

Alaska Microgrid Partnership

Partners: NREL, LBNL, SNL, PNNL, Renewable Energy Alaska Project, Alaska Center for Energy & Power, Intelligent Energy Systems, Alaska Institute of Social & Economic Research



Project Description

Develop and implement a pathway of technical and economic assessment leading to a 50% imported energy displacement in remote, islanded Alaskan community microgrids. This project marks the first time a consortium of DOE national laboratories and Alaska organizations is undertaking this type of project in a holistic way.

Expected Outcomes

- Document the full techno-economic development process for reducing imported fuel consumption by at least 50% in remote microgrids in Alaska.
- Identify investible opportunities (i.e., the business case) to attract the funding needed to implement these types of projects on a large scale.
- Create an implementation methodology for other communities to follow by documenting and publicizing the community assessment, data collection, project analysis, and development processes.
- Implement the methodology in two pilot communities, providing models so that additional communities can undertake similar efforts, including seeking private and public funding to implement project recommendations.
- Expand the existing Alaska Energy Data Gateway to make all relevant products from this work available to communities across Alaska.
- Ensure that this process is applicable internationally, helping to address issues around providing reliable power to isolated communities across the globe while providing a baseline of understanding for microgrids in general.



More than 200 Alaskan communities must import energy, typically at very high cost.



Challenges include outdated power system technology and poor energy efficiency.

Pathway for Holistic Community Microgrid Development



Progress to Date

- Developed community readiness indicators to assess capacity of communities to consider a revamp of their energy infrastructure.
- Selected and initiated analysis of the two pilot communities (Shungnak and Chefnak).
- Initiated detailed community-level data collection and design analysis on pilot communities.
- Convened project advisory committee comprised of a diverse group of Alaska stakeholders.
- Met with financiers to understand investment criteria.
- Screened and selected techno-economic modeling tools; screening criteria to be made available.
- Initiated planning for diesel system testing and storage technology options to inform modeling.
- Facilitated ongoing discussion with entities to leverage efforts while reducing potential for project overlap.
- Initiated updating of the Alaska Energy Data Gateway.

Significant Milestones	Date
Complete Community Readiness Indices	7/1/2016
Identify pilot communities	8/1/2016
Complete initial draft of the remote system Design Basis Framework	4/15/2017
Complete generic business case analysis	7/1/2017
Complete final technical and business case studies for two pilot communities	10/1/2017
Complete expansion of the Alaska Energy Data Gateway, making all results available	10/1/2017