

Alaska Renewable Energy and Energy Efficiency Development Short- to Mid-term Objectives

Alaska Energy Authority
Working Draft 9/07

Biomass

- Develop hand-stoked wood-fired district heating systems where economically feasible. Follow up on 30 communities, >50 facilities currently identified.
- Support wood fuel supply infrastructure, e.g. AVI upper Yukon proposal.
- Complete Craig sawmill waste-fired district heating demo project and evaluate O&M, performance.
- Support small, modular biomass-fired CHP development. Assist FNSB and Chena Power in demo project and evaluate O&M, performance for village deployment.
- Monitor progress of pellet fuel plant development and assess opportunities for coal co-fire in Interior.
- Anchorage Landfill Gas to Energy. Assess development barriers and support utility or energy service company design/construction.
- Fish Oil Biodiesel. Proceed with mobile rendering module RFP for fish processors. Finish performance testing at UAF. Monitor opportunities/industry progress on in-state biodiesel plant development.
- Monitor Sealaska progress on cellulosic ethanol plant.
- Wood Energy conference in Fairbanks, 11/14-15

End Use Efficiency / Combined Heat and Power

- Continue Village End Use Efficiency Measures program in current areas and expand to 20 additional communities.
- Develop Whole Village Energy Efficiency demonstration in 1-2 rural communities with AHFC in RPSU community.
- Develop Railbelt EUE strategy in partnership with AHFC and coordination with USO plan process.
- EE Technical Assistance Program. Support community facility energy audits and power system efficiency assessments.
- Develop, repair, or expand heat recovery systems in rural power systems identified by RPSU projects and AEA heat recovery project database (29 entries good-excellent potential).
- Establish demonstration of recovered diesel heat to power using ORC technology.

Geothermal

- Mt. Spurr. Organize August 2007 workshop for developers and utilities to promote interest in the upcoming geothermal lease sale. This will be done in coordination with USO plan process.
- Assess resource and feasibility of geopower and/or geothermal direct use in Unalaska (Makushin), Akutan, Naknek region, Manley HS, Pilgrim HS, and Kotzebue in partnership with local utilities and potential developers.
- Investigate and promote development of geothermal power generation on Belle Island as part of the Swan-Tyee Intertie and AK-BC Intertie projects.
- Promote use of ORC technology in abandoned oil and gas wells that have geothermal potential.
- Promote geothermal direct use such as agriculture, mariculture, process heating, greenhouses, district heating, etc.
- Plan for extensive geothermal exploration program in Alaska in anticipation of federal funding currently under consideration by Congress.
- Coordinate Alaska geothermal energy working group meetings and communication.

Hydroelectric

- Update, improve, and expand AEA's hydro project inventory in coordination with the ongoing Alaska Energy Inventory.
- Use inventory to prioritize hydro feasibility analyses in partnership with Army Corps of Engineers.
- Assess potential Railbelt projects in coordination with USO plan process.
- Design and construct projects in conjunction with RPSU program.

Ocean and River

- Conduct feasibility assessment for river in-stream energy conversion in partnership with EPRI and Railbelt utilities.
- Promote tidal energy project development in Cook Inlet and SE Alaska in partnership with FERC permit applicants and permit holders
- Monitor potential for ocean power export from Southeast into the BC grid.
- Update, improve, and expand AEA's tidal, wave, and river energy inventory in coordination with the ongoing Alaska Energy Inventory.
- Continue to work with Yakutat Electric to develop a wave energy demonstration project in Yakutat in coordination with ongoing powerhouse renovation.
- Participate in Pacific NorthWest Economic Region ocean energy sessions in July 2007.
- Coordinate ocean and river energy working group meetings and communication.

Wind

- Assess Railbelt wind resources, potential projects, operating constraints, and options for accommodating additional wind generation in coordination with USO plan process.
- Establish processes for economic regional wind energy development in Yukon-Kuskokwim, Northwest Arctic, North Slope, and Southwestern regions .
- Work together with DCCED on a regional economic feasibility study for wind development.
- Bird-wind turbine collision siting study. Establish first phase of a GIS-based assessment with ADFG and USFWS.
- Support NREL development of bluebook that defines requirements for power system controls that integrate wind and other renewables into rural diesel power systems.
- Support study of improved wind turbine foundation designs in cold and discontinuous permafrost.
- Continue met tower loan and wind project siting assistance program. Purchase large met-towers for industry standard wind assessment for large size turbines.
- Support design and construction—Sand Point, Chevak, Unalakleet RPSU, and St. Paul utility consolidation.
- Develop ranking list for potential wind projects.
- Develop statewide wind energy training program in partnership with UA, utilities, and others.
- In conjunction with NREL and UMASS upgrade HOMER and HYBRID2 software tools including training sessions.
- Complete high-resolution wind mapping for Southwest and Arctic regions.
- Wind-Diesel conference in April 2008 in Anchorage/Girdwood and following years.
- Wind energy training sessions in Anchorage, Bethel, and Kotzebue summer-fall 2007/2008/2009.
- Develop information exchange partnerships with other State wind programs (MT,NV)
- Expand information exchange with international partners (Canada wind-diesel experience, mid-long-term Europe for Offshore)
- Consider Regional or Statewide Programmatic Environmental Impact Statement (EIS) for wind development (see USDOE/BLM EIS for Western Public Lands <http://windeis.anl.gov/>)

General

- Renewable Energy Fund. Devise alternatives for implementing 2008 legislation.
- Revise and print Renewable Energy Atlas.
- Expand program for assisting rural communities in technical energy planning using HOMER model.
- Rural Energy Conference, fall 2008.