

ALASKA ENERGY AUTHORITY

Alaska Rural EVSE Deployment (ARED)

Alaska Energy Authority
EV Working Group

Presenter: Sean Arcilla

April 9, 2025



Overview

AEA's mission is to **reduce the cost of energy** in Alaska.

AEA's EV program goal is to lead the effort to **minimize barriers to EV adoption** in Alaska.

Timeline

- Start: 10/01/2023
- End: 04/30/2027
- Percent Complete: 40%

Budget

- Total Funding: \$2,087,479.00
 - DOE: \$1,669,983.00 (80%)
 - Match: \$417,496.00 (20%)

Barriers & Targets

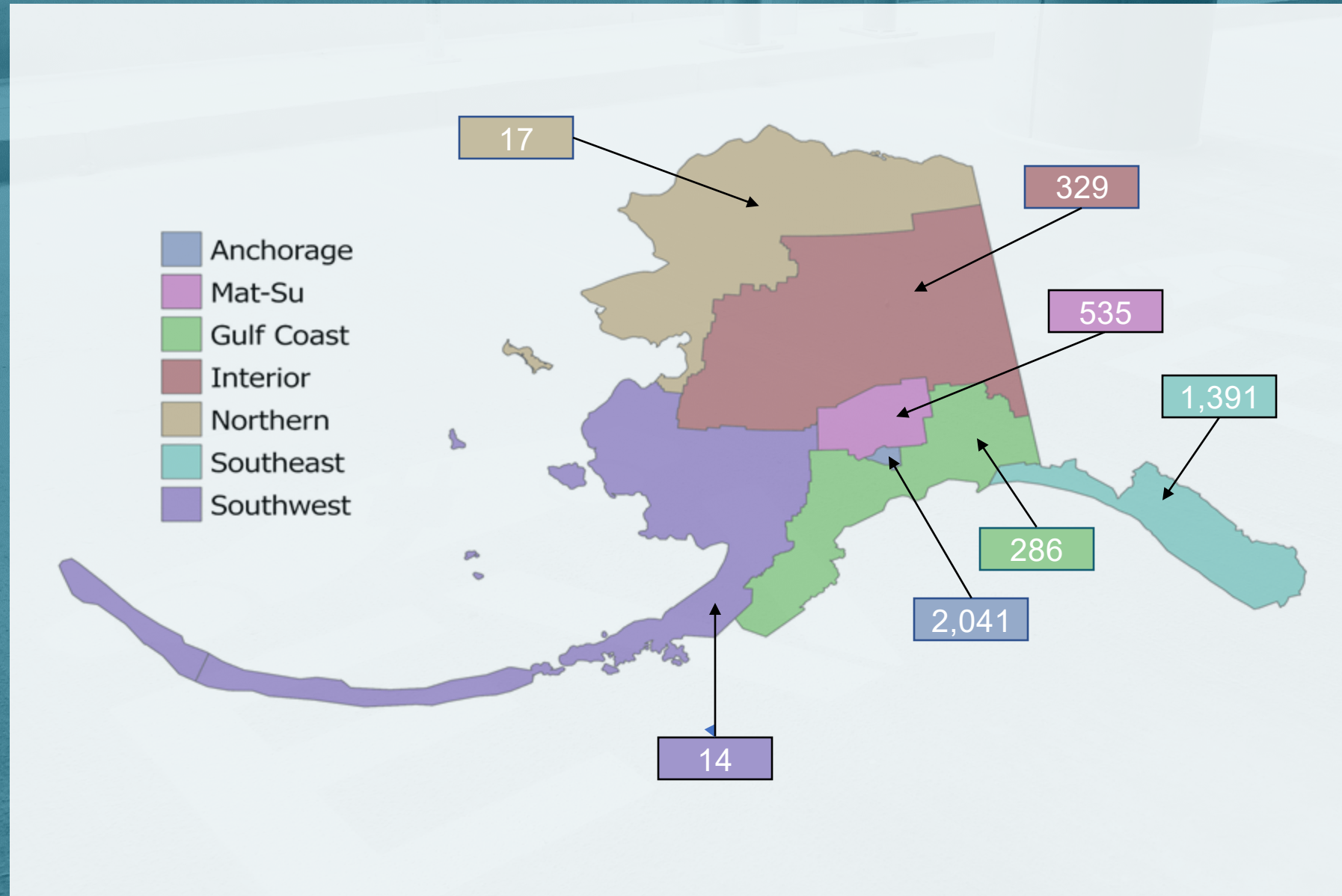
- Improving fuel diversity
- Increasing local resiliency (infrastructure reliability, diverse/resilient fueling, transportation options)
- Reducing greenhouse gas emissions (through increasing alternative fuel use & transportation efficiency)

Partners

- Alaska Center for Energy & Power (ACEP)
- Alaska Department of Transportation & Public Facilities (AKDOT&PF)
- Alaska Municipal League (AML)
- Launch Alaska
- Yellowstone Teton Clean Cities Coalition



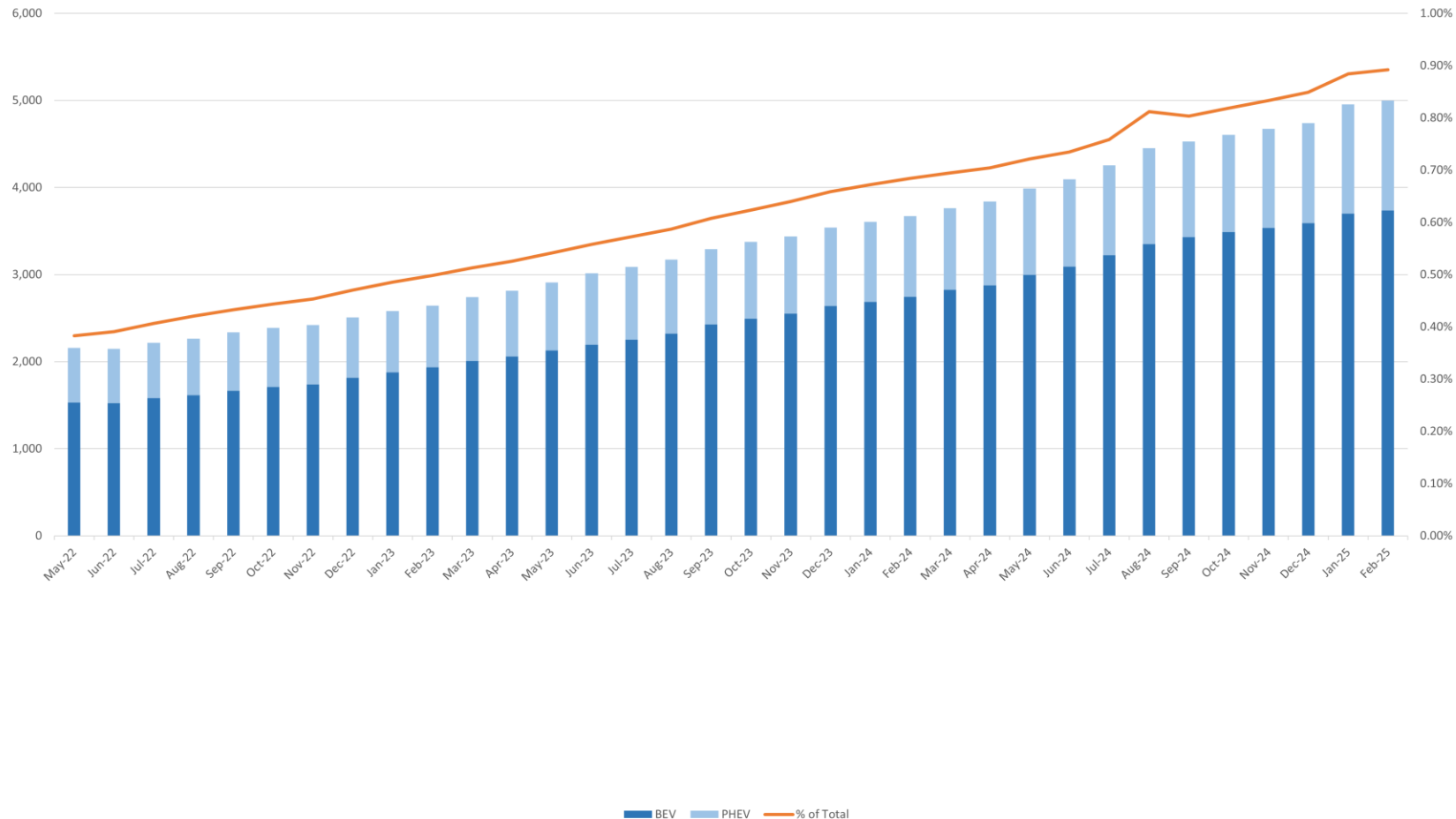
BEV and PHEV Geographic Distribution



EV Registrations: Alaska DMV Data



Statewide BEV + PHEV Registrations
Source: Alaska DMV





Project Objectives



Conduct **in-person outreach** in communities to **understand preferences** and needs related to EV adoption and infrastructure.



Develop and implement **individual plans** for installing EVSE based on **community input**.



Install EVSE in rural communities & provide technical assistance for **support**.



Develop **local workforce capacity** to operate and maintain EVSE.



Assess the impact and use of EV infrastructure on underserved populations. Understand the impact of EVSE on utility demand.

Impact

Engage communities in reducing barriers to entry for EV adoption.

Improved mobility options for rural Alaska.

VTO TI Goal

Cost-effective deployment of EV charging for those without easy home charging.

Community engagement to accelerate clean transportation options in underserved communities.

Barriers and Challenges



Alaska is Behind in the transition to EVs

- National Average EV Penetration: 6.8%
- Alaska EV Penetration: 0.9%



Lack of EV Charging Infrastructure



Community Support of EVs and Public Perception

- Cold Climate EV Performance
- Vehicle Price
- Local Ability to Maintain Vehicle



Cost of Installation and Maintenance of EVSE

- Lack of existing capacity in communities for long term O&M



Cost of Power

- Impacts of Power Cost Equalization (PCE) Program



Power Cost Equalization (PCE)

The PCE program was established in 1985 as one of the components of a statewide energy plan.

The cost of electricity for Alaska's rural residents is notably higher than for urban residents. The PCE lowers the cost of electric service paid by rural residents. Ultimately ensuring the viability of rural utilities and the availability of reliable, centralized power.



192

RURAL COMMUNITIES



91

ELECTRIC UTILITIES



81,700

ALASKANS



750 kWh

RESIDENTIAL

Residential customers are eligible for PCE credit up to 750 kWhs per month.

70 kWh

PUBLIC FACILITIES

Community facilities can receive PCE credit for up to 70 kWhs per month multiplied by the number of residents in a community.

\$48M

FUNDS BUDGETED

In Fiscal Year 2024, AEA disbursed \$48 million to rural electric utilities for the benefit of our rural communities.



Project Approach: Outreach & Engagement



Designation of Hub Communities

- Bethel, Cordova, Dillingham, Kodiak, Kotzebue, Nome, Sitka, Skagway, Tok, Unalaska, Utgiagvik



Presentations

- ASEC, Southeast Conference Annual, Rural Energy Conference & AML Annual Conference



Outreach Tours

- Leveraged existing tours to initiate community engagement – AML transportation workshop in 48 communities



Site Host Engagement

- Leveraged Yellowstone – Teton Clean Cities Coalition's experience in developing site host relationships



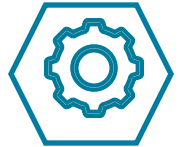
Project Approach: Community Considerations



Fewer Emissions and Cleaner Air



Less Transportation Related Noise



Reduced Vehicle Maintenance



E-Micro-mobility Potential



Battery-supported EVSE as a Resiliency Asset



Lower Fuel and Maintenance Costs



Less Reliance on Imported Fuels



Project Approach: Community Selection

Dataset	Parameter	Justification
Grid capacity vs avg load	kW	Grids must have overhead for at least a level 2 AC charger
Community Interest	Binary	Key factor is community interest & buy-in
EV Emissions Savings	Lbs CO2	Lower carbon intensity power generation decreases emissions of EV relative to ICE
EV Cost Savings	\$	Cost savings of EV operation relative to ICE
Justice40	Binary	Project prioritizes disadvantaged communities
Number of EVs	#	Communities with registered EVs will receive priority
VMT	Miles	Areas with higher traveled mileage will receive more benefit from charger access
Energy Region Distribution		Represent each energy region, as specified in SOPO



Project Approach: Workforce Development

- Goal:
 - Provide training / resources to enable servicing of charging infrastructure within rural communities
 - Upskill labor and support career growth or opportunities for local workforce
- Work with in state & out of state entities to deliver curriculum meeting SAE EVSE Maintenance Technician Body of Knowledge as well as teaching to safety standards such as OSHA & NFPA70e

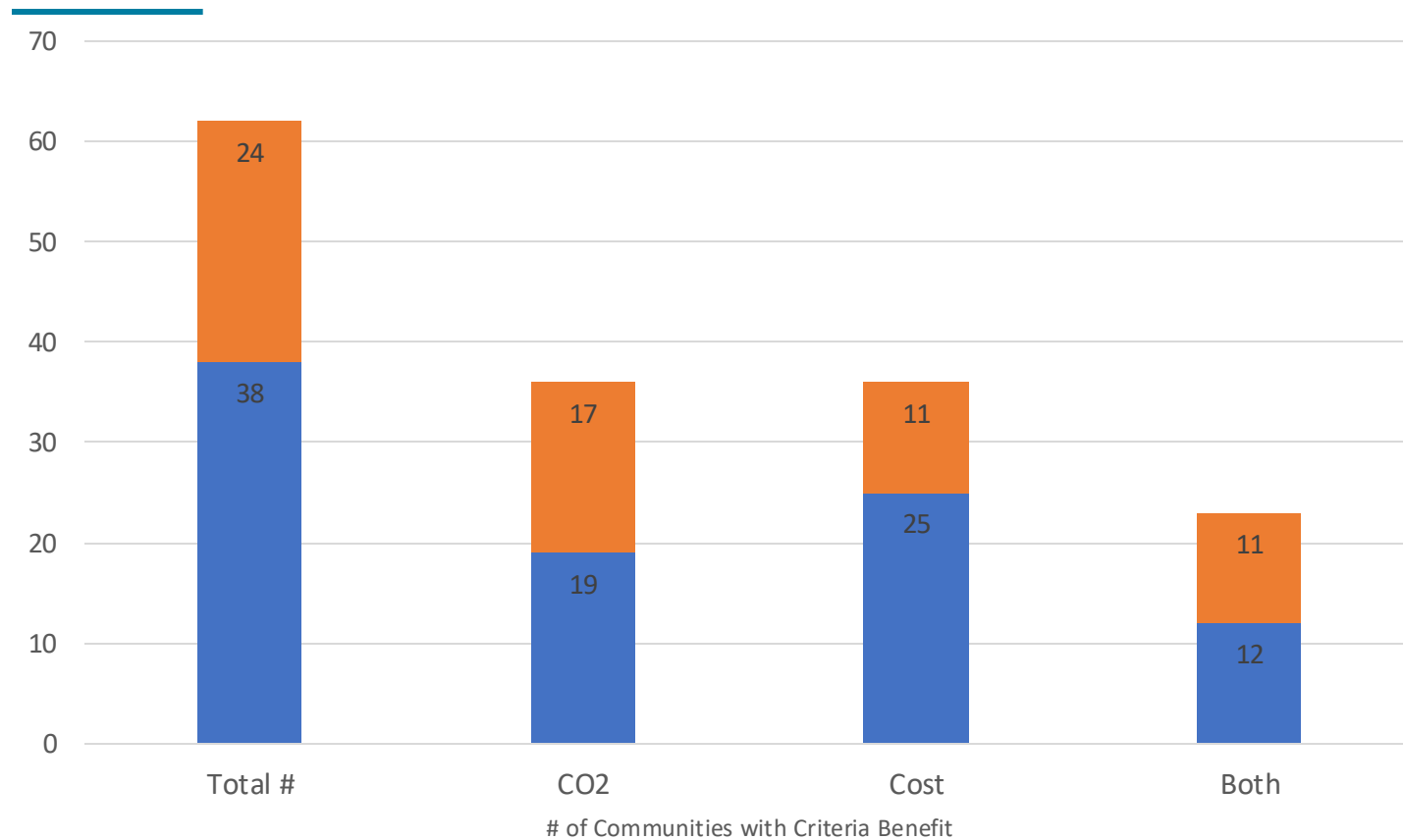


Milestones

Milestone	Type	Description	Progress
EV Outreach Tour	Technical	≥ 9 rural communities have been invited to or participated in the EVSE Outreach Tour (in-person and/or virtual).	In progress
Agreements with ≥ 9 rural communities	Technical	≥ 9 rural communities have been evaluated for technical/economic/environmental feasibility for Level 2 and/or DCFC charging. Agreements have been secured.	In progress
Host commitments secured	Technical	Technically viable sites with community input have been selected. Host commitments for 10-36 L2 and/or DCFC infrastructure are secured. Grant agreements in place.	In progress
EVSE Plans Developed	Go/No Go	Community plans for EVSE planning, deployment, and operations have been completed. Plans are technically viable with the utility.	In progress
EVSE Permits Initiated	Technical	Permits for 10-36 of the planned EVSE infrastructure have been completed.	Not started
EVSE Infrastructure Ordered	Technical	Each community has ordered the EVSE for their communities.	Not started
EVSE Training Development Program complete	Technical	EVSE Training Development program, including materials and website, have been finalized.	In progress
EVSE Installed + Commissioned	Technical	10-36 of the EVSE is installed and publicly available.	Not started
Trained Workforce	Technical	Team trains local staff on EVSE.	Not started
Dissemination	Technical	Project information is disseminated through journal submission(s) and/or more than 2 presentations.	In progress



Project Accomplishments: Modeled Benefits



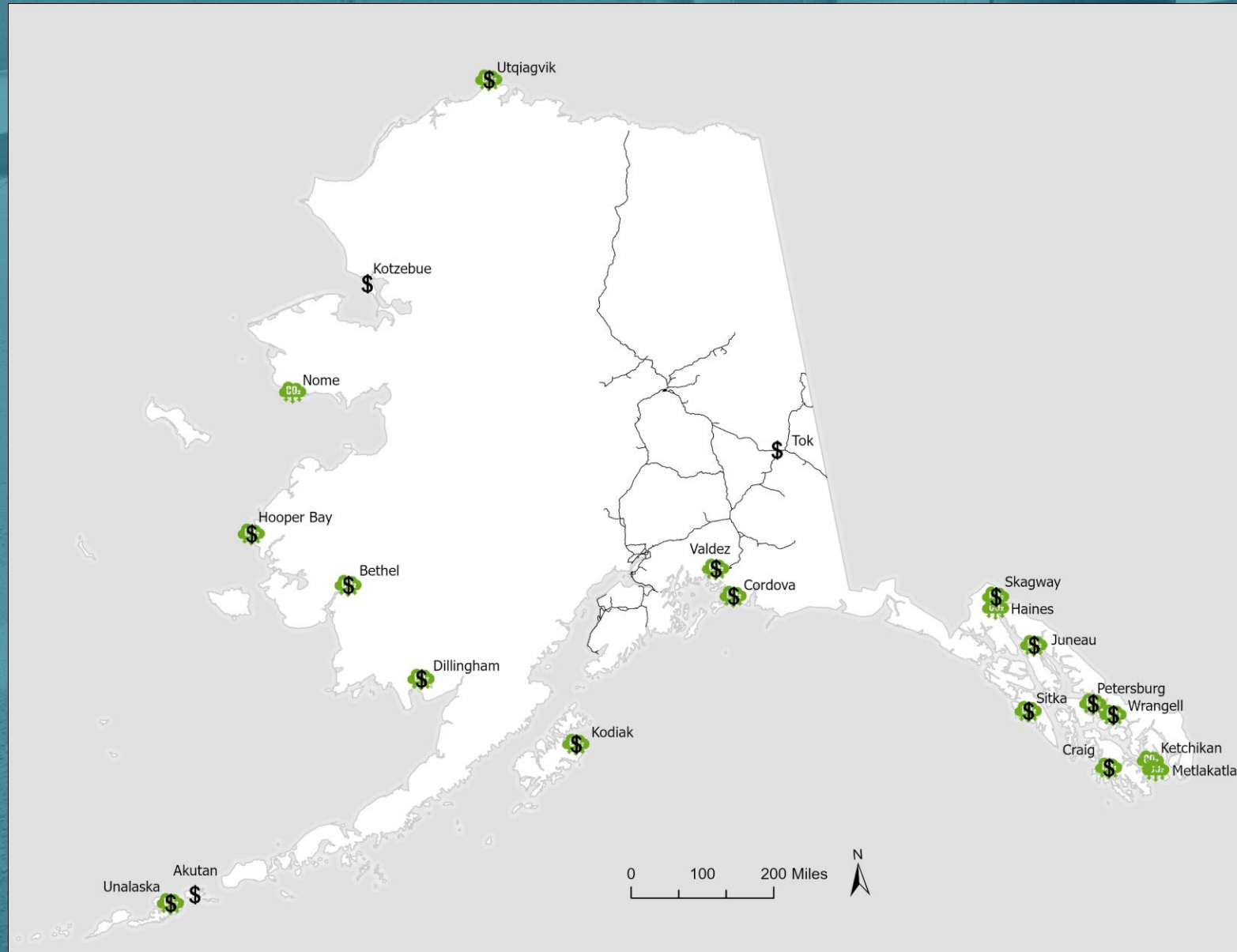
Source: Michelle Wilbur, ACEP

■ 500-1k ■ 1000+

Insights:

- ~40% of rural communities with >500 residents would benefit from reduced costs and CO2 emissions through EV ownership.
- Communities with a high penetration of renewable energy indicate the greatest positive impacts from EV adoption.
- The power generation source significantly influences the cost and emissions outcomes.
- This model is sensitive to diesel price fluctuations.
- Does not account for PCE limits and increases in \$/kWh above 750 kWh/month household threshold.

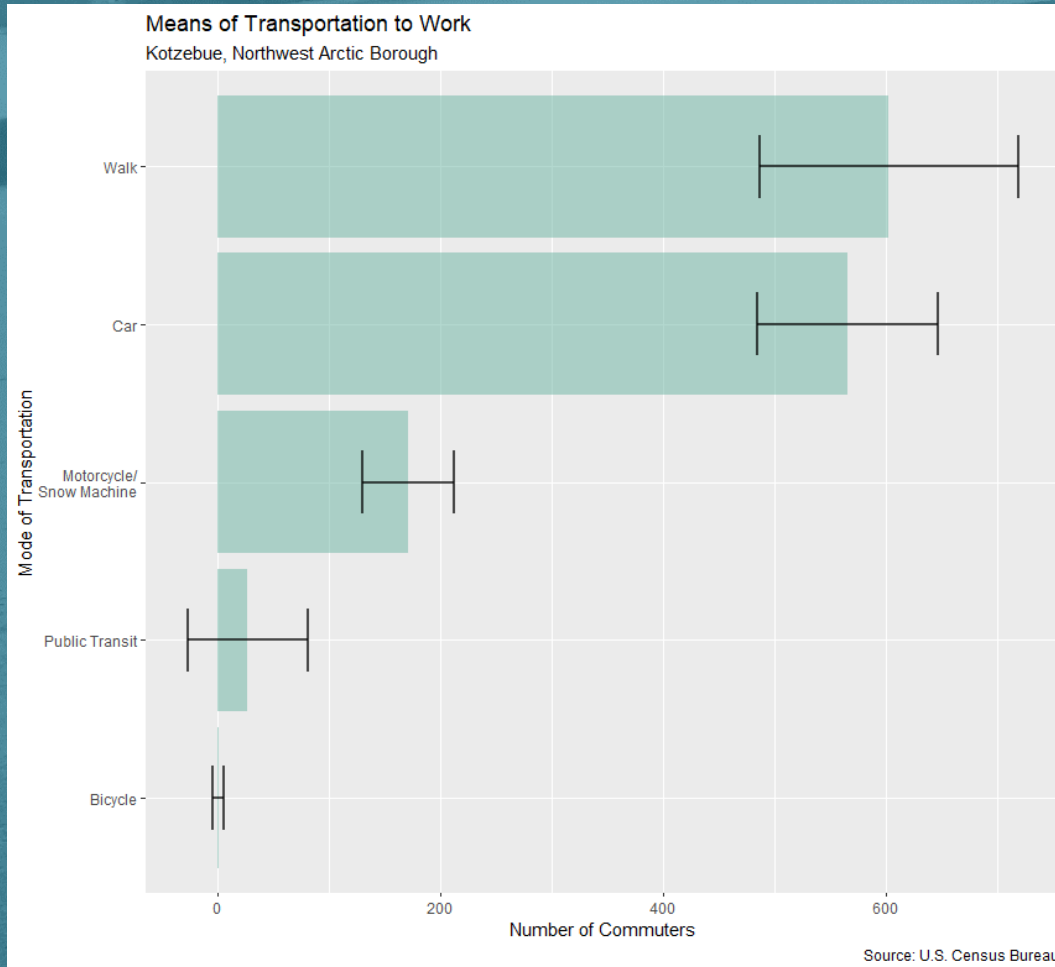
Project Accomplishments: Cost & CO2 Benefits



Assumptions:
Calculates annual cost and emissions for EVs based on energy use, local temperature profile, miles driven, electricity rates, and parking conditions.

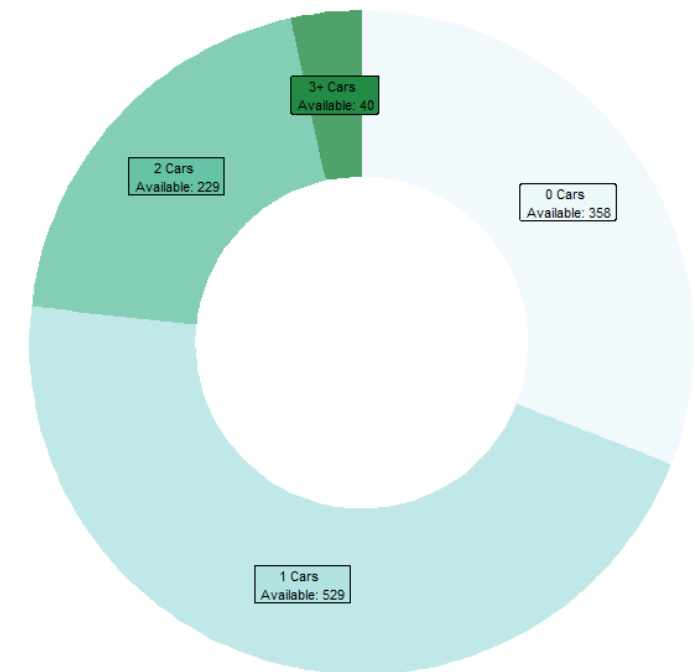
Incorporates power plant emissions data to evaluate EV related impacts.

Project Accomplishments: ACEP Kotzebue Analysis



Number of Vehicles Available in a Household

Kotzebue, Northwest Arctic Borough



Values subject to an average margin of error of 3.45%

Source: U.S. Census Bureau



Project Team & Roles



Partner	Relationship	Type	VTO Affiliation	Collaboration Scope
Alaska Energy Authority (AEA)	Prime	State Energy Office	Outside VTO	Project lead, coordination, reporting
Alaska Center for Energy and Power (ACEP)	Sub	University	Outside VTO	Technical expertise, data & analysis, sentiment analysis
Alaska Department of Transportation & Public Facilities (AKDOT&PF)	Sub	State Transportation Agency	Outside VTO	Site access, deployment planning
Alaska Municipal League (AML)	Sub	Non-Profit Stakeholder	Outside VTO	Community outreach, policy support
Launch Alaska	Sub	Industry Accelerator, Non-Profit Stakeholder	Outside VTO	Market pathways, startup engagement
Yellowstone-Teton Clean Cities (YTCC)	Sub	Clean Cities Coalition	Within VTO	Technical assistance, regional coordination



Project Team Expertise & Communication

- **Expertise Mix:**
 - Transportation planning, energy systems, community engagement, deployment strategy, and clean technology acceleration.
- **Coordination Methods:**
 - Regular team calls for updates & alignment
 - Monthly milestone reviews
 - Shared documents and centralized communication hub
- **VTO Interaction:**
 - Quarterly reports & milestone updates
 - Regular informal check-ins with program managers
 - Integration of VTO feedback into project adjustments



ACEP
Alaska Center for Energy and Power





Summary

Goal:

Engage and electrify rural Alaskan communities.

Approach:

- Targeted outreach and engagement using specific community considerations.
- Designating hub communities.
- Workforce development by providing training and resources to enable servicing of charging infrastructure within rural communities.

Accomplishments:

- Engaged with over 10 communities and 400 individuals across Alaska.
- Working towards 3 grant agreements with site hosts for installation in Summer 2025.
- Built cost and CO2 reduction modeling for EV adoption in rural communities.

Next Steps:

- Installation and commissioning of chargers
- Data collection
- Information Dissemination



Survey – Public EV Charging - Kodiak



<https://arcg.is/ODujz0>

Mount Spurr

- 75 miles west of Anchorage
- Classified in the “**ADVISORY**” alert level
- Vehicle technology has changed significantly since the last volcanic eruption impacted Anchorage (Redoubt 2009)

Image Credit: Hannah Dietterich, AVO/USGS



EVSE & Ash

- **Liquid-cooled chargers**

- Expect minimal impacts from ash

Alaska Rock Gym, Anchorage
(Image credit: ReCharge Alaska)



- **Air-cooled chargers**

- May require additional filtration and cleaning to remain operational

Chugach Electric HQ, Anchorage
(Image credit: ReCharge Alaska)



Vehicle Considerations (ICE & EV)



- **RECOMMEND AVOID DRIVING IF AT ALL POSSIBLE**

- Ash accumulation can cause slipping and reduce visibility
- Exercise caution if you must drive



- **BRAKE ASSEMBLIES**

- Ash can damage brake components.
- Regular servicing may be required with significant ashfall.



- **PAINT AND GLASS DAMAGE**

- Avoid using windshield wipers on dry glass. Use ample water/wiper fluid.



- **CABIN AIR FILTERS**

- Clean or replace according to manufacturer's recommendations

AEA provides
energy solutions
to meet the
unique needs of
Alaska's rural
and urban
communities.

Alaska Energy Authority

electricvehicles@akenergyauthority.org

813 W Northern Lights Blvd.
Anchorage, AK 99503



Main: (907) 771-3000
Fax: (907) 771-3044



akenergyauthority.org



[@alaskaenergyauthority](https://www.facebook.com/alaskaenergyauthority)



[@alaskaenergyauthority](https://www.linkedin.com/company/alaskaenergyauthority)

