Alaska Fisheries Development Foundation, Inc.

Request for Proposals

RFP #: 2023-01

Date of Issue: March 20, 2023

Incorporating Green Energy into Alaska Mariculture

The Alaska Fisheries Development Foundation (AFDF) is soliciting proposals from individuals, companies, or organizations that can provide services and technical support for the integration of renewable sources of energy (green energy) into the development of the mariculture industry in Alaska. This is a part of the Green Energy component of the Alaska Mariculture Cluster, funded by a grant from the Economic Development Administration (EDA) to the lead entity, Southeast Conference (SEC). AFDF is one of several coalition partners on the Alaska Mariculture Cluster, and in particular is a subaward recipient managing the Green Energy component. This Green Energy component, for which we are soliciting proposals, has three objectives: 1) to develop a long-term renewable energy plan, 2) to collect baseline data measurements of how energy is currently being used in the mariculture industry and generate an analysis with recommendations for renewable energy alternatives, and 3) to develop a "best practices guide" through energy audit procedures and standards for the Alaska mariculture industry. These three objectives will help ensure that the industry develops sustainably and minimizes fossil fuel combustion by improving energy efficiency and using renewable energy when feasible. Without an intervening investment in renewable energy technology, expertise, planning and deployment, the mariculture industry would continue to develop with a reliance on fossil fuels. Conducting this work now allows the mariculture industry to grow with energy efficiency, renewable energy, and best practices incorporated into initial designs rather than hoping for a transition in the future. This effort also is designed to make technology and technical support available and accessible in rural and Alaska Native communities, providing a more equitable development of this industry.

Background

This series of objectives makes up the Green Energy component of the Alaska Mariculture Cluster (AMC), a coalition funded by an EDA Build Back Better Regional Challenge (BBBRC) grant. AFDF, as part of its subaward, will oversee the Green Energy component. The Green

Energy component is one of seven components, which have been purposely designed to be complementary in order to break down barriers to growth and break out of the "chicken or egg" cycle of industry development. More information on the Alaska Mariculture Cluster is available at alaskamaricultureclusterorg, including the Overarching Narrative which explains how the seven components work together to grow the mariculture industry in an equitable and environmentally responsible manner, and the Green Energy Component Narrative.

About AFDF

Since 1978, the AFDF has broadly represented the Alaska seafood industry (harvesters, processors and support sector businesses) in the areas of research and development. Since 2014, AFDF spearheaded the Alaska Mariculture Initiative, an effort to expedite the development of growing shellfish and seaweed in Alaska. As a result of those efforts, Governor Walker created the Mariculture Task Force (MTF) by Administrative Order from 2016-2021, during which time the AFDF Executive Director served as either Chair or Vice-Chair. The MTF was designed to sunset and in its place has been created the Alaska Mariculture Alliance (AMA); the AFDF Executive Director serves on its Board of Directors.

Additionally, in 2013, AFDF began a project to help commercial fishermen increase energy efficiency onboard small vessels. [Note - Alaska has over 9,000 registered commercial fishing vessels, of which approximately 8,500 are under 60 feet in length and owner-operated.] With grant funds from the Alaska Legislature and NOAA, AFDF worked with Alaska Longline Fishermen's Association (ALFA) and a licensed chief engineer with expertise in energy management to conduct vessel energy audits, measuring actual energy use on a set of vessels while engaged in commercial fishing activities. Then, the team designed an online tool based on those results that allows other commercial fishermen to analyze energy use and determine which onboard energy systems are worth investing in energy conservation measures that yield the best return on investment. This project also trained and certified an Alaskan in vessel energy auditing techniques, and supplied this person with necessary equipment, which built capacity in-state to continue conducting vessel energy audits.

Scope of Work:

Objective 1: Develop a long-term Green Energy Plan for Alaska's Mariculture Industry ($175,000-$200,000)

The baseline data collected (objective 2) while developing standardized energy auditing assumptions (objective 3) will provide information for creating a comprehensive green energy plan for the mariculture industry in Alaska. A comprehensive plan will chart a path toward zero carbon operations while minimizing energy costs, capitalizing on the intersection between types of energy loads and maximizing benefits for local communities. The Green Energy Plan

should consider energy use on vessels, aquatic farms, hatcheries, nurseries, processing facilities, and certain shoreside support (e.g. dockside electric charging stations, larger electricity demands, etc). The Plan should also consider "right-sizing" energy use with financially and technically feasible renewable energy options, which may include heat pumps, solar, diesel-electric hybrid, fully electric, battery storage, and other options. The Plan should additionally consider that some rural communities have renewable power generation (e.g. hydro and/or wind), while some communities are still using diesel power generation.

Execution Goals: Release a renewable energy plan by year four of the project.
Performance Goals: Achieve 25% green energy by 2027 and 90% by 2040.
Equity Goals: Equal renewable energy penetration across all four regions of the project, with an emphasis on rural and Alaska Native communities.

<u>Objective 2:</u> Collect baseline data of current energy usage & generate recommendations for renewable energy alternatives ($225,000-$250,000)
In this project, energy audits will be performed at sites/vessels throughout the four regions of the project. Data loggers that measure fuel consumption, electrical and hydraulic loads will be installed to record energy consumption throughout one year of operation, the results will be compiled in a publicly accessible database (which maintains confidentiality of individuals).

***Execution Goals*:** Create a publicly accessible database of energy usage; Release a report documenting patterns and results from the measurement campaign.
***Performance Goals*:** Measure energy usage at 20 mariculture sites/vessels.
Equity Goals: 25% of sites/vessels surveyed will be owned by Alaska Natives & 25% will be rural; Survey at least one site/vessel in each of the four regions in the project (SE, PWS, KP, SW).

<u>Objective 3:</u> Develop best practices guide via energy audit procedures & standards for the industry ($130,000-$150,000)
Using the data collected in Project 2, a model will be developed that allows energy auditors to estimate energy usage based on conversations with mariculture site operators. AFDF will work with the contractor to release a report documenting standard assumptions that should be used in energy assessments of mariculture sites.

Execution Goals: Release a best practices guide by the third year of the project.
Performance Goals: 25% of sites/vessels powered with renewable energy by 2027.
Equity Goals: 25% of rural and 25% Alaska Native owned sites/vessels either powered with green energy or receive training or support services towards implementation of green energy.

General Information

The three objectives listed above should be completed in parallel, but also with feedback loops in which outputs from one objective feed into inputs in another objective. Additionally, the contractor should understand that the mariculture industry currently incorporates a small number of individuals/businesses, however, the intent of the Alaska Mariculture Cluster, with investment by EDA, is to grow the industry substantially in the next 10 years. It is expected that this growth will draw many new participants into the industry and that these participants will likely live in rural communities and/or Alaska Native communities, which is why it is required that an emphasis be placed on rural and Alaska Native communities to receive services and technical support from this project. Additionally, many of the current and new participants are expected to also be participants in the Alaska seafood industry due the significant overlap in knowledge, skills and abilities (working on the water), as well as equipment and infrastructure needs (vessels and processing plants). This context should be taken into consideration when developing the long-term Green Energy Plan (objective 1), as well as when considering participants and communities to target in the completion of these objectives.

Additionally, as the industry grows, the need will grow for additional technical capacity to support implementation of the Green Energy Plan. Consequently, one of the criteria on which proposals will be scored is how the contractor/team/partners build capacity for continued work in decarbonization and the blue economy within Alaska and/or the University of Alaska system (i.e. by including graduate students or interns in the project).

This Green Energy component should establish energy auditing procedures for the mariculture industry. For example, in objective 2, energy audits will be performed at sites throughout the state. Data loggers that measure fuel consumption, electrical and hydraulic loads will be installed to record energy consumption throughout one year of operation, the results will be compiled in a publicly accessible database and a model will be developed that allows energy auditors to estimate energy usage based on conversations with mariculture site operators. Finally, a report will be completed documenting standard assumptions that should be used in energy assessments of mariculture sites. These standard assumptions will allow fair energy audits to be conducted remotely, allowing isolated, rural communities to access federal funding programs like REAP that require energy audits. Remote energy audits are essential to ensuring equitable distribution of energy efficiency funds. When small businesses may see savings of a few thousand dollars per year through energy efficiency improvements, justifying travel costs of thousands of dollars for an energy auditor from Anchorage to access a remote site is impossible. Providing a baseline collection of energy audit measurements and standard assumptions will support energy efficiency efforts for years to come.

The baseline data collected while developing standardized energy auditing assumptions will support a comprehensive Green Energy Plan for the mariculture industry. We expect four types of energy demand within the industry: marine site operation, vessel operation, hatcheries/nurseries, and shoreside processing infrastructure. Each of these types of energy demand warrants a unique renewable energy approach. Existing mariculture sites in Alaska have intermittent loads of less than one kilowatt that may be well served by solar installations with battery infrastructure. Reducing emissions from vessels will require different technologies depending on operations. Skiffs that remain at the mariculture sites may be fully battery-electric and recharge at the site, depending on the solar resource availability. Larger vessels that provide transportation to the sites may be best served by hybrid diesel-electric systems, renewable liquid fuels, or hydrogen fuel cell systems. Any of these technologies will require shoreside infrastructure to provide recharging or refueling opportunities. Finally, shoreside infrastructure may increase load on local electric grids or develop their own power sources. A comprehensive plan will chart a path toward zero carbon operations while minimizing energy costs, capitalizing on the intersection between types of energy loads and maximizing benefits for local communities.

In addition to the industry-wide Green Energy Plan, this component will also create resources designed to serve Indigenous and rural mariculture enterprises. For example, the Green Energy Plan may recommend small solar power systems to serve mariculture sites. Standard guidelines should be developed for mounting solar panels at marine sites, purchasing and installing panels, batteries and charge controllers, and financing the systems. This information will be compiled online, in written reports, and distributed through in-person and virtual workshops, as well as during the Annual Mariculture Conferences. The solutions presented here will accelerate industry growth and innovation by reducing barriers to sustainable energy and limiting exposure to volatile fuel costs. Stable energy costs will reduce risk for entrepreneurs as they start and grow their businesses. The reduced risk will encourage additional private investment in these businesses. Mariculture sites that rely on sustainable energy will also have access to premium markets for sustainable seafood. Utilizing renewable energy will increase reinvestment of mariculture profits in local communities by reducing fuel costs. The reinvestment will support additional local employment. Early investment in sustainable energy will create a virtuous cycle as entrepreneurs benefit from the reliable energy source and create a market for renewable energy technology that spurs further investment in developing technologies for the mariculture industry. This component aligns with EDA's Recovery and Resilience investment priority by ensuring that the industry is resilient to volatile fuel prices and increasing pressure to reduce greenhouse gas emissions. This component project empowers the Mariculture Cluster to reduce greenhouse gas emissions from their energy infrastructure in order to fulfill the EDA's environmentally-sustainable development investment priority.

Deliverables:

Objective 1: Develop a long-term Green Energy Plan for Alaska's Mariculture Industry

- Produce literature review of existing green energy plans for other industries and locations and submit to the project advisory panel for review.
- Create an Green Energy Plan outline based on information gathered during literature review and submit to the project advisory panel for review.
- Create a draft Green Energy Plan that is based on outline and feedback from the advisory panel, and submit to the project advisory panel for review.
- Create final Green Energy Plan which incorporates feedback from advisory panel
- In collaboration with AFDF, SEC, and regional liaisons, distribute the final report through professional networks and the annual Alaska Mariculture Conference.
- Produce summaries of work completed to be incorporated into a semi-annual report to EDA.

Objective 2: Collect baseline data of current energy usage & generate recommendations for renewable energy alternatives

- Select sites/vessels to survey for baseline data collection and create publicly accessible database for recording energy usage.
- Collect baseline data about current energy use from selected sites/vessels.
- Provide recommendations for renewable energy opportunities at monitored sites.
- Write a final report detailing findings from the data collection and recommendations for renewable energy alternatives.
- In collaboration with AFDF, SEC and regional liaisons, distribute the final report through professional networks and the annual Alaska Mariculture Conference.
- Produce summaries of work completed to be incorporated into a semi-annual report to EDA.

Objective 3: Develop best practices guide via energy audit procedures & standards for the industry

- Coordinate with the AMC Workforce Development team and incorporate findings from Project 2, draft the best practices guide.
- Review the draft guide with the advisory panel.
- Create the final version of the guide, incorporating input from the advisory panel.
- In collaboration with AFDF, SEC, and regional liaisons, provide additional outreach and training to industry regarding implementation of best practices.
- Produce summaries of work completed to be incorporated into a semi-annual report to EDA.

Timeline and Funding Available:

Funding is secured for the scope of this project over four years. A contractor's proposed budget should range $540,000-$600,000 over the duration of the project period, which is inclusive of travel, supplies, or other expenses incurred by the contractor in order to complete this work. AFDF will consider either one dedicated individual or organization who can fill this contract, or organizations can propose other arrangements/partnerships that meet the scope of work and provide the same level of dedicated capacity. See the attached Timeline for more details.

Proposal Contents:

Proposal submitted for consideration should contain the following information:

- Narrative (5 pgs max), which includes:
    - list of past experience on relevant or similar projects
    - description of in-state capacity building
    - strategy to meet execution, performance and equity goals
- Budget (1 pg max)
- Resume of lead contractor(s)
- Timeline (1 pg max)
- Additional attachments

Qualifications:

Scoring of each proposal against the criteria listed below will be conducted by a committee with recommendations and final approval made in cooperation with the lead entity, Southeast Conference. Criteria for selecting proposals is as follows:

- 20% Demonstration of knowledge and understanding of the project
- 20% Past experience on relevant and/or similar projects
- 20% Demonstration of capacity to complete all of the deliverables within the required timeline
- 20% Costs are reasonable and fall within available/projected funding levels
- 20% Builds capacity for continued work in decarbonization and the blue economy within Alaska and/or the University of Alaska system (i.e. by including graduate students or interns in the project).

Right to Refusal: AFDF reserves the right to reject any and all proposals received.

Due Date: Proposals must be submitted via email no later than **5:00pm AST, Thursday, April 20, 2023** to Hannah Wilson at hwilson@afdf.org as either Adobe PDF or Microsoft Word documents. For questions, please call or email Hannah Wilson at 907-276-7315, hwilson@afdf.org.

Project Period: October 1, 2022 - September 30, 2026

Timeline & Tasks - Revised

Description of Goals/Objectives/Tasks	2022	2023				2024				2025				2026			Responsible Party (initials)	Metrics & Equity Measures	Target for metric/equity measure
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16			
GOAL: Grow a $100 million per year mariculture industry in 20 years; in next 4 years, implement eight component projects funded by $49 million EDA BBB grant. Component Project #6: Green Energy (AFDF)																			
Project 6-1: Develop a long-term Green Energy Plan for Alaska's Mariculture Industry ($200,000)																		Release plan; attendees @ conf; 25% renewable by 2027; 90% renewable by 2040	Renewable energy adopted @ 25% rural / Alaska Native sites; attendees = 25% + 25%
Task 6-1-1: Assemble advisors for consultation (ALFA, LaunchAlaska, ACEP)	■	■															JD, ADV		
Task 6-1-2: Develop scope of plan & criteria for proposal evaluation		■															JD, HW, ADV		
Task 6-1-3: Write & issue RFP soliciting proposals from contractors		■	■														JD, HW		
Task 6-1-4: Select, fund & sign contract		■	■														JD, HW, ADV, GB		
Task 6-1-5: Monitor progress; receive literature review; receive & review plan outline			■	■	■												JD, HW, CON		
Task 6-1-6: Monitor progress; receive & review draft plan from contractor						■	■	■	■	■							JD, HW, ADV		
Task 6-1-7: Monitor writing progress; receive & review final plan; distribute final plan											■	■	■	■	■	■	JD, HW, CON		
Project 6-2: Collect baseline data of current energy usage & generate recommendations for renewable energy alternatives ($250,000)																		Measure energy usage @ 20 sites; create database of energy usage; complete report of results & patterns	Sites will be 25% rural + 25% Alaska Native; at least 1 site from each Opportunity Zone; attendees = 25% + 25%
Task 6-2-1: Assemble advisors for consultation	■	■															JD, ADV		
Task 6-2-2: Develop scope of work & criteria for proposal evaluation		■															JD, HW, ADV		
Task 6-2-3: Write & issue RFP soliciting proposals from contractors (include 6-3)		■	■														JD, HW		
Task 6-2-4: Select, fund & sign contract		■	■														JD, HW, ADV, GB		
Tasks 6-2-5: Choose sites; create database				■													CON		
Task 6-2-6: Collect baseline data				■	■	■	■	■	■	■	■	■					CON		
Task 6-2-7: Provide recommendations for renewables at sites measured								■	■	■	■	■					CON		
Task 6-2-8: Receive & review final report developed by contractor											■	■	■				CON		
Task 6-2-9: Distribute final report of results thru network & annual conference														■	■	■	JD, HW, CON		
Project 6-3: Develop best practices guide via energy audit procedures & standards for the industry ($150,000)																		Guide released; attendees @ conf; 25% of sites powered with renewable # attendees @ conf	Renewable energy adopted @ 25% rural / Alaska Native sites; attendees = 25% + 25%
Task 6-3-1: Begin drafting guide, coordinate with WFD team, incorporate final report from 6-2										■	■	■	■				CON		
Task 6-3-2: Review draft best practices guide													■	■			JD, HW, ADV, CON		
Task 6-3-3: Receive & distribute final guide thru network & annual conference														■	■	■	JD, HW		
Task 6-3-4: Additional outreach/training to industry regarding implementation of best practices															■	■	CON		

JD=Julie Decker, ER=Ekaterina Ratzlaff, Hannah Wilson=HW, Robin McKnight=RM, Graduate Student=GRAD, contractor=CON, advisors=ADV, farmers=FARM, Steering Committee=SC, Governance Body=GB