

2020 Renewable Energy Fund (REF) Status Report

Alaska Energy Authority —
Renewable Energy Fund – Round XIII

Alaska State Legislature
January 2021



ALASKA ENERGY AUTHORITY



SAFE,
RELIABLE, &
AFFORDABLE
ENERGY
SOLUTIONS

REDUCING THE COST OF ENERGY IN ALASKA

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REF Overview

The Alaska Renewable Energy Fund (REF) is a competitive grant program that was established by the Alaska State Legislature in 2008 and is now in its thirteenth annual funding cycle (i.e. Round). The program was established to help fund cost-effective renewable energy projects throughout the state. These projects are intended to help communities reduce their dependence on fossil fuels in order to stabilize their costs of both heat and electricity. The program also creates jobs, utilizes local energy resources, keeps money in local economies, and fosters economic development. As December 31, 2020, the REF has funded \$255 million worth of projects since its inception.



REF Statutory Guidance (AS 42.45.045)

Eligible projects must:

Be a new project not in operation in 2008, and

- be a hydroelectric facility;
- direct use* of renewable energy resources;
- a facility that generates electricity from fuel cells that use hydrogen from renewable energy sources or natural gas** (subject to additional conditions); or
- be a facility that generates electricity using renewable energy.
- natural gas** applications must also benefit a community that
 - Has a population of 10,000 or less, and
 - Does not have economically viable renewable energy resources it can develop.

*3 AAC 107.615 a project is a "direct use" of RE resources if it uses renewable energy resources to generate or to make a fuel used to generate energy

Evaluation process

Develop a methodology for determining the order of projects that may receive assistance,

- most weight being given to projects that serve any area in which the average cost of energy to each resident of the area exceeds the average cost to each resident of other areas of the state,
- significant weight given to a *statewide balance of grant funds* and to the *amount of matching funds an applicant is able to make available*
- The REF evaluation process is comprised of four stages.



Request for Applications Schedule – REF Round XIII

DATE	ACTION
Jul 20, 2020	Request For Applications (RFA) posted
Sep 28, 2020	Application submission deadline
Sep - Dec 2020	Evaluation of Applications
Jan 15, 2021	Renewable Energy Fund Advisory Committee (REFAC) Meeting
Jan 29, 2021	AEA deadline for recommendations to Legislature
July 1, 2021* (Estimate)	Capital funds appropriated by Legislature – Grants could begin



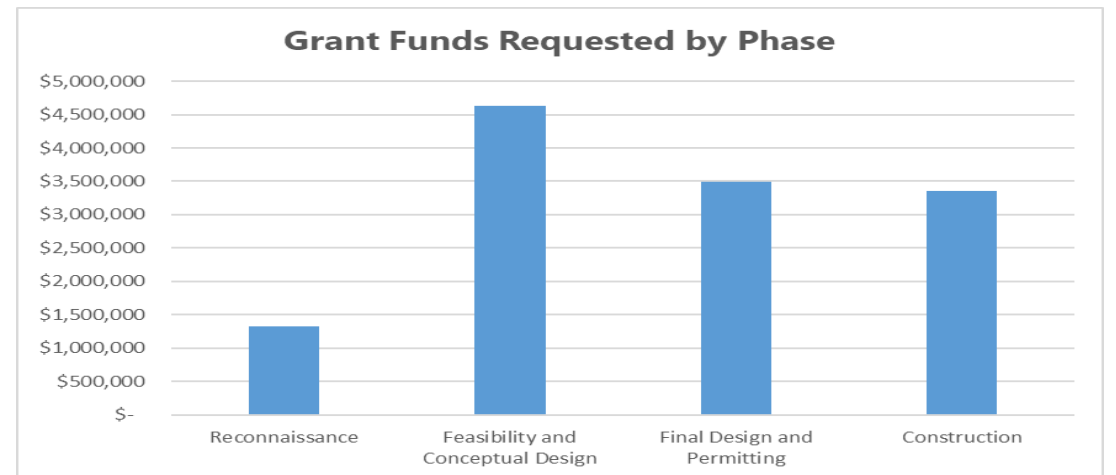
Round XIII – Received Applications Summary

The table to the right indicates the number of applications received by requested phase*, along with the corresponding grant request totals. Per the current RFA, there are four phases, listed below in chronological order, for which an applicant may indicate a funding request:

- (1) Reconnaissance
- (2) Feasibility and Conceptual Design
- (3) Final Design and Permitting
- (4) Construction

*For purposes of tabulation, if an applicant applied for more than one phase, the first chronological phase was counted, with the latter phases being excluded.

Requested Phase	No. of applications	Grant Funds Requested
Reconnaissance	4	\$ 1,327,905
Feasibility and Conceptual Design	8	\$ 4,637,321
Final Design and Permitting	5	\$ 3,496,737
Construction	4	\$ 3,362,000
Total	21	\$ 12,823,963

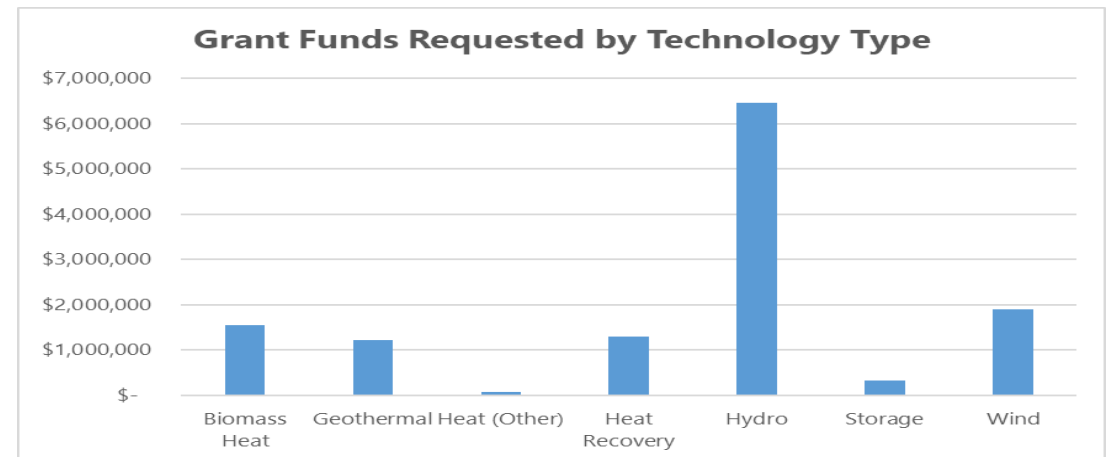
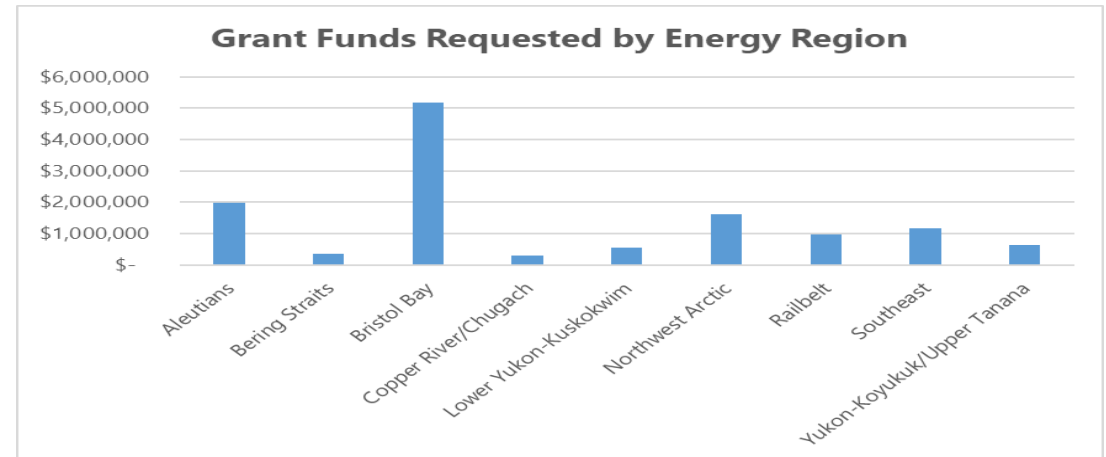


Round XIII – Received Applications Summary

For REF Round XIII, AEA received a total of 21 applications yielding a total grant funding request of \$12.8 million.

Energy Region	No. of Applications	Grant Funds Requested
Aleutians	2	\$ 1,995,163
Bering Straits	1	\$ 368,822
Bristol Bay	5	\$ 5,181,156
Copper River/Chugach	1	\$ 294,642
Lower Yukon-Kuskokwim	4	\$ 564,750
Northwest Arctic	2	\$ 1,628,607
Railbelt	2	\$ 963,349
Southeast	3	\$ 1,177,474
Yukon-Koyukuk/Upper Tanana	1	\$ 650,000
Total	21	\$ 12,823,963

Technology	No. of Applications	Grant Funds Requested
Biomass Heat	2	\$ 1,544,000
Geothermal	2	\$ 1,220,085
Heat (Other)	1	\$ 69,349
Heat Recovery	1	\$ 1,303,607
Hydro	7	\$ 6,458,772
Storage	1	\$ 325,000
Wind	7	\$ 1,903,150
Total	21	\$ 12,823,963



REF Evaluation Process - Stage 1 – Eligibility and Completeness

The REF evaluation process is comprised of four stages. Stage one is an evaluation of applicant and project eligibility and application completeness, as per 3 AAC 107.635. This portion of the evaluation process is conducted by AEA staff.

- Applicant eligibility is defined as per AS 42.45.045 (l).
 - *"electric utility holding a certificate of public convenience and necessity under AS 42.05, independent power producer, local government, or other governmental utility, including a tribal council and housing authority;"*
- Project eligibility is defined as per AS 42.45.045 (f)-(h) and is provided on the preceding page.
- Project completeness
 - An application is complete in that the information provided is sufficiently responsive to the RFA to allow AEA to consider the application in the next stage (stage two) of the evaluation.

- The application must provide a detail description of the phase(s) of project proposed.

STAGE 1 CRITERIA	PASS/FAIL
Timely submittal of application	PASS/FAIL
Applicant eligibility, including formal authorization and ownership, site control, and operation	PASS/FAIL
Project Eligibility	PASS/FAIL
Complete application, including Phase description(s)	PASS/FAIL

Applications which fail to meet the requirements of stage one will be rejected by the authority, and the authority will notify each applicant whose application is rejected of the authority's decision.



REF Evaluation Process - Stage 2 – Technical and Economic Feasibility

Stage two is an evaluation concerning technical and economic feasibility. This portion of the evaluation process is conducted by AEA staff, Alaska Department of Natural Resources, and contracted third-party vendors.

The following items are evaluated as part of the stage two evaluation, as required per 3 AAC 107.645:

- Project management, development, and operations
- Qualifications and experience of project management team, including on-going maintenance and operation
- Technical feasibility – including but not limited to sustainable current and future availability of renewable resource, site availability and suitability, technical and environmental risks, and reasonableness of proposed energy system
- Economic feasibility and benefits – including but not limited to project benefit-cost ratio, project financing plan, and other public benefits owing to the project

All stage 2 criteria are weighted as follows as part of the evaluation process. Those applications that score below 40 points in this stage will be automatically rejected by the authority, however, those projects scoring above 40 can also be rejected as under 3 AAC 107.645(b) has the authority to reject applications that it determines to be not technically and economically feasible, or do not provide sufficient public benefit.

CRITERIA	CRITERIA DESCRIPTION	WEIGHT
1	Project management, development, and operation	25%
2	Qualifications and experience	20%
3	Technical feasibility	20%
4.a	Economic benefit-cost ratio	25%
4.b	Financing plan	5%
4.c	Other public benefit	5%



REF Evaluation Process - Stage 3 – Project Ranking

Stage three is an evaluation concerning the ranking of eligible projects. This portion of the evaluation process is conducted by AEA staff in conjunction with solicitation from the Renewable Energy Fund Advisory Committee (REFAC) .

The following items are evaluated as part of the stage three evaluation, as required per 3 AAC 107.655-660:

- Cost of energy
- Applicant matching funds
- Project feasibility (levelized score from stage 2)
- Project readiness
- Public benefits (evaluated through stage 2 benefits)
- Sustainability
- Local Support
- Regional Balance
- Compliance

All stage 3 criteria are weighted as follows as part of the evaluation process. The stage 3 scoring is used to determine the ranking score.

CRITERIA	CRITERIA DESCRIPTION	WEIGHT
1	Cost of Energy	30%
2	Matching Funds	15%
3	Project Feasibility (levelized score from stage 2)	25%
4	Project Readiness	5%
5	Public Benefits	10%
6	Sustainability	10%
7	Local Support	5%
8	Regional Balance	Pass/Fail
9	Compliance	Pass/Fail



REF Evaluation Process - Stage 4 – Regional Spreading

Stage four is a final ranking of eligible projects, as required per 3 AAC 107.660, which gives “significant weight to providing a statewide balance of grant money, taking into consideration the amount of money available, number and types of projects within each region, regional rank, and statewide rank.” This portion of the evaluation process is conducted by AEA staff in conjunction with solicitation from the Renewable Energy Fund Advisory Committee (REFAC) .

The following items are evaluated as part of the stage four evaluation, as required per 3 AAC 107.660:

- Cost of energy burden = [HH cost of electric + HH heat cost] ÷ [HH income] – this is used to determine target funding allocation by region – for regional spreading

Stage 4 cost of energy burden given below. The below table indicates target funding, as has been allocated, by region, this will be applied to stage 3 statewide ranking to determine the regionally-spread rank.

Cumulative through Round 9									
Energy Region	Total Round 1-9 Funding		Cost of Power Allocation				Population		Even Split
	Grant Funding	% Total	Cost burden (HH cost/HH income)	Allocation cost of energy basis	Additional funding needed to reach 50%	% of target allocation	% Total	Allocation per capita basis	Allocation per region basis
Aleutians	\$17,426,348	7%	9.39%	\$17,935,444	(\$8,458,626)	97%	1%	\$2,851,862	\$21,991,472
Bering Straits	\$20,485,269	8%	15.43%	\$29,456,220	(\$5,757,159)	70%	1%	\$3,301,922	\$21,991,472
Bristol Bay	\$10,911,982	5%	14.40%	\$27,499,297	\$2,837,666	40%	1%	\$2,498,585	\$21,991,472
Copper River/Chugach	\$23,793,838	10%	6.93%	\$13,224,221	(\$17,181,728)	180%	1%	\$3,090,571	\$21,991,472
Kodiak	\$16,486,919	7%	5.83%	\$11,132,481	(\$10,920,678)	148%	1%	\$2,951,723	\$21,991,472
Lower Yukon-Kuskokwim	\$37,237,089	15%	17.83%	\$34,039,114	(\$20,217,531)	109%	4%	\$8,971,788	\$21,991,472
North Slope	\$1,251,859	1%	3.87%	\$7,393,706	\$2,444,994	17%	1%	\$2,491,403	\$21,991,472
Northwest Arctic	\$23,119,029	10%	15.99%	\$30,540,928	(\$7,848,564)	76%	1%	\$2,512,949	\$21,991,472
Railbelt	\$22,059,938	9%	5.05%	\$9,636,377	(\$17,241,750)	229%	78%	\$188,445,503	\$21,991,472
Southeast	\$54,193,791	22%	5.48%	\$10,469,004	(\$48,959,289)	518%	9%	\$22,566,950	\$21,991,472
Yukon-Koyukuk/Upper Tanana	\$14,377,031	6%	26.49%	\$50,579,402	\$10,912,670	28%	1%	\$2,222,940	\$21,991,472
Statewide	\$563,101	0%	0.00%						
TOTAL	\$241,906,195	100%		\$241,906,195			100%	\$241,906,195	\$241,906,195



REF Funding Limits

REF Round XIII Grant Funding Limits

Phase	Grant Limits by Location	
	Low Energy Cost Areas*	High Energy Cost Areas**
Total project grant limit	\$1M	\$2M
Phase I, Reconnaissance	The <u>per project</u> total of Phase I and II is limited to 20% of anticipated construction cost (Phase IV), not to exceed \$1M.	
Phase II, Feasibility and Conceptual Design		
Phase III, Final Design and Permitting	20% of anticipated construction cost (Phase IV), and counting against the total construction grant limit below.	
Phase IV, Construction and Commissioning	\$1M per project , including final design and permitting (Phase III) costs, above.	\$2M per project , including final design and permitting (Phase III) costs, above.
Exceptions		
Biofuel projects	Biofuel projects where the applicant does not intend to generate electricity or heat for sale to the public are limited to reconnaissance and feasibility phases only at the limits expressed above. Biofuel is a solid, liquid or gaseous fuel produced from biomass, excluding fossil fuels.	
Geothermal projects	The per-project total of Phase I and II for geothermal projects is limited to 20% of anticipated construction costs (Phase IV), not to exceed \$1M/\$2M (low/high cost areas). Any amount above the usual \$1M cap spent on these two phases combined shall reduce the total Phase III and IV grant limit by the same amount, thereby keeping the same total grant dollar cap as all other projects. This exception recognizes the typically increased cost of the feasibility stage due to test well drilling.	

REF Round XIII funding limits are governed by the requested phase(s) in the application and the technology type applied. *No grant request amounts were found to be in excess of the grant funding limits as stated.*

Low vs High Cost Energy Areas:

- *Low Energy Cost Areas* are defined as communities with a residential retail electric rate of below \$0.20 per kWh, before Power Cost Equalization (PCE) reimbursement is applied. For heat projects, low energy cost areas are communities with natural gas available as a heating fuel to at least 50% of residences, or availability expected by the time the proposed project is constructed.
- *High Energy Cost Areas* are defined as communities with a residential retail electric rate of \$0.20 per kWh or higher, before PCE funding is applied. For heat projects, high energy cost areas are communities that do not have natural gas available as a heating fuel



REF Fund Balance

As of December 31st, 2020, the current REF Fund Balance is \$6.5 million. The REF program is set to sunset in 2023. As indicated in the provided budget analysis, there are administrative costs related to operating budget appropriations allocated for FY22 and FY23.

With a current REF fund balance of \$6.5 million, this is insufficient to cover the total grant requests of all 21 received applications of \$12.8 million, a delta of (\$6.2 million).

The current list of 11 recommended applications totals a recommended grant request of \$4.7 million. With a REF fund balance of \$6.5 million, this is sufficient to cover these requests with \$1.7 million remaining for further appropriation or left within the fund, at the discretion of the Legislature.

ALASKA ENERGY AUTHORITY Renewable Energy Grant Fund Analysis As of December 31, 2020

Fund Income Sources:	Fund Totals
SOA Fund Capitalizations	\$ 271,004,590
Investment Income (Note 1):	
Cumulative as of June 30, 2020	12,302,805
July 1, 2020 through December 31, 2020 (Note 2)	95,393
Total Sources of Fund Income	283,402,788
Fund Income Uses:	
REF Grant Program Expenditures	241,906,195
RPSU Capital Project Expenditures	2,830,257
Cumulative Grant Administration - Operating (FY11 to current)	14,996,699
Total Uses of Fund Income	259,733,151
Net Fund Balance @ 12/31/2020	23,669,638
Uncommitted Fund Balances:	
Commitments	(440,000)
Grant Encumbrances	(3,610,730)
Remaining Budget Committed to Grants	(8,675,367)
Remaining Budget Committed to FY21 Operating Costs	(1,281,401)
Net Uncommitted Fund Balance	9,662,140
Reappropriation Items:	
Remaining FY18 Rural Power Systems Upgrades (Note 3)	(325,743)
Adjusted Fund Balance @ 12/31/2020	9,336,397
Future Budget Items:	
FY22 Operating Budget Appropriation (proposed)	(1,400,000)
FY23 Operating Budget Appropriation (proposed)	(1,400,000)
Adjusted Fund Balance @ 01/01/2021	\$ 6,536,397

Notes:

Note 1: Investment earnings are retained with the Fund

Note 2: Investment earnings are through 12/31/2020

Note 3: TSSLA 2017, CH. 1, FCCS SB 23, SEC 12, PAGE 17, LINES 4-7



Renewable Energy Fund Advisory Committee (REFAC)

NAME	TITLE	SECTOR	APPOINTED BY
Kohler, Meera	CEO, Alaska Village Electric Cooperative	Small rural electric utility	Governor (pending)
VACANT	TBD	Business/organization involved in renewable energy	Governor
Schubert, Gail	CEO, Bering Straits Native Corporation	Representative of an Alaska Native Organization	Governor
Siira, Alicia	Member, Denali Commission; Exec Dir, Associated General Contractors of Alaska	Denali Commission	Governor
Thibert, Lee	CEO, Chugach Electric Association	Large urban electric utility	Governor
Von Imhof, Natasha	Senator	Senate Member 2	Senate President
Wilson, David	Senator	Senate Member 1	Senate President
Wool, Adam	Representative	House Member 2	Speaker of the House
Zulkosky, Tiffany	Representative	House Member 1	Speaker of the House



REFAC Roles

Statutes (AS 42.45.045)

- AEA “in consultation with the advisory committee...develop a methodology for determining the order of projects that may receive assistance....”
- AEA “shall, at least once each year, solicit from the advisory committee funding recommendations for all grants.”

Regulations (3 AAC 107.660)

- (a) To establish a statewide balance of recommended projects, the authority will provide to the advisory committee established in [AS 42.45.045](#) (i) a statewide and regional ranking of all applications recommended for grants.
- (b) In consultation with the advisory committee established in [AS 42.45.045](#) (i), the authority will
- (1) make a final prioritized list of all recommended projects, giving significant weight to providing a statewide balance of grant money, and taking into consideration the amount of money that may be available, number and types of projects within each region, regional rank, and statewide rank



Non-Recommended Applications – Summary

In AEA's stage one evaluation, as per 3 AAC 107.635, it was determined that five applications did not meet the requirements and were rejected. Two applicants appealed their rejections as per 3 AAC 107.650 – "Requests for reconsideration". Upon AEA's due consideration and review of the appeals, both rejections were upheld, and final written notices issued to the applicants.

Owing to the subsequent stage two evaluation for the remaining applications, it was concluded by the authority that a further five applications, as per 3 AAC 107.645, were not technically and economically feasible. Applicants were then notified of their rejection. Four applicants appealed their rejections. Upon the authority's receipt of the appeals, and after a thorough review of the applicants' applications, the rejections were upheld. The applicants were then notified in writing of AEA's final determination of non-recommendation.

There are 11 remaining applications which are recommended, with 10 being rejected during stage one and stage two evaluations, of an initial total of 21 applications. In terms of grant funding requests, a total of \$2 million was rejected in stage one and a total of \$4 million rejected in stage two, yielding a total of \$6.7 million in grant request monies remaining. With a current REF fund balance of \$6.5 million, there are insufficient funds to cover the total grant request amount, prior to AEA funding level recommendations as addressed later in the presentation, with a delta of (\$219,476).



Non-Recommended Applications – Summary

The following applications were not recommended for funding, owing to the authority's stage one and stage two evaluation criteria, as indicated below:

Non-Recommended Projects														Project Costs				Recommendation		
Count	Energy Region	Application		Project Name	Applicant	Tech	B/C Ratio	Impacted Population	Household Energy Cost	Stage 2 Score	Stage 3 Score	Regional Rank	Statewide Rank	Requested Phase Cost	Applicant Grant Requested	Applicant Match Offered	Rec Phase(s)	AEA Rec Funding Level	Rec Funding	Cumulative Funding
1	Railbelt	1132	13004	Building Integrated Technologies Potential in Alaska	University of Alaska Anchorage	Heat (Other)	0	7877	\$ 1,428	0	N/A	N/A	N/A	\$ 105,872	\$ 69,349	\$ 36,523	N/A	Stage 1 Reject	Not Recommended	\$ 69,349
2	Bristol Bay	1136	13008	Chignik Hydroelectric Dam Project	City of Chignik	Hydro	0.57	95	\$ 5,826	24.67	N/A	N/A	N/A	\$ 1,276,656	\$ 1,276,656	\$ -	N/A	Stage 2 Reject	Not Recommended	\$ 1,346,005
3	Bering Straits	1137	13009	Pilgrim Hot Springs Geothermal Power Plant Conceptual Design	Kawerak, Inc. University of Alaska Fairbanks - Alaska Division	Geothermal	1.01	3690	\$ 7,531	42.46	N/A	N/A	N/A	\$ 505,715	\$ 368,822	\$ 136,893	N/A	Stage 2 Reject	Not Recommended	\$ 1,714,827
4	Aleutians	1140	13012	Engineering Alaska's Geothermal Energy- of Geological & Geophysical HSBV, Akutan	Surveys	Geothermal	0	990	\$ 8,418	0	N/A	N/A	N/A	\$ 947,156	\$ 851,263	\$ 95,893	N/A	Stage 1 Reject	Not Recommended	\$ 2,566,090
5	Southeast	1143	13015	Burro Creek Hydro Project	Burro Creek Holdings, LLC Community of Elfin Cove Non-Profit Corporation, Elfin Cove Utility Commission	Hydro	1.56	1045	\$ 4,885	53.17	N/A	N/A	N/A	\$ 612,000	\$ 586,000	\$ 26,000	N/A	Stage 2 Reject	Not Recommended	\$ 3,152,090
6	Southeast	1144	13016	Elfin Cove Hydro Final Permitting and Design	KNUTSON CREEK HYDRO PROJECT CONSTRUCTION	Hydro	0.73	11	\$ 8,007	40.33	N/A	N/A	N/A	\$ 162,500	\$ 130,000	\$ 32,500	N/A	Stage 2 Reject	Not Recommended	\$ 3,282,090
7	Bristol Bay	1145	13017	CONSTRUCTION	Pedro Bay Village Council	Hydro	0.34	36	\$ 7,117	28.33	N/A	N/A	N/A	\$ 1,715,000	\$ 1,710,000	\$ 5,000	N/A	Stage 2 Reject	Not Recommended	\$ 4,992,090
8	Railbelt	1147	13019	NENANA BIOMASS AND WASHETERIA	City of Nenana	Biomass Heat	0	362	\$ 5,072	0	N/A	N/A	N/A	\$ 894,000	\$ 894,000	\$ -	N/A	Stage 1 Reject	Not Recommended	\$ 5,886,090
9	Lower Yukon-Kuskokwim	1148	13020	Akiachak Reconnaissance Study	Akiachak Ltd & Subsidiaries	Wind	0	724	\$ 8,068	0	N/A	N/A	N/A	\$ 91,000	\$ 91,000	\$ -	N/A	Stage 1 Reject	Not Recommended	\$ 5,977,090
10	Bristol Bay	1149	13021	Port Heiden Reconnaissance study	City of Port Heiden	Wind	0	105	\$ 7,703	0	N/A	N/A	N/A	\$ 91,000	\$ 91,000	\$ -	N/A	Stage 1 Reject	Not Recommended	\$ 6,068,090
TOTAL														\$ 6,400,899	\$ 6,068,090				\$ -	

Note:

orange cells indicate heat project applications
blue cells indicate standard electric project applications



Non-Recommended Applications – Stage One

Below are the five identified applications which were rejected owing to the stage one evaluation:

Count	Energy Region	Application ID	Applicant Name	Project Name	Technology	Requested Phase(s)	Rejected Stage	B/C Ratio	Stage 2 Score	Grant Request (\$)	Rejection Reasoning
1	Railbelt	1132	13004 University of Alaska Anchorage University of Alaska Fairbanks - Alaska Division of Geological &	Building Integrated Technologies Potential in Alaska	Heat (Other)	Feas	1	N/A	N/A	\$ 69,349	Ineligible project
2	Aleutians	1140	13012 Geophysical Surveys	Engineering Alaska's Geothermal Energy- HSBV, Akutan	Geothermal	Recon; Feas	1	N/A	N/A	\$ 851,263	Ineligible project
3	Railbelt	1147	13019 City of Nenana	NENANA BIOMASS AND WASHETERIA	Biomass Heat	Const	1	N/A	N/A	\$ 894,000	Late submittal, Incomplete application
4	Lower Yukon- Kuskokwim	1148	13020 Akiachak Ltd & Subsidiaries	Akiachak Reconnaissance Study	Wind	Recon	1	N/A	N/A	\$ 91,000	Late submittal, Incomplete application
5	Bristol Bay	1149	13021 City of Port Heiden	Port Heiden Reconnaissance study	Wind	Recon	1	N/A	N/A	\$ 91,000	Late submittal
Total										\$ 1,996,612	



Non-Recommended Applications – Stage Two

Below, and continued on the following pages, are the five identified applications which were rejected owing to the stage two evaluation:

Count	Energy Region	Application ID	Applicant Name	Project Name	Technology	Requested Phase(s)	Rejected Stage	B/C Ratio	Stage 2 Score	Grant Request (\$)
1	Bristol Bay	1136	13008 City of Chignik	Chignik Hydroelectric Dam Project	Hydro	Design	2	0.57	24.67	\$ 1,276,656
Reasoning	This project is not recommended due primarily to poor economics: high cost of study for marginal benefits and required long life for the investment to achieve economic payback. The potential load (diesel displacement) and resource (annual precipitation) are both very limited. Any decrease in load or resource in a year will not be made up in another year because of the limitations of demand or resource. Capital and operational costs are frequently greater than estimated. However, this application is for almost \$1.3 million dollars for final design and permitting of a small hydroelectric facility. Other projects can tend to have final design and permitting more in the range of half a million dollars plus or minus. Application did not meet the minimum score of 40 points in stage 2.									



Non-Recommended Applications – Stage Two

Count	Energy Region	Application ID	Applicant Name	Project Name	Technology	Requested Phase(s)	Rejected Stage	B/C Ratio	Stage 2 Score	Grant Request (\$)
2	Bering Straits	1137	13009 Kawerak, Inc.	Pilgrim Hot Springs Geothermal Power Plant Conceptual Design	Geothermal	Feas		2 1.01	42.46	\$ 368,822
Insufficient information was available for the applicant analysis, so the AEA analysis is the same as that of the applicant. The project's public benefits may be significant but are not easily monetized and there is no existing electrical system to use as the basis for estimating benefits from displaced diesel-generated electricity. For illustrative purposes we assume the applicant would pursue the developments, without the geothermal resource, by using diesel generators. The applicant assumes that the electrical system will lead to economic development and attract tourists. A demand/market analysis or business plan could help to determine how many visitors can be expected and how many staff will be required to operate the site. This project is predicated on a future tourism- based community. The tourism demand is not fully developed, and subject to seasonality and volatility. The specified powerhouse capacity is based on the geothermal resource estimate, not an existing or estimated community electrical load. The detail and funding for the necessary business planning, tourism development, and infrastructure construction that would justify the design and construction of a geothermal power plant at Pilgrim Hot Springs were not provided. Therefore, AEA does not recommend funding this project.										
Reasoning										



Non-Recommended Applications – Stage Two

Energy Count	Region	Application ID	Applicant Name	Project Name	Technology	Requested Phase(s)	Rejected Stage	B/C Ratio	Stage 2 Score	Grant Request (\$)
3	Southeast	1143	Burro Creek 13015 Holdings, LLC	Burro Creek Hydro Project	Hydro	Feas; Design	2	1.56	53.17	\$ 586,000
		This project is not recommended due primarily to lack of diesel displacement. Currently almost all energy used by local utility is generated from hydropower such that an intertie with the local utility would not displace diesel fuel. Potential diesel loads to be displaced are given as dock electrification, transmission to the Yukon for mine loads, and various electric transportation in Skagway. Electrification of dock for cruise ships poses very substantial technical challenges. Displacement of cruise ship power would occur only part of the year and part of a week. A connection for cruise ships would not enable ships to go off diesel. Transportation and mines are other possible future demands that are not currently present. The project likely has a significant higher direct and indirect cost than estimated. Prior to any sales various infrastructure upgrades to the utility system would need to occur. Power sales from this project would need to go through the local utility. The utility may choose to meet new loads by developing their own projects and not purchasing power from an Independent Power Producer. A large percent of the application is for a business plan. To determine the project market an Integrated Resources Plan needs to be prepared with the local utility to determine the future possible loads and projects to meet the loads.								
Reasoning										



Non-Recommended Applications – Stage Two

Energy Count	Region	Application ID	Applicant Name	Project Name	Technology	Requested Phase(s)	Rejected Stage	B/C Ratio	Stage 2 Score	Grant Request (\$)
4	Southeast	1144	Community of Elfin Cove Non-Profit Corporation, Elfin Cove Utility Commission	Elfin Cove Hydro Final Permitting and Design	Hydro	Design	2	0.73	40.33	\$ 130,000
Reasoning		This project is not recommended due primarily to poor economics: high cost of study for marginal benefits, required long life for the investment to achieve economic payback and the associated uncertainty about whether the resource will be available used for its economic life. The potential load (diesel displacement) and resource (annual precipitation) are both very limited. Any decrease in load or resource in a year will not be made up another year because of the limitations of demand or resource. Capital and operational costs are frequently greater than estimated. The construction cost estimate uses 18% for contingency. This project will be small, remote, few bidders, and there are questions on how items will be constructed. Similar small projects in the Southeast have had cost increases greater than 20%. This phase of design and permitting work has received grant funding from the Renewable Energy Fund and the time and cost have substantially increased from initial estimates. The substantial increases provide AEA with less confidence in completion of current phase and construction phase.								



Non-Recommended Applications – Stage Two

Energy Count	Region	Application ID	Applicant Name	Project Name	Technology	Requested Phase(s)	Rejected Stage	B/C Ratio	Stage 2 Score	Grant Request (\$)
5	Bristol Bay	1145	Pedro Bay Village Council	KNUTSON CREEK HYDRO PROJECT CONSTRUCTION	Hydro	Const	2	0.34	28.33	\$ 1,710,000
Reasoning	This project is not recommended due primarily to poor economics. With a B/C ratio of less than 1.0, the calculated future benefits of the project are less than the costs. The model B/C Ratio calculated is likely optimistic as the capital construction cost of the project and operation & maintenance costs for two systems (hydro and diesel) tend to be more than estimated. Capital and operational costs are frequently greater than estimated. The Grant would be used for phase 1 of the project with additional sources of funds not identified for phase 1 cost increases or future phases. This project will be small, remote, few bidders, and breaking a project into phases over many years as funding is sought will increase costs because of multiple mobilizations and length of project management time. There are significantly limited reasonable funding options that would be available to the applicant to cover phase 1 cost increases/overruns or future phase costs in a timely manner. Any loan commitments on the part of the applicant would further depress the B/C ratio. Application did not meet the minimum score of 40 points in stage 2.									
TOTAL										\$ 4,071,478



Solicitation of Advice from REFAC

As statutorily required per AS 42.45.045 and set forth in 3 AAC 107.660, the authority solicited advice from the REFAC, on Jan 15, 2021, during the posted public meeting concerning making a final list / ranking of eligible projects, which gives *"significant weight to providing a statewide balance of grant money, taking into consideration the amount of money available, number and types of projects within each region, regional rank, and statewide rank."* This finalized list is provided herein for consideration by the legislature for recommendation in accordance with AS 42.45.045(d)(3). Any grant awards are subject to legislative appropriation.

The right-hand table is provided to assess the "regional spreading" of REF funding. As indicated, both the Railbelt and the Southeast energy regions currently exceed 200% of their target allocation based on their cost of energy burden. Bristol Bay, Yukon-Koyukuk/Upper Tanana, and the North Slope energy regions are the remaining regions where the allocation, based on the cost of energy burden, has not met 50% of their potential allocation, categorizing these regions as "under-served".

The authority solicits advice from the REFAC relating to any recommendations in changes to funding level, ranking, and/or total amount of funding and number of projects.

Cumulative through Round 9									
Energy Region	Total Round 1-9 Funding		Cost of Power Allocation				Population		Even Split
	Grant Funding	% Total	Cost burden (HH cost/HH income)	Allocation cost of energy basis	Additional funding needed to reach 50%	% of target allocation	% Total	Allocation per capita basis	Allocation per region basis
Aleutians	\$17,426,348	7%	9.39%	\$17,935,444	(\$8,458,626)	97%	1%	\$2,851,862	\$21,991,472
Bering Straits	\$20,485,269	8%	15.43%	\$29,456,220	(\$5,757,159)	70%	1%	\$3,301,922	\$21,991,472
Bristol Bay	\$10,911,982	5%	14.40%	\$27,499,297	\$2,837,666	40%	1%	\$2,498,585	\$21,991,472
Copper River/Chugach	\$23,793,838	10%	6.93%	\$13,224,221	(\$17,181,728)	180%	1%	\$3,090,571	\$21,991,472
Kodiak	\$16,486,919	7%	5.83%	\$11,132,481	(\$10,920,678)	148%	1%	\$2,951,723	\$21,991,472
Lower Yukon-Kuskokwim	\$37,237,089	15%	17.83%	\$34,039,114	(\$20,217,531)	109%	4%	\$8,971,788	\$21,991,472
North Slope	\$1,251,859	1%	3.87%	\$7,393,706	\$2,444,994	17%	1%	\$2,491,403	\$21,991,472
Northwest Arctic	\$23,119,029	10%	15.99%	\$30,540,928	(\$7,848,564)	76%	1%	\$2,512,949	\$21,991,472
Railbelt	\$22,059,938	9%	5.05%	\$9,636,377	(\$17,241,750)	229%	78%	\$188,445,503	\$21,991,472
Southeast	\$54,193,791	22%	5.48%	\$10,469,004	(\$48,959,289)	518%	9%	\$22,566,950	\$21,991,472
Yukon-Koyukuk/Upper Tanana	\$14,377,031	6%	26.49%	\$50,579,402	\$10,912,670	28%	1%	\$2,222,940	\$21,991,472
Statewide	\$563,101	0%	0.00%						
TOTAL	\$241,906,195	100%		\$241,906,195			100%	\$241,906,195	\$241,906,195

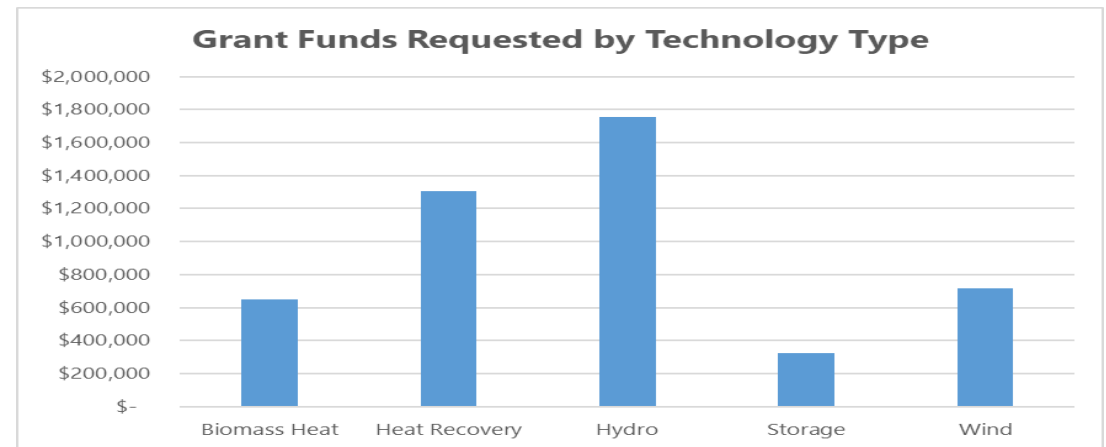
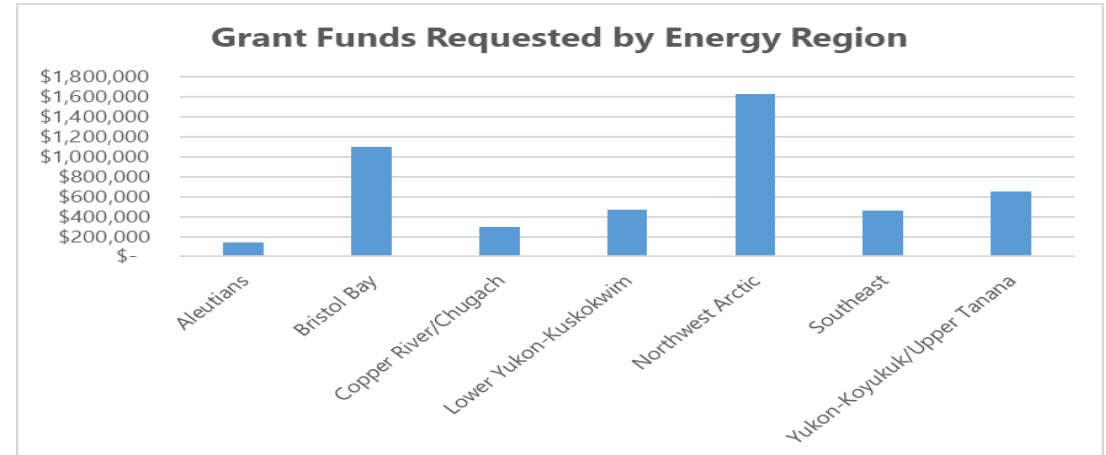


Round XIII – Recommended Applications Summary

There are 11 remaining recommended applications for Round XIII, totaling \$4.7 million. Two applications, pursuant to 3 AAC 170.655(b), are recommended for partial funding, for the initial phase of those requested by the applicant; this accounts for the reduction in grant monies requested from \$6.7 million to \$4.7 million.

Energy Region	No. of applications	Grant Funds Requested
Aleutians	1	\$ 139,000
Bristol Bay	2	\$ 1,103,500
Copper River/Chugach	1	\$ 294,642
Lower Yukon-Kuskokwim	3	\$ 473,750
Northwest Arctic	2	\$ 1,628,607
Southeast	1	\$ 461,474
Yukon-Koyukuk/Upper Tanana	1	\$ 650,000
Total	11	\$ 4,750,973

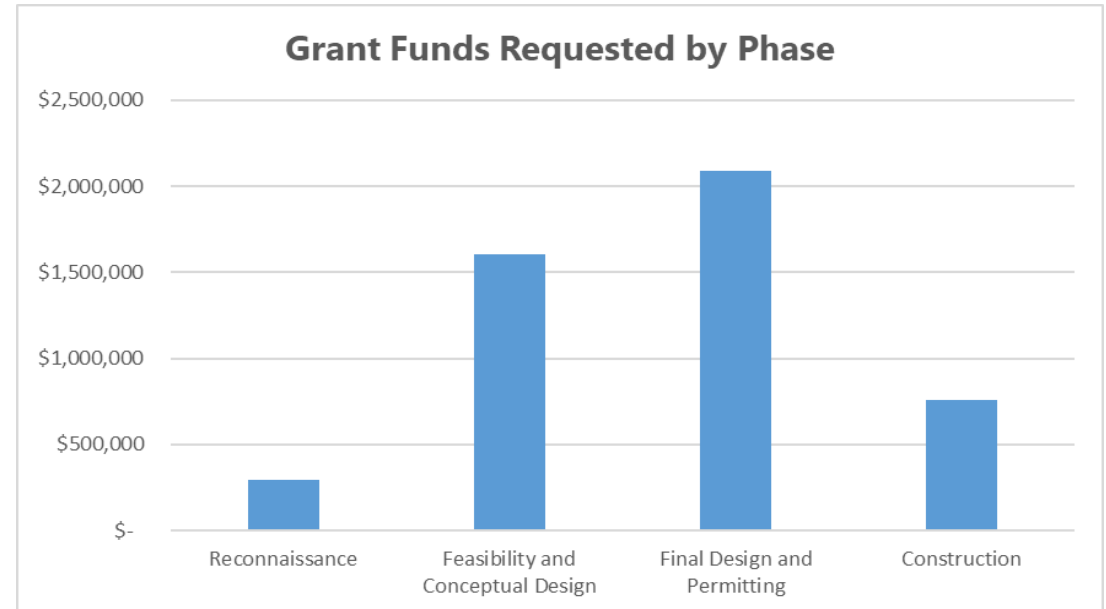
Technology	No. of applications	Grant Funds Requested
Biomass Heat	1	\$ 650,000
Heat Recovery	1	\$ 1,303,607
Hydro	3	\$ 1,756,116
Storage	1	\$ 325,000
Wind	5	\$ 716,250
Total	11	\$ 4,750,973



Round XIII – Recommended Applications Summary

Requested Phase	No. of Applications	Grant Funds Requested
Reconnaissance	1	\$ 294,642
Feasibility and Conceptual Design	5	\$ 1,608,250
Final Design and Permitting	3	\$ 2,090,081
Construction	2	\$ 758,000
Total	11	\$ 4,750,973

With a current REF Fund Balance of \$6.5 million and a remaining total grant request amount of \$4.7 million, there is sufficient REF funds to cover the recommended grant amounts, with a remaining \$1.7 million balance remaining in the fund.



Applications Forwarded for Legislature's Decision on Funding

On January 15, 2021 the REFAC voted unanimously in favor of the authority's recommended applications and assigned ranking, as presented below in descending order:

Recommended Projects																			
Count	Energy Region	ID	Application ID	Project Name	Applicant	Tech	B/C Ratio	Impacted Population	Household Energy Cost	Stage 2 Score	Stage 3 Score	Regional Rank	Statewide Rank	Requested Phase Cost	Project Costs Applicant Requested	Grant Applicant Match Offered	Rec Phase(s)	Recommendation AEA Rec Funding Level	Cumulative Rec Funding
1	Copper River/Chugach	1141	13013	Cordova Hydro Storage Assessment Project	Cordova Electric Cooperative, Inc.	Hydro	0.99	2343	\$ 6,740	78.17	70.13	1	1	\$ 444,642	\$ 294,642	\$ 150,000	Recon; Feas	Full	\$ 294,642
2	Southeast	1138	13010	Water Supply Creek Hydro Final Design - Hoonah, AK	Inside Passage Electric Cooperative	Hydro	1.35	782	\$ 6,297	85.83	70.09	1	2	\$ 536,474	\$ 461,474	\$ 75,000	Design	Full	\$ 461,474
3	Yukon-Koyukuk/Upper Tanana	1134	13006	Walter Northway School Wood Chip Heating System	Alaska Gateway School District	Biomass Heat	1.42	60	\$ 8,246	84.54	69.7	1	3	\$ 683,500	\$ 650,000	\$ 62,375	Const	Full	\$ 650,000
4	Lower Yukon-Kuskokwim	1142	13014	Improved airfoil for wind turbines in Kongiganak	Puvurna Power Company	Wind Heat Recovery	2.02	523	\$ 8,111	89.5	69.66	1	4	\$ 117,000	\$ 108,000	\$ 9,000	Const	Full	\$ 108,000
5	Northwest Arctic	1139	13011	Shungnak Heat Recovery Expansion	City of Shungnak	Heat Recovery	1.03	253	\$ 11,601	73.5	64.44	1	5	\$ 1,303,607	\$ 1,303,607	\$ -	Design; Const	Full	\$ 1,303,607
6	Lower Yukon-Kuskokwim	1130	13002	Goodnews Bay Wind Energy Feasibility and Conceptual Design Project	Alaska Village Electric Cooperative, Inc.	Wind	0.15	284	\$ 6,832	66.33	58.77	2	6	\$ 135,000	\$ 128,250	\$ 6,750	Feas	Full	\$ 128,250
7	Bristol Bay	1129	13001	Nuyakuk River Hydroelectric Project (Run of River Project)	Nushagak Electric & Telephone Cooperative	Hydro	0.25	3306	\$ 6,323	53.58	56.45	1	7	\$ 12,280,000	\$ 2,000,000	\$ 10,280,000	Feas	Partial	\$ 1,000,000
8	Lower Yukon-Kuskokwim	1131	13003	Kotlik Wind Energy Feasibility and Conceptual Design Project	Alaska Village Electric Cooperative, Inc.	Wind	0.25	649	\$ 7,223	57.42	54.73	3	8	\$ 250,000	\$ 237,500	\$ 12,500	Feas	Full	\$ 237,500
9	Bristol Bay	1133	13005	Naknek Service Area Wind and Solar Power Feasibility and Conceptual Design	Naknek Electric Association, Inc.	Wind	0.63	488	\$ 7,814	50.33	53.45	2	9	\$ 115,000	\$ 103,500	\$ 11,500	Feas	Full	\$ 103,500
10	Northwest Arctic	1146	13018	Kotzebue Community-Scale Energy Storage System	Kotzebue Electric Association	Storage	0.85	3112	\$ 7,264	48.54	51.52	2	10	\$ 425,000	\$ 325,000	\$ 100,000	Design	Full w/ SP	\$ 325,000
11	Aleutians	1135	13007	City of Unalaska Wind Power Feasibility and Final Design	City of Unalaska - Department of Public Utilities	Wind	0.54	4592	\$ 4,997	54.33	46.41	1	11	\$ 1,271,000	\$ 1,143,900	\$ 127,100	Feas	Partial	\$ 139,000
TOTAL														\$ 17,561,223	\$ 6,755,873				\$ 4,750,973

Note:

- orange cells indicate heat project applications
- blue cells indicate standard electric project applications



Round XIII – Partial Funding Recommendations

As part of the evaluation process and pursuant to 3 AAC 170.655(b), two application, as indicated below, have been recommended for partial funding. To caveat, if these partial funding recommendations are reversed and full funding recommended, this would raise the total grant request amount for all remaining 11 recommended applications to \$6.7 million. At \$6.7 million, the current REF fund balance of \$6.5 million is insufficient to fund the total grant request amount, yielding a delta of (\$219,476). The REFAC did concur with the authority's findings on these matters of recommended partial funding.

Application										Applicant	Applicant	AEA						
Count	Energy Region	ID	ID	Project Name	Applicant	Technology (Tech/Econ)	Stage 2 Score	Stage 3 Ranking Score	Regional Rank	Statewide Rank	Phase(s) Requested	Grant Requested	Recommended Phase(s)	AEA Recommended Funding Level	Recommended Funding (\$)	Delta		
6	Bristol Bay	1129	13001	Nuyakuk River Hydroelectric Project (Run of River Project)	Nushagak Electric & Telephone Cooperative	Hydro	53.58	56.45	1	6	Feas; Design	\$2,000,000	Feas	Partial	\$ 1,000,000	\$1,000,000		
10	Aleutians	1135	13007	City of Unalaska Wind Power Feasibility and Final Design	City of Unalaska - Department of Public Utilities	Wind	54.33	46.41	1	10	Feas; Design	\$1,143,900	Feas	Partial	\$ 139,000	\$1,004,900		
TOTAL																\$ 3,143,900	\$ 1,139,000	\$2,004,900

Application #13001 – Partial Funding: AEA is recommending funding for the feasibility and conceptual design portion of the project in the amount of \$1,000,000, as indicated by the applicant in their application's budget schedule. Such funding does address the applicant's concern over phase II of their project regarding limited possible and eligible sources of funds for feasibility studies. The applicant is in a position to begin feasibility study work in the project site area owing to their securing of a special use permit from the Alaska Dept. of Natural Resources' Div. of Parks & Outdoor Recreation. AEA understands there are risks relating to the project regarding FERC permitting requirements and potential risks related to significant project cost overages. Owing to this, AEA finds that it is prudent and appropriate at this time to recommend only funding the feasibility and conceptual design portion of the proposed project.



Round XIII – Partial Funding Recommendations

Application #13007 – Partial Funding: AEA recommends partial funding for the proposed project. It is recommended the feasibility and conceptual design (CDR) phase, requested at \$139,000, be funded prior to funding the final design phase. The integration of the Geothermal plant, expected on-line in 2024, with the proposed wind system, potential ESS, and the existing diesel plant is complex and will likely require some study as part of the initial feasibility phase to gauge the requirements for integration. As the feasibility portion of the requested phases is anticipated to finish in April 2022, this allows more time for other components of the project to develop and will refine the scope of the proposed wind system. Successful completion of the feasibility CDR will allow for a determination to be made on the selection of the generational capacity of the proposed wind system. At present, the applicant has provided a range of 2 to 5 MW.



Online Supplemental Materials

Supplemental materials as listed below have been made available on [AEA's website](#) for reference by interested parties:

- *2020 REF Recommendations*
 - REF Round XIII Status Report
 - REF Round XIII Application Summaries Report
 - RED Round XIII Economic Evaluations Summaries Report
- *Application Documents*
 - REF Round 13 Cover Letter
 - Request for Applications Solicitation
 - Standard Application Form
 - Heat Application Form
- *Best Practices Guides*
 - Guide provided for each eligible technology type – Biomass, Heat Pump, Heat Recovery, Hydro, Solar, and Wind
- *Economic Evaluation Model*
- *Additional Documents*





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