiring and procurement practices.

Equitable On-ramps: SEC and AHS will provide targeted opportunities and resources to Alaska Native and other disadvantaged and local job seekers and contractors by leveraging our relationships with Tribal Governments, local contractors, local utilities, and regional organizations.

Support Workers' Collective Voice & Organizing: SEC and AHS commit to the rights of workers to join together to improve their wages and working conditions, with or without a union, per the National Labor Relations Act, and will ensure compliance with labor and employment laws by appropriate use of personnel and procurement policies. This commitment extends to the entire project workforce.

ACES-AK Workforce Development: Workforce training will be a coordinated effort in the ACES - AK Program. AHS will lead program-wide coordination and tracking on training programs for all team members, partners, and contractors. This will support equitable on ramps for project hires and will share resources/training opportunities across the team.

6A: Past Performance

- **EDA CEDS Program (11.307)**
 - US Economic Development Administration, Shirley Kelly
 - Preparing, maintaining and implementing a regional economic strategy for capacity building, economic and community development in Southeast Alaska.
- **Pellet Program (90.1)**
 - Denali Commission, Eric O'Brien
 - Construct a demonstration, small-scale, pellet mill in Ketchikan that utilizes young-growth and forest industry waste for alternative, sustainable energy sources.
- **Pellet Program USFS (10.708)**
 - U.S.D.A. Forest Service, 22-DG-11100106-808, Priscilla Morris
 - Construct a demonstration, small-scale, pellet mill in Ketchikan that utilizes young-growth and forest industry waste for alternative, sustainable energy sources.
- **USDA RD SASSI (10.89)**
 - U.S.D.A., RD-RB-COOP-22-10, Keith Perkins
 - Supporting a diverse economy, enhancing community resilience, and conserving natural resources in Southeast Alaska through use of local priorities and knowledge.
- **AEA Biomass (17011)**
 - Non-Federal 10.674 and Alaska Energy Authority, Sean Arcilla
 - Support of the Alaska Wood Energy Development Task Group to develop biomass systems across the state and offer workforce development for operator training..

6B: Reporting Requirements

SEC has consistently achieved all project and progress goals and reporting requirements have been met.

EDA CEDS Program: Since the 1960's SEC has been recognized by the EDA as an economic development district. Final reports for previous awards have been filed by deadlines and subsequent years have been awarded. Project managers and the entity's CFO work together to submit reports in a timely manner.

Pellet Program-Denali Commission: Awarded in FY23, funding assistance requirements for the pellet program through the Denali Commission is still an active program. For program reporting requirements, the project manager and the entity's CFO work together to submit reports in a timely manner.

Pellet Program USFS: Awarded in FY23, funding assistance requirements for the pellet program through the USFS is still an active program. For program reporting requirements, the project manager and the entity's CFO work together to submit reports in a timely manner.

USDA RD SASSI: Awarded in FY21, funding assistance requirements for the SASSI program through the One USDA is still an active program. For program reporting requirements, the project manager and the entity's CFO work together to submit reports in a timely manner.

AEA Biomass: For over a decade, SEC has been under contract with the Alaska Energy Authority and has maintained, and met, reporting requirements under this agreement since its establishment. Project managers and the entity's CFO work together to submit reports in a timely manner.

6B. Staff Expertise: See attachments of applicant staff and sub-award staff resumes.

Robert Venables. Joined SEC Board of Directors in 2001; served as Board President in 2005. Took the role of Energy Coordinator in 2008, helped facilitate the first regional energy plan, was a member of the Alaska House Energy Committee Stakeholders Group, and worked with utilities and communities to develop key infrastructure of hydros and interties. In 2014, was a member of the Marine Transportation Advisory Board and the Governor's AMHS Reshaping Work Group. In 2017, Robert was appointed as the SEC Executive Director and has worked on planning and project development for multiple industry sectors including hydro energy, transportation and AMHS Reform, natural resource development, including biomass, tourism, broadband and most recently mariculture development.

Kaitlyn Jared. Exec.Dir. Skagway Development Corporation 2018 - 2022; worked with local businesses, municipal and Tribal leaders and community members in programs and projects ranging from strategic plans for housing, workforce development, food security, small business support programs, new industry opportunities. Served as the Port Administrative Manager for the Port of Skagway, managing port user accounts, facilitating grants applications and preparing contracts. She joined the SEC staff as the Transportation and Special Projects Manager in 2023 and serves as a project manager on transportation, economic development, tourism, and energy related programs.

Stephanie Cameron. Southeast Conference's Chief Financial Officer and Grants Administrator. Over 15 years of finance and grant management experience.