

App #400 Wood Chip Boiler Heating System

Resource: Biomass

Proposed Project Phase: Construction
Design

Proposer: Delta/Greely School District

AEA Program Manager: Plentovich, Brown

Applicant Type: Local Government

Project Description

The Delta/Greely School District proposes a Wood Chip Boiler Heating System to heat 77,000 sq. ft. of educational space in the sub-arctic. The legal description of the Delta High School complex is 64 degrees 02' 35.66" N 145 degrees 42' 57.10" W. The building would be located 50 feet away from the Delta High School new mechanical room. This Wood Chip Boiler Heating System constructs and installs the following: Cement building to house wood chip boiler, chip storage room, 4 chip storage trailers, and a chip feeding and chip drying process.

The direct impact of this Wood Chip Boiler Heating System will be the Delta High School complex staff and students as well as the community groups that use this facility on a weekly basis. The following communities are served by this facility: Delta Junction, Fort Greely Garrison and its contractors, Gerstle River, and the greater Deltana area. The businesses, non-profit agencies, Farm Forum, Relay for Life, Fish and Game, Department of Motor Vehicles, Delta Chamber of Commerce, Boy Scouts and Girl Scouts to name a few groups. All use the Delta High School complex during the year. Future plans include hooking the boiler to our Vocation/Agriculture building and Career Advancement Center building. There is also the

possibility of adding a large greenhouse that would supply the schools in the district with fresh

2.4 Project Description continued

produce year round. Finally, the following groups will be involved in this project: Delta/Greely School District (DGSD), the Delta/Greely School Board, DGSD Facilities Committee, Alaska Department of Natural Resources Forestry, CTA, CE2 Engineers, T.R. Miles Technical Consultants, Delta Logging and Milling Associates, Salcha Big Delta Soil & Water Conservation District. USKH (an architecture, engineering, land surveying and planning company).

SEE ATTACHMENT 2.4 PROJECT DESCRIPTION MAP

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$868,000
Matched Funds Provided:	\$2,000,000
Total Potential Grant Amount:	\$2,868,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$868,000

AEA Funding Recommendation: \$868,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #400 Wood Chip Boiler Heating System

Resource: Biomass

Proposed Project Phase: Construction Design

Proposer: Delta/Greely School District

AEA Program Manager: Plentovich, Brown

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 0
- 13
- 5
- 3
- 5
- 4

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #400 Wood Chip Boiler Heating System

Resource: Biomass

Proposed Project Phase: Construction
Design

Proposer: Delta/Greely School District

AEA Program Manager: Plentovich, Brown

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

This has \$2 million approved from AEA so this match is from AEA. Contact Rick Rogers with State Forestry (269-8473) for additional assessment of biomass availability.

AEA Review Comments

Applicant requested funding of \$2,868,000 in round 1 and was awarded funding of \$2 million due to funding caps applied for the Railbelt (See proposal #112).

During 2009 the Delta SD hired a design firm, obtained a fuel supply commitment, and plans construction in late 2010. An associated school building envelop upgrade is 80% complete.

Recommend full funding.

App #401 Terror Lake Unit 3 Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Construction
Design
Proposer: Kodiak Electric Association, INC

AEA Program Manager: Ott **Applicant Type:** Utility

Project Description

The Terror Lake Unit 3 Hydroelectric Project would install a third turbine capable of producing an additional 10 MW in the existing Terror Lake plant. The original engineers of the Terror Lake facility had the foresight to design the facility for the expansion to three turbines. The original design assumed the day would arrive when additional capacity would be required. That day has arrived. Kodiak’s growing demand has surpassed the current capacity of Terror Lake. Expanding the capacity at Terror Lake by 10 megawatts (MW) with a third turbine generator will enhance the stability of KEA’s isolated grid system allowing additional forms of renewable energy to be integrated and reduce KEA’s dependence on diesel fuel. The third turbine at Terror Lake is the cornerstone necessary for KEA to achieve its’ Vision Statement: Endeavor to produce 95% of energy sales with cost effective renewable power solutions by the year 2020.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$7,500,000
Matched Funds Provided:	\$8,407,950
Total Potential Grant Amount:	\$15,907,950
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$248,160
AEA Funding Recommendation:	\$248,162

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #401 Terror Lake Unit 3 Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Construction
Design
Proposer: Kodiak Electric Association, INC

AEA Program Manager: Ott **Applicant Type:** Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	5
2) Matching Resources (Max 20)	20
3) Project Feasibility from Stage 2 (Max 20)	17
4) Project Readiness (Max 10)	6
5) Benefits (Max 15)	12
6) Local Support (Max 5)	5
7) Sustainability (Max 5)	5

Energy Region: Kodiak

Election District:

DNR/DGGS Geohazards Comments

General DGGS statement. Located in general vicinity of Kodiak fault, Narrow Cape fault, and Aleutian subduction zone.

DNR/DGGS Feasibility Comments

App #401 Terror Lake Unit 3 Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Construction
Design

Proposer: Kodiak Electric Association, INC

AEA Program Manager: Ott

Applicant Type: Utility

DNR/DMLW Feasibility Comments

OK - probably only need to change development plan if the land footprint stays the same.

AEA Review Comments

Applicant proposes to continue work toward developing a third turbine at Terror lake hydro. AEA currently has a RE Fund round 2 grant award to KEA for the FERC license amendment and is working through this process.

According to the application KEA would complete final design and bid document development by June 2012. Following this work KEA would initiate the construction phase.

Recommend partial funding to complete final design and bid document development at \$248,160.

App #402 Jack River Hydro Project

Resource: Hydro

Proposed Project Phase: Feasibility
Recon

Proposer: Native Village of Cantwell

AEA Program Manager: Ott

Applicant Type: Government Entity

Project Description

The Native Village of Cantwell wishes to improve the reliability and lower the cost of the community of Cantwells power system. Currently they obtain power from the line between MEA and GVEA (Alaska Intertie System). To accomplish this they propose to build a hydroelectric project on the Jack River, a short distance from Cantwell. The installed capacity of this plant will be in excess of 1 MW. It will be comprised of a dam and a short tunnel. A feasibility design and scoping are required to provide the parameters of the project.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$194,540
Matched Funds Provided:	\$5,460
Total Potential Grant Amount:	\$200,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$194,540
AEA Funding Recommendation:	\$194,540

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #402 Jack River Hydro Project

Resource: Hydro

Proposed Project Phase: Feasibility
Recon

Proposer: Native Village of Cantwell

AEA Program Manager: Ott

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 7
- 7
- 2
- 0
- 5
- 2

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

Located near Denali fault and associated thrust faults. Dam should be designed with considerations for strong ground motions based on a seismic hazards assessment. A detailed site specific geotechnical investigation should be performed to insure that no previously unrecognized faults extend through the dam site.

DNR/DGGS Feasibility Comments

App #402 Jack River Hydro Project

Resource: Hydro

Proposed Project Phase: Feasibility
Recon

Proposer: Native Village of Cantwell

AEA Program Manager: Ott

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

Not sure of navigability of Jack River but there was a previous dispute of the navigability. May or may not need authorizations from DNR beyond that for dam construction if it went beyond feasibility study. There is mention of a dam being constructed near the Denali Fault. Feasibility of getting a dam construction approved would be an issue our dam safety engineer would have to evaluate.

AEA Review Comments

Native Village of for a reconnaissance study for a 1+MW storage hydro project on the Jack River located near Cantwell. The project would connect to the Railbelt Energy Grid served by GVEA.

Recommend full funding of \$194,540.

App #403 Delta Junction Wood Pellet Boiler: Biofuel Pilot Program

Resource: Biomass **Proposed Project Phase:** Construction
Design
Proposer: State of Alaska, Department of Natural Resources, Division of Forestry
AEA Program Manager: Plentovich, Brown **Applicant Type:** Local Government

Project Description

The Division of Forestry at Milepost 267.5 Richardson Highway, Delta Junction is proposing a project using wood pellets for heating two governmental buildings. The boiler system will combine two heating systems, a 3,840 square foot (sf.) main office building, proposed 3,000 sf. addition, and a 1,792 sf. warehouse/shop/maintenance facility. The boiler will be located in a separate building which will house a heating system and pellet storage. The grant will involve local contractors for construction of the building and retrofit of the plumbing systems. A request for proposal (RFP) or a bid process will be used for all aspects of the project. Maintenance of the boiler will be performed by local contractors.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$932,250
Matched Funds Provided:	
Total Potential Grant Amount:	\$932,250
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #403 Delta Junction Wood Pellet Boiler: Biofuel Pilot Program

Resource: Biomass

Proposed Project Phase: Construction
Design

Proposer: State of Alaska, Department of Natural
Resources, Division of Forestry

AEA Program Manager: Plentovich, Brown

Applicant Type: Local Government

AEA Review Comments

Applicant is proposing funding for a wood pellet boiler system to heat the Division of Forestry main office, proposed addition and a warehouse/shop/maintenance facility. The funding would provide design and construction for the boiler building, 2 wood pellet boilers and pellet storage.

Given the high project cost of \$932,000 and a relatively small amount of fuel oil displaced project economics are poor.

Recommend no funding.

App #404 Galena Renewable Energy Project

Resource: Biomass **Proposed Project Phase:** Construction

Proposer: Louden Tribal Council

AEA Program Manager: Plentovich, Brown **Applicant Type:** Government Entity

Project Description

Louden Tribal Council is taking the lead in this application to purchase, install, and commission a new steam powered Combined Heat and Power (CHP) facility that will eventually be owned and operated by the City of Galena as an Independent Power Producer. The new project will include assessment and management of the local biomass resources, formation of a partnership with the biomass owner (Gana-a'Yoo Native Regional Corporation), purchasing and installation of the harvesting equipment, boiler, steam powered generator, and heat recovery systems including Organic Rankine Cycle generators, and providing steam heat for the existing utilidor and buildings occupied by the Galena City School District. We hope and anticipate that the project will eventually be expanded to provide wood pellets for home heating fuel to villages in the local region, and to radically reduce the cost of electric power through interties to other villages.

Funding & Cost

Cost of Power:	\$0.56/kWh
Requested Grant Funds:	\$4,000,000
Matched Funds Provided:	\$7,187,738
Total Potential Grant Amount:	\$11,187,738
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$100,000
AEA Funding Recommendation: \$100,000	

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #404 Galena Renewable Energy Project

Resource: Biomass

Proposed Project Phase: Construction

Proposer: Louden Tribal Council

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	18
2) Matching Resources (Max 20)	7
3) Project Feasibility from Stage 2 (Max 20)	13
4) Project Readiness (Max 10)	3
5) Benefits (Max 15)	14
6) Local Support (Max 5)	3
7) Sustainability (Max 5)	3

Score

Energy Region: Yukon-Koyukuk/Upper Tanana

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #404 Galena Renewable Energy Project

Resource: Biomass

Proposed Project Phase: Construction

Proposer: Louden Tribal Council

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

Unsure biomass availability. Contact Rick Rogers with State Forestry (269-8473) for additional assessment of biomass availability.

AEA Review Comments

Applicant proposes the construction of a combined heat and power system. The project includes assessment and management of the local biomass resources, formation of a partnership with the biomass owner (Gana-a'Yoo Native Regional Corporation), purchasing and installation of the harvesting equipment, boiler, steam powered generator, and heat recovery systems including Organic Rankine Cycle generators, and providing steam heat for the existing utilidor and buildings occupied by the Galena City School District.

Reconnaissance and feasibility are not complete, and design and economics cannot be evaluated.

Construction would not begin until spring 2011. The application does not provide an assessment of availability and delivered cost to the burn point of the wood energy resources, preliminary assessment of permitting or environmental impact, an assessment of system alternatives, or detailed economic and financial analyses.

Recommend partial funding of \$100,000 for feasibility and conceptual design.

App #405 Takatz Lake Hydroelectric Feasibility Analysis

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: City & Borough of Sitka Electric Department

AEA Program Manager: Ott

Applicant Type: Utility
Local Government

Project Description

Development of hydroelectric power at Takatz Lake would include construction of a 200-foot high main concrete arch dam, a small 30-foot high secondary saddle dam, power intake, unlined tunnel, power penstock, power plant, tailrace, and transmission line segments including; underground, submarine, and overhead sections. The project would produce approximately 106,900 MWh per year via two (2) 13.8 MW turbine-generators.

Funding & Cost

Cost of Power:	\$0.09/kWh
Requested Grant Funds:	\$2,000,000
Matched Funds Provided:	\$231,768
Total Potential Grant Amount:	\$2,231,768
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,362,551
AEA Funding Recommendation:	\$921,937

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #405 Takatz Lake Hydroelectric Feasibility Analysis

Resource: Hydro **Proposed Project Phase:** Feasibility
Proposer: City & Borough of Sitka Electric Department
AEA Program Manager: Ott **Applicant Type:** Utility
Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

<u>Criterion (Weight)</u>	<u>Score</u>	
1) Cost of Energy (Max 25)	3	Energy Region: Southeast
2) Matching Resources (Max 20)	12	
3) Project Feasibility from Stage 2 (Max 20)	16	Election District:
4) Project Readiness (Max 10)	4	
5) Benefits (Max 15)	12	
6) Local Support (Max 5)	2	
7) Sustainability (Max 5)	4	

DNR/DGGS Geohazards Comments

Located in the vicinity of the Fairweather-Queen Charlotte fault and the Eastern Denali/Chatham Straight fault to the west and east, respectively. A seismic hazard assessment and a detailed site specific geologic study is necessary.

DNR/DGGS Feasibility Comments

App #405 Takatz Lake Hydroelectric Feasibility Analysis

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: City & Borough of Sitka Electric
Department

AEA Program Manager: Ott

Applicant Type: Utility
Local Government

DNR/DMLW Feasibility Comments

Water Right, Dam approval potential lease because of submerged land ownership. Also dock improvements.

AEA Review Comments

CB of Sitka requests funding for assessing feasibility of the potential 28 MW Takatz Lake hydro project. Due to funding limitations, RE Fund round 1 awarded partial funding of \$514,684 to the project for this purpose. Sitka requests an additional \$2 million in round 3 for this purpose for a total of \$2,514,684.

Project is consistent with findings of the 2008 Sitka Power Supply Plan and would follow less expensive alternatives, including increasing capacity of the existing Blue Lk Hydro project, in order to avoid more costly diesel generation. There is potential for developing road and marine facilities associated with the project that would provide access to eastern Baranof Island. FERC has issued a preliminary permit to Sitka to assess feasibility of Takatz. Given the widespread interest in linking major electric generation and loads in Southeast, development of Takatz should be coordinated with the SE Alaska Regional Energy Plan.

AEA is recommending additional funding of \$637,449 in reallocated RE Fund round 1 funds for Takatz Lk feasibility consistent with Round 1 recommendations of up to \$2 million.

AEA recommends the remaining funding of \$1,362,551 in round 3 funding, (\$2,514,684 minus \$514,684 in original round 1 funds minus \$637,449 in reallocated round1 funds).

App #406 NWAB School Alternate Energy Solar Awareness Project

Resource: Solar

Proposed Project Phase: Construction

Proposer: Northwest Arctic Borough

AEA Program Manager: Landis

Applicant Type: Local Government

Project Description

This proposal is for a 4Kw Solar PV array, to be installed on each of the 11 NWAB High-schools in the Borough, Co-generating with the grid.

The project explores modular inverter technology for redundancy and also provides a platform for understanding Solar(PV) technology for our student base, supporting an upcoming curriculum-addendum at High-school level and a class at Chuckchi College.

With an ongoing program for Alternate Energy in our curriculum, the Schools could expand the arrays every spring to the extent allowable by the local utility (KEA) and AVEC and also communicate the technology and teachings to the other schools in the State of Alaska.

Over time the Schools would become more and more efficient in their use of Energy as each high-school finishing class would contribute a project to offset the Energy usage in the School.

As we incorporate Alternate Energy sources in Alaska’s rural communities, it is important to make a way available for our coming generations to become proficient in the new implementation of the resources. After all, they will live with what we create and have to be able to understand and work with the systems.

If this doesn’t happen and we have to rely on outside expertise to service the new Energy systems, then the cost of operation will be excessive and our effort of lowering Energy cost for the Region will be hampered.

We need to take responsibility, now for what we create for the future generations.

This project will be a start..

Funding & Cost

Cost of Power:	\$0.46/kWh
Requested Grant Funds:	\$549,387
Matched Funds Provided:	\$12,500
Total Potential Grant Amount:	\$561,887
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$135,000

AEA Funding Recommendation: \$135,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #406 NWAB School Alternate Energy Solar Awareness Project

Resource: Solar

Proposed Project Phase: Construction

Proposer: Northwest Arctic Borough

AEA Program Manager: Landis

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

Score

1) Cost of Energy (Max 25)	15
2) Matching Resources (Max 20)	7
3) Project Feasibility from Stage 2 (Max 20)	12
4) Project Readiness (Max 10)	7
5) Benefits (Max 15)	2
6) Local Support (Max 5)	4
7) Sustainability (Max 5)	5

Energy Region: Northwest Arctic

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #406 NWAB School Alternate Energy Solar Awareness Project

Resource: Solar

Proposed Project Phase: Construction

Proposer: Northwest Arctic Borough

AEA Program Manager: Landis

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant is proposing funding for 11 photovoltaic systems in 11 schools to reduce the cost of electricity. This system will provide educational opportunities in renewable energy issues for the students and the community.

Economics this project appear to marginal. The public benefit of the project will be educational in nature.

Recommend partial funding. Funding for 2 photovoltaic units in the amount of \$135,000 will provide for comparison of site effects and will still provide the educational opportunities over the proposed school website.

App #407 Humpback Creek Hydroelectric Project Rehabilitation

Resource: Hydro **Proposed Project Phase:** Construction

Proposer: Cordova Electric Cooperative

AEA Program Manager: Ott

Applicant Type: Utility

Project Description

Cordova Electric Cooperative (CEC) is requesting \$4 million to implement a construction-ready, state-of-the-art hydroelectric facility on Humpback Creek that would generate up to 4 million kWh per year, meeting 16% of Cordova’s annual energy needs with a renewable energy source. CEC operates an isolated electric system and therefore is solely responsible for serving its 1,560 customers. Cordova’s high electricity costs have been cited in several formal and informal community planning documents as a primary inhibitor of economic development, and this project would assist in making electricity rates more affordable for residents and businesses as well as displacing diesel fuel, and reducing our particulate emissions. Competitive bids for project construction exceeded expected cost by \$5,500,000, so CEC is requesting additional funding to that provided in AEA round 1 RE grant.

Funding & Cost

Cost of Power:	\$0.33/kWh
Requested Grant Funds:	\$4,000,000
Matched Funds Provided:	\$13,031,000
Total Potential Grant Amount:	\$17,031,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$4,000,000

AEA Funding Recommendation: \$4,000,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #407 Humpback Creek Hydroelectric Project Rehabilitation

Resource: Hydro **Proposed Project Phase:** Construction

Proposer: Cordova Electric Cooperative

AEA Program Manager: Ott

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	10
2) Matching Resources (Max 20)	19
3) Project Feasibility from Stage 2 (Max 20)	19
4) Project Readiness (Max 10)	10
5) Benefits (Max 15)	13
6) Local Support (Max 5)	5
7) Sustainability (Max 5)	5

Score

Energy Region: Copper River/Chugach

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #407 Humpback Creek Hydroelectric Project Rehabilitation

Resource: Hydro

Proposed Project Phase: Construction

Proposer: Cordova Electric Cooperative

AEA Program Manager: Ott

Applicant Type: Utility

DNR/DMLW Feasibility Comments

probably only water rights needed.

AEA Review Comments

Cordova Electric proposes to complete relocation and replacement of the intake structure for the Humpback Creek hydro project, inoperational after a fire and a flood in 2005 and 2006. AEA has awarded \$4 million in RE fund round 1 dollars for this work; however the installed cost of the project has increased by \$5,431,000 since construction bids came in much higher than expected. CEC has awarded a construction contract and the project is now on schedule for completion by November 2010. There is substantial support from the local Native tribe Eyak and fish procesors, and cost share by FEMA. FERC has issued a license for the rebuild.

Eyak submitted a proposal to USDOE for stimulus funding for \$4.85 million and expects to receive results by March 2010.

Despite a substantially increased project cost, project economics remain attractive. CEC has obtained debt financing in the event that no additional grant funds are secured.

Recommend full funding of \$4,000,000 with the provision that AEA will decrease the grant to CEC by the amount that CEC receives in federal stimulus grant funding for the project.

App #408 Cordova Community Biomass Feasibility Study

Resource: Biomass

Proposed Project Phase: Design Feasibility

Proposer: Native Village of Eyak

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

Project Description

We are proposing to conduct a biomass feasibility study for the utilization of waste wood from the community to heat one or a few public buildings. Astronomical heating costs are inspiring new creativity in planning for sustainable and affordable energy sources for our community in Cordova, Alaska. We have collaborated as a community to develop solutions for our energy needs. Affordable fuel sources have been identified, chief among them the waste cardboard that is currently taken to the landfill and the wood waste generated at the community burn pile. Historically, the community has squandered these potential energy sources by burning them in an open pit. The burn pile will better serve the community when transitioned from a community dump into local-source heating fuel. The community will also save valuable landfill space by converting waste cardboard into a fuel source. The purpose of this project is to develop a system that will take advantage of the valuable resources currently being underutilized. The wood and cardboard waste will become fuel for a biomass boiler to heat one of our community buildings such as the city baler, pool, hospital or school. We need financial assistance to fully develop this project, which can then become self-sustaining. The first step in a renewable energy project such as this is to conduct a feasibility study that will examine our community's energy needs and identify areas where improvements can be made. The feasibility study will look at how and where energy is being used and examine the available BTUs that can be generated by our waste stream. We must also conduct energy audits on the potential buildings to determine which building would be the most efficient and economical candidate for a waste-wood boiler. A community-wide energy audit has not been done in Alaska before, and so we can use this study to create protocol for conducting community energy audits that can be applied to other communities throughout Alaska. This information will be analyzed to determine which building would be the best fit for the project. We must also determine the heat load available so that we can then examine potential buildings and pair the current waste heat load with a building of a comparable load. The study will also investigate the potential methods of fuel treatment and system equipment and create parameters for the system design. The design will determine required purchases – a boiler, wood chipper and other components – and identify required integration work. The City of Cordova owns and operates the burn pile and has endorsed this project. The Cordova School District, a potential beneficiary of the project, is also very supportive. See letters of support on pages 30-31.

Funding & Cost

Cost of Power:	\$0.33/kWh
Requested Grant Funds:	\$245,065
Matched Funds Provided:	\$3,000
Total Potential Grant Amount:	\$248,065
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$193,065
AEA Funding Recommendation:	\$193,065

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #408 Cordova Community Biomass Feasibility Study

Resource: Biomass

Proposed Project Phase: Design Feasibility

Proposer: Native Village of Eyak

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)

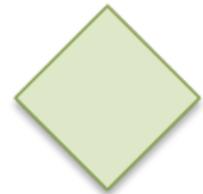


Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 10
- 7
- 12
- 4
- 3
- 5
- 4

Energy Region: Copper River/Chugach

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #408 Cordova Community Biomass Feasibility Study

Resource: Biomass

Proposed Project Phase: Design
Feasibility

Proposer: Native Village of Eyak

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant proposes assessments of buildings in Cordova for wood heat facilities. This project will also develop a community energy audit protocol.

The budget includes \$52,000 in indirect costs that are not allow under the REF program.

Recommended partial funding of \$193,065 reflecting the reduction after the removal of the indirect costs.

App #409 Gastineau Elementary School Geothermal Loopfield

Resource: Geothermal **Proposed Project Phase:** Construction
Design
Proposer: City & Borough of Juneau

AEA Program Manager: McMahon, Lockard **Applicant Type:** Local Government

Project Description

The City & Borough of Juneau is proposing the design and construction of a ground source heat pump system to serve the heating needs at the Juneau School District's Gastineau Elementary School. The community of Juneau recently approved the sale of \$11.8 million in bond debt to fund a comprehensive renovation of the school facility. The building's heating plant and distribution system are to be replaced as part of the project. The City & Borough of Juneau Assembly is interested in reducing the carbon footprint of Juneau and the Juneau School District is interested in reducing the operating costs of their facilities. The conversion of the school's heat plant from oil-fired boilers to a ground source heat pump provides a unique opportunity to achieve goals of both the City & Borough of Juneau and Juneau School District.

The Renewable Energy Fund Grant request herein is for the additional design and construction costs of the ground source heat pump system as compared to a traditional oil-fired heat system.

Funding & Cost

Cost of Power:	\$0.11 /kWh
Requested Grant Funds:	\$1,000,000
Matched Funds Provided:	\$250,000
Total Potential Grant Amount:	\$1,250,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,000,000
AEA Funding Recommendation:	\$1,000,000

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #409 Gastineau Elementary School Geothermal Loopfield

Resource: Geothermal **Proposed Project Phase:** Construction Design
Proposer: City & Borough of Juneau

AEA Program Manager: McMahon, Lockard **Applicant Type:** Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

<u>Criterion (Weight)</u>	<u>Score</u>
1) Cost of Energy (Max 25)	3
2) Matching Resources (Max 20)	14
3) Project Feasibility from Stage 2 (Max 20)	15
4) Project Readiness (Max 10)	2
5) Benefits (Max 15)	8
6) Local Support (Max 5)	3
7) Sustainability (Max 5)	5

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #409 Gastineau Elementary School Geothermal Loopfield

Resource: Geothermal

Proposed Project Phase: Construction
Design

Proposer: City & Borough of Juneau

AEA Program Manager: McMahon, Lockard

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant proposes final design and construction of the ground source heat pump (GSHP) at the Gastineau Elementary School. The project is projected to displace approximately 28,000 gallons per year of heating oil. Additional pumping costs are expected to be approximately \$23,000/yr.

The RE Fund provided grants to GSHP systems at the Juneau Airport and the Dimond aquatic center. GSHP systems on these projects will displace substantially more fuel oil than the proposed system at Gastineau School. However, economics of the school GSHP appear reasonable

Recommend full funding.

App #410 Biomass Fuel Dryer Project

Resource: Biomass

Proposed Project Phase: Construction

Proposer: City of Craig

AEA Program Manager: Plentovich, Brown

Applicant Type: Local Government

Project Description

The project consists of acquiring and installing equipment that will dry approximately 13,000 tons of wood waste per year produced as a byproduct of the sawmilling process. The dried wood would then be burned in publicly owned facilities to provide reduced-cost, district-style heat for these facilities at reduced cost to the public entities that operate these facilities. The project enables recipient facilities to burn renewable fuels to provide heat at lower costs over time than the cost to burn fossil fuels to produce heat.

Funding & Cost

Cost of Power:	\$0.20/kWh
Requested Grant Funds:	\$350,000
Matched Funds Provided:	\$250,000
Total Potential Grant Amount:	\$600,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$350,000

AEA Funding Recommendation: \$350,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #410 Biomass Fuel Dryer Project

Resource: Biomass

Proposed Project Phase: Construction

Proposer: City of Craig

AEA Program Manager: Plentovich, Brown

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 6
- 18
- 14
- 8
- 6
- 4
- 4

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #410 Biomass Fuel Dryer Project

Resource: Biomass

Proposed Project Phase: Construction

Proposer: City of Craig

AEA Program Manager: Plentovich, Brown

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant proposes to purchase a chip fuel dryer and lease it to the Viking Lumber Mill which currently provides chip fuel to the city of Craig for use in the biomass boiler to heat the pool and school for the community. Fuel could also be made available to other facilities on Prince of Wales Island and other locations.

The new biomass boiler currently has a fuel dryer as part of the system; however, high moisture wood chip fuel has caused heat to be diverted from the elementary school to the dryer. Fuel oil boilers in the elementary school kick-on to compensate for the diverted heat. The moisture content of the fuel has consistently been higher than design parameters. The new dryer would allow for the fuel to be pre-treated before delivery to the school, and could potentially allow for the development of other chip customers for Viking Lumber.

AEA recognizes that there is significant public benefit from this project, however, it believes that there must be reasonable economic return to the public from the allocation of the grant fund, while at the same time assuring that Viking receives reasonable return.

Recommend full funding with the following special provision: Before funds are made available, AEA must approve the lease/operate/maintain business agreement between Viking and Craig.

App #411 Anchorage geothermal district heating project

Resource: Geothermal

Proposed Project Phase: Recon

Proposer: Iceland America Energy, INC

AEA Program Manager: McMahon, Lockard

Applicant Type: IPP

Project Description

IAE proposes to develop the Anchorage geothermal district heating project. The reconnaissance study will be followed by a more detailed pre-feasibility study. The purpose of this additional step will be to conduct a more comprehensive field exploration and evaluation of potential geothermal resources that could supply the heat for the Anchorage project. IAE has signed a Memorandum of Understanding with the Municipality of Anchorage to facilitate these studies. The Municipality of Anchorage has agreed to support the pre-feasibility study efforts by providing to IAE information about the potential for geothermal energy use in Anchorage as well as right-of-way information. If the results of the pre-feasibility study prove to be positive for development, IAE will work towards developing the Anchorage district heating project.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$392,520
Matched Funds Provided:	\$261,680
Total Potential Grant Amount:	\$654,200
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #411 Anchorage geothermal district heating project

Resource: Geothermal

Proposed Project Phase: Recon

Proposer: Iceland America Energy, INC

AEA Program Manager: McMahon, Lockard

Applicant Type: IPP

AEA Review Comments

Applicant proposes reconnaissance and feasibility study of a geothermal project that would tap a resource of unknown quality and extent in the Lower Sustna Basin for heating in Anchorage.

See DGGs comments: Geothermal resource has not been demonstrated. Therefore, the concept of piping hot water from the Susitna Valley is questionable.

DGGs comments:

This project suggests the use of an unsubstantiated low-temperature geothermal fluids in the lower Susitna Basin (roughly, near Houston) to provide space heat for Anchorage. However, the existence of these fluids has never been confirmed, and indirect evidence of their existence is equivocal. Nearly three decades ago exploration wells drilled in the area for oil and gas and reported elevated bottom-hole temperatures. However, no attempt was made at the time of drilling to analyze or collect other pertinent data in order to record equilibrium crustal temperatures and identify a geothermal resource. In fact, the area is an unlikely candidate for such a resource. A follow-up geothermal resource investigation in the 80's was unable to find direct evidence of geothermal fluids. Subsequent studies have also been unable to confirm elevated crustal temperatures. Finally, recent DGGs investigation of physical samples from the exploratory holes has provided strong evidence that the elevated temperatures reported during drilling did not reflect crustal conditions. Given there is no direct evidence that the "geothermal resource" which underpins this proposal exists, and there are many reasons to doubt its existence, the primary activity in this area (if any) would need to be resource identification and quantification. However, most of the proposed activities are not related to resource confirmation, they are instead various aspects of system design, permitting, and land rights analysis. Even the geotechnical activities proposed in the pre-feasibility study at the end of the proposed work period will not, in themselves, provide direct evidence of a resource. In short, this project and proposal make unwarranted assumptions about the existence of a geothermal resource to power a regional space heating system and the proposal is not recommended for funding.

Recommend no funding.

App #412 Point Lay Wind Diesel Generation Project

Resource: Wind **Proposed Project Phase:** Construction
Design
Proposer: North Slope Borough
AEA Program Manager: Jensen **Applicant Type:** Government Entity
Utility

Project Description

Our project involves the final design, permitting, construction, erection, startup, and commissioning of three wind turbines to supplement the existing power generation and distribution system for the community of Point Lay. Participants in the project include North Slope Borough, a contracted A&E firm, a contracted General Contractor, and a supplier for the wind turbines and supporting towers. The North Slope Borough will provide overall project management. The contracted A&E firm will provide civil and electrical system engineering for the project. The General Contractor will be responsible for the installation of all civil works, erection of the wind turbines and supporting towers, and installation of all ancillary electrical systems. The supplier for the wind turbines and supporting towers will also provide startup & commissioning services.
 Note: Northern Power Systems of Barre, Vermont, is supplier of wind turbines and supporting towers that have been proven to work effectively in Alaska. References to Northern Power provided Northwind 100/21 B model wind turbines within the remaining sections of this application are for descriptive purposes only to indicate that product or a comparable product

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$3,506,406
Matched Funds Provided:	\$350,641
Total Potential Grant Amount:	\$3,857,047
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$132,000
AEA Funding Recommendation:	\$132,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #412 Point Lay Wind Diesel Generation Project

Resource: Wind

Proposed Project Phase: Construction Design

Proposer: North Slope Borough

AEA Program Manager: Jensen

Applicant Type: Government Entity Utility

Scoring & Location



Overall Rank (out of 90)



Stage 3 Total Score (out of 100)

Economic Analysis



Benefit/Cost Ratio (Applicant)



Benefit/Cost Ratio (AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 12
- 10
- 4
- 0
- 2
- 3

Energy Region: North Slope

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #412 Point Lay Wind Diesel Generation Project

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: North Slope Borough

AEA Program Manager: Jensen

Applicant Type: Government Entity
Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

North Slope Borough proposes to complete feasibility assessment, final design and permitting, and construction of a 300 kW wind project in Point Lay. The Borough would finish feasibility and environmental analysis by the end of 2010. Final design and construction would be completed by 2011-2012.

The applicant notes that Pt Lay is in the USFWS-designated critical habitat for the spectacled eider.

AEA believes that it is reasonable to wait until feasibility is complete before allocating funds for final design and construction.

Recommend partial funding of \$132,000 to complete feasibility assessment, including "resolution of land and regulatory issues" and "environmental analysis".

App #413 Point Hope Wind Diesel Generation Project

Resource: Wind **Proposed Project Phase:** Construction
Design
Proposer: North Slope Borough
AEA Program Manager: Jensen **Applicant Type:** Utility
Local Government

Project Description

Our project involves the final design, permitting, construction, erection, startup, and commissioning of three wind turbines to supplement the existing power generation and distribution system for the community of Point Hope. Participants in the project include North Slope Borough, a contracted A&E firm, a contracted General Contractor, and a supplier for the wind turbines and supporting towers. The North Slope Borough will provide overall project management. The contracted A&E firm will provide civil and electrical system engineering for the project. The General Contractor will be responsible for the installation of all civil works, erection of the wind turbines and supporting towers, and installation of all ancillary electrical systems. The supplier for the wind turbines and supporting towers will also provide startup & commissioning services.
 Note: Northern Power Systems of Barre, Vermont, is supplier of wind turbines and supporting towers that have been proven to work effectively in Alaska. References to Northern Power provided Northwind 100/21 B model wind turbines within the remaining sections of this application are for descriptive purposes only to indicate that product or a comparable product.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$3,506,406
Matched Funds Provided:	\$350,641
Total Potential Grant Amount:	\$3,857,047
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$132,000
AEA Funding Recommendation:	\$132,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #413 Point Hope Wind Diesel Generation Project

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: North Slope Borough

AEA Program Manager: Jensen

Applicant Type: Utility
Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 12
- 11
- 4
- 2
- 2
- 4

Energy Region: North Slope

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #413 Point Hope Wind Diesel Generation Project

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: North Slope Borough

AEA Program Manager: Jensen

Applicant Type: Utility
Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

North Slope Borough proposes to complete feasibility assessment, final design and permitting, and construction of a 300 kW wind project in Point Hope. The Borough, which installed a met tower in the community in June 2009, would finish feasibility and environmental analysis by the end of 2010. Final design and construction would be completed by 2011-2012.

AEA believes that it is reasonable to wait until feasibility is complete before allocating funds for final design and construction.

Recommend partial funding of \$132,000 to complete feasibility assessment, including "identification/resolution of land and regulatory issues" and "environmental analysis".

App #414 Wainwright Wind Diesel Generation Project

Resource: Wind **Proposed Project Phase:** Construction
Design
Proposer: North Slope Borough
AEA Program Manager: Jensen **Applicant Type:** Utility
Local Government

Project Description

Our project involves the final design, permitting, construction, erection, startup, and commissioning of three wind turbines to supplement the existing power generation and distribution system for the community of Point Hope. Participants in the project include North Slope Borough, a contracted A&E firm, a contracted General Contractor, and a supplier for the wind turbines and supporting towers. The North Slope Borough will provide overall project management. The contracted A&E firm will provide civil and electrical system engineering for the project. The General Contractor will be responsible for the installation of all civil works, erection of the wind turbines and supporting towers, and installation of all ancillary electrical systems. The supplier for the wind turbines and supporting towers will also provide startup & commissioning services.
 Note: Northern Power Systems of Barre, Vermont, is supplier of wind turbines and supporting towers that have been proven to work effectively in Alaska. References to Northern Power provided Northwind 100/21 B model wind turbines within the remaining sections of this application are for descriptive purposes only to indicate that product or a comparable product.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$3,506,406
Matched Funds Provided:	\$350,641
Total Potential Grant Amount:	\$3,857,047
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$132,000
AEA Funding Recommendation:	\$132,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #414 Wainwright Wind Diesel Generation Project

Resource: Wind

Proposed Project Phase: Construction Design

Proposer: North Slope Borough

AEA Program Manager: Jensen

Applicant Type: Utility
Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 12
- 10
- 4
- 0
- 2
- 4

Energy Region: North Slope

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #414 Wainwright Wind Diesel Generation Project

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: North Slope Borough

AEA Program Manager: Jensen

Applicant Type: Utility
Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

North Slope Borough proposes to complete feasibility assessment, final design and permitting, and construction of a 300 kW wind project in Wainwright. The Borough, which installed a met tower in the community in June 2009, would finish feasibility and environmental analysis by the end of 2010. Final design and construction would be completed by 2011-2012.

The applicant notes that Wainwright has nesting areas for spectacled and steller eider as well as habitat for other sensitive migratory bird species.

AEA believes that it is reasonable to wait until feasibility is complete before allocating funds for final design and construction.

Recommend partial funding of \$132,000 to complete feasibility assessment, including "resolution of land and regulatory issues" and "environmental analysis".

App #415 Clearwater Wind Farm

Resource: Wind **Proposed Project Phase:** Construction
Proposer: C&L Ranch LLC Design
Feasibility

AEA Program Manager: Jensen **Applicant Type:** IPP

Project Description

Clearwater Wind Farm is located 3 miles East of Delta Junction on Road HHH one mile North of Nistler Rd. The farm will deliver 1.8 MW of clean renewable wind power to Golden Valley Electric Association (GVEA) through the distribution grid.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$2,000,000
Matched Funds Provided:	\$2,500,000
Total Potential Grant Amount:	\$4,500,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$30,000
AEA Funding Recommendation:	\$30,000

AEA Recommendation

- Full Funding
- ✗ Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #415 Clearwater Wind Farm

Resource: Wind

Proposed Project Phase: Construction
Design
Feasibility

Proposer: C&L Ranch LLC

AEA Program Manager: Jensen

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 0
- 8
- 2
- 6
- 0
- 3

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #415 Clearwater Wind Farm

Resource: Wind

Proposed Project Phase: Construction
Design
Feasibility

Proposer: C&L Ranch LLC

AEA Program Manager: Jensen

Applicant Type: IPP

DNR/DMLW Feasibility Comments

Not sure if this project location is on land that has agricultural covenants that may restrict development.

AEA Review Comments

C and L Ranch LLC requests funding to complete feasibility through construction of a 1.8MW wind project in the vicinity of Delta Junction. The current wind resource estimate is based on a 50m meteorological tower that is 3 miles away on a small ridge. The wind data provided in the application shows a poor wind resource and the High Resolution Wind Map from the State show Class 1 winds at the site. Onsite wind resource assessment is required prior to proceeding to final design or construction phases. The application requests \$30,000 for wind modeling.

There are additional feasibility requirements that will need to be addressed prior to moving to final design. These include obtaining or demonstrating the likelihood of obtaining power sales and interconnection agreements from GVEA, completing a thorough evaluation of permitting requirements including FAA permits, and completing a conceptual design and cost estimate.

Recommend partial funding of \$30,000 for onsite wind resource assessment completed in accordance with statewide standards.

App #416 Sunrise Lake Project

Resource: Hydro

Proposed Project Phase: Feasibility
Recon

Proposer: City and Borough of Wrangell

AEA Program Manager: Ott

Applicant Type: Local Government

Project Description

Project Type: Hydro, including run of river. Transmission of renewable energy.

The City and Borough of Wrangell would like to develop an alternative source for both power and water. Every summer the Tye Hydroelectric Facility, which supplies power to Wrangell, shuts down for annual maintenance and the City uses diesel generators for power. Additionally the City's reservoir has periodically run very low, critically endangering Wrangell's water supply. Sunrise Lake is an economically feasible source to provide both to Wrangell. In 1997, The Bentley Company performed a reconnaissance study to determine the feasibility of developing hydroelectric power at Sunrise Lake. The Sunrise Lake Project can be easily interfaced into the Tye Transmission Line, thus supply power to the City of Wrangell. This power can be used as a back-up when Tye shuts down as well as in the event of catastrophic failure, similar to the one experienced in Juneau in the summer of 2008. By utilizing the outflow from the Sunrise Hydroelectric project's turbines the City would have an additional water source to access when the reservoir drops below critical levels again.

Funding & Cost

Cost of Power:	\$0.13 /kWh
Requested Grant Funds:	\$90,000
Matched Funds Provided:	
Total Potential Grant Amount:	\$90,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$90,000

AEA Funding Recommendation: \$90,000

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #416 Sunrise Lake Project

Resource: Hydro

Proposed Project Phase: Feasibility
Recon

Proposer: City and Borough of Wrangell

AEA Program Manager: Ott

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 4
- 0
- 9
- 3
- 0
- 2
- 3

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #416 Sunrise Lake Project

Resource: Hydro

Proposed Project Phase: Feasibility
Recon

Proposer: City and Borough of Wrangell

AEA Program Manager: Ott

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

Unsure of navigability of Sunrise lake and if it is navigable, then the permits for stream gauging would be from the state, not USDA.

AEA Review Comments

Applicant proposes reconnaissance study of the development of a hydro project on Sunrise Lk with the potential to serve as secondary water source for Wrangell. The proposal is an update of a round 2 proposal (#228) for feasibility, design, and construction that was not recommended for funding.

Recommend full funding.

App #417 Wrangell Downtown Revitalization

Resource: Transmission **Proposed Project Phase:** Construction
Design
Proposer: City and Borough of Wrangell
AEA Program Manager: Landis **Applicant Type:** Local Government

Project Description

Project Type: Hyrdo, run of river. Transmission of renewable energy.
 The City and Borough of Wrangell would like to install new underground distribution systems on Front Street, replacing the existing overhead distribution systems. This project can be incorporated with the current Downtown Revitalization Plan which has already secured funding to upgrade the water, sewer, roadway and sidewalks along Front Street.

Funding & Cost

Cost of Power:	\$0.13 /kWh
Requested Grant Funds:	\$1,231,113
Matched Funds Provided:	\$255,744
Total Potential Grant Amount:	\$1,486,857
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Southeast

App #417 Wrangell Downtown Revitalization

Resource: Transmission

Proposed Project Phase: Construction
Design

Proposer: City and Borough of Wrangell

AEA Program Manager: Landis

Applicant Type: Local Government

AEA Review Comments

Applicant is proposing to replace overhead distribution with underground cable in the City of Wrangell. The intent of the project is to improve the visual aesthetics and reduce maintenance cost; however, since the project will not result in an increase in the availability or utilization of renewable energy, AEA believes that there are insufficient benefits to justify funding under the Renewable Energy Fund.

Recommend no funding.

App #418 Spur Road Distribution Line Extension

Resource: Hydro

Proposed Project Phase: Construction
Design

Proposer: City and Borough of Wrangell

AEA Program Manager: Landis

Applicant Type: Local Government

Project Description

Engineering design, survey services, permit acquisitions, material purchase and constructions for the extending the existing distribution line on Spur Road with an additional 17 pole spans.

Funding & Cost

Cost of Power:	\$0.13 /kWh
Requested Grant Funds:	\$119,263
Matched Funds Provided:	\$42,123
Total Potential Grant Amount:	\$161,386
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$119,263
AEA Funding Recommendation:	\$119,263

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #418 Spur Road Distribution Line Extension

Resource: Hydro **Proposed Project Phase:** Construction Design
Proposer: City and Borough of Wrangell

AEA Program Manager: Landis **Applicant Type:** Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 4
- 15
- 14
- 7
- 3
- 2
- 5

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #418 Spur Road Distribution Line Extension

Resource: Hydro

Proposed Project Phase: Construction
Design

Proposer: City and Borough of Wrangell

AEA Program Manager: Landis

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant is proposing to extend the distribution system in the City of Wrangell to provide hydro power to an existing concrete and gravel business that is currently generating with diesel.

Recommend full funding.

App #419 Wrangell Street Light Conversion

Resource: Other **Proposed Project Phase:** Construction

Proposer: City and Borough of Wrangell

AEA Program Manager: **Applicant Type:** Local Government

Project Description

Project Type: Lower Energy Consumption.
 Purchase and installation of new Low-Emitting Diode (LED) street lighting fixtures, replacing existing High Pressure Sodium (HPS), Low Pressure Sodium (LPS) and Mercury Vapor (MV) fixtures.

Funding & Cost

Cost of Power:	\$0.13 /kWh
Requested Grant Funds:	\$313,790
Matched Funds Provided:	\$102,602
Total Potential Grant Amount:	\$416,392
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Southeast

App #419 Wrangell Street Light Conversion

Resource: Other

Proposed Project Phase: Construction

Proposer: City and Borough of Wrangell

AEA Program Manager:

Applicant Type: Local Government

AEA Review Comments

App #420 Alaska British Columbia (AK-BC) Intertie Project

Resource: Transmission

Proposed Project Phase: Design

Proposer: City and Borough of Wrangell

AEA Program Manager: Ott

Applicant Type: Local Government

Project Description

Project Type: Hydro, run of river. Transmission of renewable energy.

The AK-BC Intertie would provide a further opportunity to secure the energy future for Southeast Alaska. The AK-BC Intertie is a 26.5 mile transmission line from the existing Tyee Lake Project to the AK-BC border.

A feasibility study was conducted by Hatch Energy in 2005. This phase of the project would continue the project from the feasibility stage into the permitting engineering phase. The purpose of this project is to export surplus power for sale in British Columbia/Pacific Northwest which would encourage development of new projects and provide additional reliability benefits. The ability to export power would encourage early development of new hydro generation, as well as provide revenue from exports, which will help ensure future maintenance of the current overall status of a clean hydro-powered region, offer operating flexibility for the southeast Alaska power system, and provide future benefits to the region under the proposed marketing oversight proposal. Power sales agreement for power generated projects encouraged by the AK-BC Intertie could be structured to return payment to the state.

Power sales agreements could be structured to include a call-back provision when load in southeast Alaska grows and power is needed to serve the native load. The proposed AK-BC Intertie would extend from Tyee Lake along the Bradfield river to the AK-BC border and along the Craig River to a proposed substation at Forrest Kerr in British Columbia.

The export of energy through the AK-BC Intertie will enable the completion of interties throughout Southeast Alaska. Energy export could lead to the development of a number of hydro-electric projects in many locations in Southeast Alaska meeting domestic power needs and providing a surplus for export. The goal is to provide the energy needed for economic development in Southeast Alaska resulting in jobs for Alaskans and providing reliable, less costly alternatives to diesel generated energy for Alaskan communities.

Funding & Cost

Cost of Power:	\$0.13 /kWh
Requested Grant Funds:	\$5,033,414
Matched Funds Provided:	
Total Potential Grant Amount:	\$5,033,414
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$0

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Southeast

App #420 Alaska British Columbia (AK-BC) Intertie Project

Resource: Transmission

Proposed Project Phase: Design

Proposer: City and Borough of Wrangell

AEA Program Manager: Ott

Applicant Type: Local Government

AEA Review Comments

The City and Borough of Wrangell proposes final design and permitting of an intertie that would connect the Southeast Alaska Power Authority (SEAPA) grid to British Columbia Transmission Corporation (BCTC) grid to facilitate export of Alaskan hydropower. This represents the next phase of the project.

There have been some recent positive developments in BC that may result in extension of the BCTC grid to within 60 miles of the border. The Canadian federal and provincial authorities have agreed to cooperate on developing the Northwest Transmission Line (NWT) from Meziadin Jct to Bob Quinn. However there is no Canadian initiative to connect the northern end of the NWT line at Bob Quinn substation to the Alaska border.

AEA considered this intertie under the AK-BC Export Intertie feasibility study and found that viability of export depended in part on the Canadians extending their grid to the border. Additionally the question remains whether export of this power represents the highest and best use of this Alaskan resource. The best venue for considering these issues is through a regional integrated resource energy plan. AEA will provide funding and other resources to assist SEAPA to complete this plan.

AEA believes there is not sufficient justification to move the project forward given these circumstances.

No funding recommended.

App #421 Renewable Support Mode for BESS

Resource: Other **Proposed Project Phase:** Construction
Design
Feasibility
Proposer: Golden Valley Electric Association
AEA Program Manager: Jensen **Applicant Type:** Utility

Project Description

Project Type: Wind, Hydrokinetic, Storage of Renewable.
 The variability of the output of wind power projects is a major technical and economic obstacle. Energy storage systems can mitigate the variable output, but are often so expensive that they are not practical. Through a fortunate coincidence, GVEA expects to be able to provide energy storage for a wind project by taking advantage of improvements in the battery technology that will be installed at the BESS to support the Healy Clean Coal Plant (HCCP). This project will determine the feasibility, develop a conceptual design, and implement control system modifications to allow the BESS to respond to variations of wind energy or hydrokinetic generation.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$255,000
Matched Funds Provided:	\$45,000
Total Potential Grant Amount:	\$300,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$255,000
AEA Funding Recommendation:	\$255,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #421 Renewable Support Mode for BESS

Resource: Other
Proposer: Golden Valley Electric Association

Proposed Project Phase: Construction
 Design
 Feasibility

AEA Program Manager: Jensen

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 13
- 17
- 4
- 13
- 2
- 4

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #421 Renewable Support Mode for BESS

Resource: Other

Proposed Project Phase: Construction
Design
Feasibility

Proposer: Golden Valley Electric Association

AEA Program Manager: Jensen

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

GVEA proposes to modify control logic at its Battery Energy Storage System (BESS) in Fairbanks in order to integrate intermittent renewable energy generation on the GVEA grid. Currently there are no significant intermittent renewable projects, such as Eva Creek wind, that would require the BESS modification.

GVEA proposes a reasonable stepwise approach to project development with go/no-go decision points.

Recommend full funding with the provision that GVEA demonstrate near-term needs for integrating intermittent renewable power systems prior to proceeding to control modifications (phase 4 construction.)

App #422 A Feasibility & Planning Project to Recapture & Utilize Waste Heat from the Healy Clean Coal Plant

Resource: Heat Recovery

Proposed Project Phase: Design

Proposer: Golden Valley Electric Association

Feasibility

Recon

AEA Program Manager:

Applicant Type: Utility

Project Description

Golden Valley Electric Association (GVEA) proposes to conduct the preliminary feasibility study, feasibility analysis, and resource assessment to determine the necessary conceptual design and construction to build and operate a community greenhouse located in Healy, Alaska, and to determine the optimal business structure for the operation. The greenhouse will utilize waste heat from the Healy Clean Coal Plant as its main energy source, and will create a working partnership between several public and private entities in the Healy community to demonstrate teach and encourage resource recycling, alternative energy, and local food production

Funding & Cost

AEA Recommendation

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$95,190
Matched Funds Provided:	\$72,000
Total Potential Grant Amount:	\$167,190
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

AEA Funding Recommendation:

App #422 A Feasibility & Planning Project to Recapture & Utilize Waste Heat from the Healy Clea

Resource: Heat Recovery

Proposed Project Phase: Design

Proposer: Golden Valley Electric Association

Feasibility

Recon

AEA Program Manager:

Applicant Type: Utility

AEA Review Comments

App #423 Combined/Hybrid solar-thermal collection & storage with ground-source heat-pumps

Resource: Solar

Proposed Project Phase: Design
Feasibility

Proposer: Golden Valley Electric Association

AEA Program Manager: Landis

Applicant Type: Utility

Project Description

Project Type: Geothermal, including heat pumps. Solar. Solar thermal system. Storage of Renewable.

Examine the feasibility and develop a conceptual design of a hybrid ground source heat pump (GSHP) system that utilizes solar thermal collectors and storage capacity (STC&SC) to offset the year-round non-renewable energy resources currently being consumed in a group of City and Borough buildings. This project would demonstrate that a hybrid GSHP system combined with a STC&SC system is a viable alternative to reduce the consumption and costs associated with the current heating system. The integration of solar thermal system with a ground source heat pump could compliment each system's strengths. The result could be a significant year-round source of renewable-generated heat for water and space heating needs at the Denali Borough School District's school and the City of Anderson's public buildings.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$80,000
Matched Funds Provided:	\$21,500
Total Potential Grant Amount:	\$101,500
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$80,000

AEA Funding Recommendation: \$80,000

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #423 Combined/Hybrid solar-thermal collection & storage with ground-source heat-pumps

Resource: Solar

Proposed Project Phase: Design
Feasibility

Proposer: Golden Valley Electric Association

AEA Program Manager: Landis

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 13
- 13
- 10
- 6
- 2
- 4

Energy Region: Yukon-Koyukuk/Upper Tanana

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #423 Combined/Hybrid solar-thermal collection & storage with ground-source heat-pumps

Resource: Solar

Proposed Project Phase: Design
Feasibility

Proposer: Golden Valley Electric Association

AEA Program Manager: Landis

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant proposes funding for the feasibility and concept design of a hybrid thermal solar (with storage capability) and ground source heat pump to provide heating for City of Anderson school.

Project team consists of GVEA, UAF, PDC Engineering, the City, and the Denali Borough. If successful this technology could be widely applicable in rural Alaska.

Recommend full funding.

App #424 Chefnak Wind Turbine Installation

Resource: Wind **Proposed Project Phase:** Construction
Design
Proposer: City of Chefnak
AEA Program Manager: Jensen **Applicant Type:** Local Government

Project Description

Project Type: Wind, Transmission of renewable energy, storage of renewable.
 The Chefnak Wind Turbine Installation involves the installation of three (3) 100 kW wind turbines on the eastern edge of the City of Chefnak. The completed project, with a total size of 300 kW, will be owned by the City of Chefnak and operated by the Naterkaq Light Plant (NLP). The NLP is wholly owned by the City of Chefnak and the electricity produced by the installed turbines will be distributed to the utility without charge. The wind turbines will be connected into NLP's electrical distribution system through a new three phase distribution line running from the project site to the existing power plant. The project will offer benefits to the community of Chefnak and its electric customers through a system-wide reduction and stabilization of energy prices. The City of Chefnak has assembled a project team headed by STG Incorporated that is prepared to immediately begin work on an accelerated schedule. Among others, the project team includes members from Powercorp Wind Diesel North America, DNV Global Energy Concepts Inc, Erricos Engineering, Alaska Line Builders, Duane Miller Associates, Hattenburg Dilley & Linnell, BBFM Engineers and Aurora Consulting. All aspects of the Final Design/Permitting and Construction project, detailed in the following pages of this application, can be completed by March 2011 or sooner if grant funds are made available prior to July 1, 2010.

Funding & Cost

Cost of Power:	\$0.65/kWh
Requested Grant Funds:	\$4,000,000
Matched Funds Provided:	\$95,000
Total Potential Grant Amount:	\$4,095,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$151,025
AEA Funding Recommendation:	\$151,025

AEA Recommendation

- Full Funding
- ✗ Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #424 Chefnak Wind Turbine Installation

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: City of Chefnak

AEA Program Manager: Jensen

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

Score

1) Cost of Energy (Max 25)	20
2) Matching Resources (Max 20)	8
3) Project Feasibility from Stage 2 (Max 20)	10
4) Project Readiness (Max 10)	4
5) Benefits (Max 15)	1
6) Local Support (Max 5)	5
7) Sustainability (Max 5)	4

Energy Region: Lower Yukon-Kuskokwim

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #424 Chefnak Wind Turbine Installation

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: City of Chefnak

AEA Program Manager: Jensen

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

City of Chefnak proposes final design, permitting, and construction of a 300 kW wind-diesel system. The system would include a 5kWh/500 kW Powerstore flywheel and an electric boiler at the school as a dumpload.

AEA and the City completed a powerhouse upgrade in 2004. The City installed a met tower in fall 2009. The City has not completed a full feasibility assessment including: detailed energy resource analysis (met. tower data collection is ongoing); assessment of design alternatives; geotechnical analysis and a final report with recommendations.

There are other issues of concern as well. The proposed budget has \$503,905 in currently unsecured funding. The economic evaluation shows a poor benefit to cost ratio that is significantly less than 1.

With the project still in the feasibility stage, it is not developed to the point where funding for design and construction would be awarded.

Recommend partial funding of \$151,025 to complete feasibility.

App #425 Whitman Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Construction

Proposer: Ketchikan Public Utilities Electric Division

AEA Program Manager: Ott

Applicant Type: Utility
Local Government

Project Description

The proposed Whitman Lake Hydroelectric Project, FERC No. 11841 (Project) will be located approximately four miles east of the City of Ketchikan, Alaska, and will be connected to the existing Ketchikan Public Utilities (KPU) distribution system. KPU will install 4.6 MW of hydropower generating capacity at the existing Whitman Lake Dam, providing a source of clean renewable energy for customers in the Ketchikan Gateway Borough and displacing diesel generation. The project will help support significant capacity demand increases anticipated in the short term, as well as continuous load growth over time. The new facilities associated with the Project will also benefit the existing Whitman Lake Hatchery by providing a continued supply of temperature-controlled water.

Funding & Cost

Cost of Power:	\$0.10 /kWh
Requested Grant Funds:	\$2,000,000
Matched Funds Provided:	\$14,500,000
Total Potential Grant Amount:	\$16,500,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$2,000,000

AEA Funding Recommendation: \$2,000,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #425 Whitman Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Construction

Proposer: Ketchikan Public Utilities Electric Division

AEA Program Manager: Ott

Applicant Type: Utility
Local Government

Scoring & Location



Overall Rank
(out of 90)

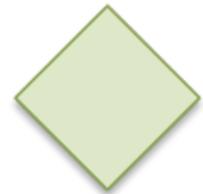


Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 3
- 20
- 14
- 7
- 3
- 5
- 5

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #425 Whitman Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Construction

Proposer: Ketchikan Public Utilities Electric Division

AEA Program Manager: Ott

Applicant Type: Utility
Local Government

DNR/DMLW Feasibility Comments

DMLW has already issued early entry authorization.

AEA Review Comments

Ketchikan Public Utilities proposes to construct a 4.5 MW storage hydro project on an existing dam at Whitman Lake. KPU was funded for final design and permitting under RE fund round 2 and expects to complete this work by November 2010. KPU has reached reached a settlement agreement with DNR, ADFG, and the USFS on the project.

KPU plans to finance the \$14.5 million balance of the project using unspecified grants, municipal bonds, or other options.

Because the project would connect to the SEAPA grid that has numerous existing and proposed alternatives for generation and transmission, AEA concludes that there is insufficient information provided to do an economic analysis.

While there appear to be few technical and permitting barriers for project development, market for hydropower remains questionable with the recent completion of the Swan-Tyee intertie. AEA believes that an integrated energy resource plan is necessary for assessing generation and transmission alternatives in SEAPA grid communities and Metlakatla before allocating additional public funds for phases 3 and 4--final design, permitting and construction in this subregion.

Full funding recommended.

Special provisions are as follows: (1) Grantee to demonstrate that all preconstruction activities (including those previously funded under Round 1 RE Fund grant) have been completed in a manner acceptable to AEA, including resolution of all land and site control issues; (2) Before any funds can be paid out under this grant, grantee will submit a project financing plan acceptable to AEA which describes the source and financial cost of all committed funds required to complete the entire Whitman Lake project and allow it to produce and sell power; and (3) provide FERC notice to proceed with construction activities.

App #426 Heat Recovery/Power Generation in Rural Alaska

Resource: Heat Recovery **Proposed Project Phase:** Construction
Design
Feasibility
Proposer: University of Alaska Fairbanks
AEA Program Manager: Plentovich, Landis **Applicant Type:** Government Entity

Project Description

This proposal represents the second phase of two current projects: (1) Test Evaluation of Organic Rankine Cycle (ORC) Engines Operating on Recovered Heat from Diesel Engine Exhaust (funded by the Environmental Protection Agency and Department of Environmental Conservation through the Alaska Energy Authority), and (2) Optimizing Heat Recovery Systems for Power Generation in Rural Alaska (presently recommended for funding by the Denali Commission). Both projects employ pre-commercial ORC technologies to test the efficacy of generating power from recovered heat in power plants in rural Alaska. The first phase of both projects includes laboratory testing at the University of Alaska Fairbanks of an ammonia-water cycle engine and a glycol-based engine. This proposal calls for Phase 2 field testing of both units—the first in Ruby and the second in Galena—and data analysis, including economic analysis, that will result in a report on the applicability of such systems throughout rural Alaska and a methodology for selecting appropriate village sites.

Funding & Cost

Cost of Power:	\$0.77 /kWh
Requested Grant Funds:	\$551,408
Matched Funds Provided:	
Total Potential Grant Amount:	\$551,408
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$551,408
AEA Funding Recommendation:	\$551,408

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #426 Heat Recovery/Power Generation in Rural Alaska

Resource: Heat Recovery

Proposed Project Phase: Construction
Design
Feasibility

Proposer: University of Alaska Fairbanks

AEA Program Manager: Plentovich, Landis

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 24
- 0
- 11
- 6
- 2
- 4
- 2

Energy Region: Statewide

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #426 Heat Recovery/Power Generation in Rural Alaska

Resource: Heat Recovery

Proposed Project Phase: Construction

Proposer: University of Alaska Fairbanks

Design

Feasibility

AEA Program Manager: Plentovich, Landis

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

UAF ACEP is conducting a project funded by AEA, EPA, and the Denali Commission that is testing small organic Rankine cycle (ORC) systems in the laboratory . This proposal would expand this work to deploy the small ORC systems in Ruby and Galena. The units will be owned by Tanana Chiefs Conference. The proposal does not provide details on the business arrangements among TCC, ACEP, Ruby or Galena or system integration.

Currently the RE Fund is providing almost \$4 million to support deployment of larger ORC units in Kotzebue (#235), Unalaska (#271), and Cordova (#22) in 2010. Operational data from these projects will be available in 2011. AEA believes that operational data from smaller units would be beneficial but recognizes the demonstration value of the proposed work may be diminished given the amount of ORC development work in progress.

Recommend full funding.

App #427 Greenhouse Feasibility and Application in Rural Alaska

Resource: Heat Recovery **Proposed Project Phase:** Construction Feasibility
Proposer: University of Alaska Fairbanks

AEA Program Manager: Plentovich, Landis **Applicant Type:** Government Entity

Project Description

This proposal, "Greenhouse Feasibility and Application in Rural Alaska," seeks to expand on a project currently recommended for funding by the Environmental Protection Agency to construct and operate a greenhouse in Galena, Alaska, that utilizes recovered heat from the city power plant to extend the growing season by a few months in both the spring and fall, and provide fresh, affordable produce for the community and schools. This proposal builds on that project in four ways: (1) provide additional staff time for project managers and equipment to ensure successful greenhouse operation, (2) provide summer employment for six Galena high school students on the project to build organizational capacity and community support, (3) use the Galena project as a model to conduct feasibility studies for similar greenhouse projects in six communities in rural Alaska, and (4) prepare a final report that includes economic analysis and an engineering assessment of the pre-project heat recovery system and subsequent load placed on the system by the greenhouse. In addition to the goals of the EPA-funded greenhouse itself (e.g., fresh produce, economic development, energy efficiency), this proposal will result in a template for establishing community greenhouses in villages throughout rural Alaska by expanding local capacity, providing training, and evaluating technical and economic feasibility.

Funding & Cost

Cost of Power:	\$0.56/kWh
Requested Grant Funds:	\$313,280
Matched Funds Provided:	
Total Potential Grant Amount:	\$313,280
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$34,070
AEA Funding Recommendation:	\$34,070

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #427 Greenhouse Feasibility and Application in Rural Alaska

Resource: Heat Recovery

Proposed Project Phase: Construction Feasibility

Proposer: University of Alaska Fairbanks

AEA Program Manager: Plentovich, Landis

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 18
- 0
- 11
- 5
- 3
- 4
- 5

Energy Region: Yukon-Koyukuk/Upper Tanana

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #427 Greenhouse Feasibility and Application in Rural Alaska

Resource: Heat Recovery

Proposed Project Phase: Construction
Feasibility

Proposer: University of Alaska Fairbanks

AEA Program Manager: Plentovich, Landis

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

UAF is proposing funding for expanding an EPA funded project that utilizes heat from the existing Galena power house heat recovery system for establishing a community greenhouse. This grant application requests funding for assessing the success of utilizing the existing district heating loop for supplying the required heating load to the greenhouse in Galena, assessing potential for establishing greenhouses in rural Alaska by performing a feasibility analysis for replicating the Galena system in 6 rural Alaskan communities, and providing summer job for 6 high school students in the greenhouse.

AEA requested additional information on breakdown of construction line items. Based on the submittal, over 90% of the RE funding would be used for greenhouse equipment, supplies and freight; and greenhouse development and operation. The application does not provide engineering data on availability of recoverable heat or impacts on the existing system.

Although the proposal reflects an attractive way of using recovered heat and a strong project team, AEA believes that chief aim of the project is developing and operating a greenhouse.

Recommend partial funding of \$34,070 for the heat recovery construction portion of the project consisting of 1) pre-, mid-, and final engineering reports, and 2) flow control valves and related plumbing supplies.

App #428 Cultivating Rural Alaska for Biomass Energy

Resource: Biomass

Proposed Project Phase: Recon

Proposer: University of Alaska Fairbanks

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

Project Description

This project will evaluate the potential for cultivating short rotation woody biomass crops in varied regions of Alaska, and will help to establish growing practices specific to each region. This work is a necessary precursor to implementing biomass cropping as a sustainable energy solution in rural Alaska. The work will complement a project currently being performed by the University of Alaska Fairbanks and Division of Agriculture to determine adaptability of various plant species to management as biomass crops under Alaskan agricultural conditions. Our work will also be performed in conjunction with a project being conducted by the Chugachmiut tribal organization to determine the potential for biomass production by various willow species under non-intensive management in interior Alaska. Specifically, this project will seek to address the following questions:

- 1) What is the current nutrient status of typical soils in regions likely to establish biomass plantations in the near future?
- 2) What are the nutrient requirements for woody species likely to be used as biomass crops?
- 3) Can biosolids, an abundant and inexpensive resource potentially available in many Alaskan communities, be successfully utilized as a fertilizer to maximize biomass production?
- 4) Would the utilization of biosolids as a fertilizer for biomass crops present unintended environmental consequences such as pathogen mobility or heavy metal emissions?

Funding & Cost

Cost of Power:	\$0.35/kWh
Requested Grant Funds:	\$578,719
Matched Funds Provided:	
Total Potential Grant Amount:	\$578,719
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$578,719
AEA Funding Recommendation:	\$578,719

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #428 Cultivating Rural Alaska for Biomass Energy

Resource: Biomass

Proposed Project Phase: Recon

Proposer: University of Alaska Fairbanks

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 11
- 0
- 13
- 4
- 3
- 4
- 3

Energy Region: Statewide

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #428 Cultivating Rural Alaska for Biomass Energy

Resource: Biomass

Proposed Project Phase: Recon

Proposer: University of Alaska Fairbanks

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

UAF proposes a three-year study of biomass production from short rotation woody crops and impacts of land application of biosolids. The study includes potential species, soil impacts, and nutritional needs.

The proposal represents a statewide collaboration including UAF ACEP, School of Nat Resources and Agriculture Sciences, Water and Environmental Resource Center; Chugachmiut, the Village of Eyak, and Tanana Chiefs, and partners to be named in Nome and Bethel.

Recommend full funding.

App #429 Keep it Sustainable, Keep it Local (KISKIL) Renewable Energy Project

Resource: Biomass

Proposed Project Phase: Construction

Proposer: Delta Mine Training Center

AEA Program Manager: Plentovich, Brown

Applicant Type: IPP

Project Description

The ultimate goal of this project is to produce electricity, training and employment both sustainably and locally. Thus the name “Keep It Sustainable and Keep it Local (KISKIL) Renewable Energy Project.” The project will be located thirty miles east of Delta Junction. The KISKIL Renewable Energy project will serve much of the Interior by providing electricity for Golden Valley Electric Association (GVEA) via the grid. Additionally, the project will serve Delta Junction, Healy Lake, Dot Lake, Tanacross, Tok and the surrounding areas by hiring regionally and purchasing wood for fuel locally. The project will produce electricity using 105 KW Sterling generators and raw wood gas as the fuel source. Delta Mine Training Center has the expertise to build and operate a power plant. Additionally, DMTC can and will develop the curriculum needed to provide training for Alaskans to learn the process of building the plant, developing the fuel resource and operating and maintaining the plant. This training is more valuable than the electricity itself.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$997,500
Matched Funds Provided:	\$278,000
Total Potential Grant Amount:	\$1,275,500
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #429 Keep it Sustainable, Keep it Local (KISKIL) Renewable Energy Project

Resource: Biomass

Proposed Project Phase: Construction

Proposer: Delta Mine Training Center

AEA Program Manager: Plentovich, Brown

Applicant Type: IPP

AEA Review Comments

Delta Mine Training Center proposes the construction of a biomass gasifier and a 105kW Stirling generator system. Attached to the application are a number of system descriptions and technology offers from Stirling DK based on European installations. Over the last year, DMTC has purchased property, built a road, begun construction of a building, and worked on connecting to the grid.

However, except for one-line diagrams on the grid tie-in, the applicant does not provide conceptual or feasibility information, final system design, engineering cost estimate, detailed economic and financial analyses, or final business and operational plans as a basis to justify construction funding.

Recommend no funding.

App #430 Ruth Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Design

Proposer: City of Angoon

AEA Program Manager: Ott

Applicant Type: Local Government

Project Description

On February 3, 2009, the City of Angoon (Angoon) filed an application with the Federal Energy Regulatory Commission (FERC) for a three-year preliminary permit under Section 4(f) of the Federal Power Act (FPA) to study the feasibility of the proposed Ruth Lake Hydroelectric Project No. 13366-000. On November 5, 2009, the City of Angoon received the FERC preliminary permit for the project. The project would be located on Delta Creek and Ruth Lake near Petersburg, Alaska. The project would be located within the Tongass National Forest, which is administered by the U.S. Forest Service (Forest Service). The proposed project would consist of: (1) a 170-foot-high concrete arched dam at the exit of the natural Ruth Lake; (2) the existing 130-acre Ruth Lake (at a current surface elevation of 1,350 feet above mean sea level (msl)) would be impounded by the proposed dam to provide an estimated storage capacity of 17,000 acre-feet at a surface elevation of about 1,520 feet msl; (3) a proposed 12,600-foot-long, 6- to 12-foot-diameter combination bored tunnel and steel penstock; (4) a powerhouse containing three generating units having a total installed capacity of 20 megawatts “MW”; (5) a proposed tailrace channel up to 600 feet long; (6) a proposed 2.8-mile-long access road; and (7) appurtenant facilities. The proposed Ruth Lake Hydroelectric Project would have an estimated average annual generation of 70 gigawatt-hours “GWh”, which would be sold to local utilities currently serving the communities of Petersburg and Wrangell, eventual proposed service to the communities of Ketchikan, Kake and Angoon. The proposed Ruth Lake Project would be located partially on federal lands in the Tongass National Forest, which is administered by the U.S. Forest Service (Forest Service).

Funding & Cost

Cost of Power:	\$0.42/kWh
Requested Grant Funds:	\$1,610,440
Matched Funds Provided:	\$402,610
Total Potential Grant Amount:	\$2,013,050
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,610,440
AEA Funding Recommendation:	\$1,610,440

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #430 Ruth Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Design

Proposer: City of Angoon

AEA Program Manager: Ott

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 13
- 0
- 5
- 4
- 1
- 5
- 2

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

Seismic hazard assessment and detailed site specific geologic study should be completed to insure long term safety of this large structure.

DNR/DGGS Feasibility Comments

App #430 Ruth Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Design

Proposer: City of Angoon

AEA Program Manager: Ott

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

State ROW. Some confusion because the proximity is to Petersburg rather than Angoon.

AEA Review Comments

The City of Angoon proposes to conduct feasibility and conceptual design for FERC pre-licensing work on Ruth Lake hydro. The hydro project, a significant distance from the City, will not be connected to the Angoon system within the foreseeable future.

AEA believes that in order for a project of this type to be successful, there needs to be demonstrated buy-in from all regional stakeholders, including the City, SEAPA, IPEC, and Kotznoowoo. There is no indication that the stakeholders listed have agreed to this concept. In particular on p22 the application indicates the City would sell power to the utilities of Petersburg and Wrangell. However, there is no indication that these communities would purchase power from the project, nor description of a mechanism to flow the benefits of the project directly to the ratepayers of Angoon.

Kootznoowoo is has submitted a proposal for Thayer Lake hydro (#517 and 523) that would serve the Angoon system, indicates a direct path for benefits to flow to Angoon ratepayers, and has the support of the local utility IPEC.

Recommend full funding with the provision that prior to release funds beyond phase 1 work plan review and coordination, the applicant must 1) convene an in-state stakeholder meeting, 2) secure letters of support from SEAPA, Thomas Bay Power Authority, and the cities of Petersburg, Wrangell, Kake, and Ketchikan, and 3) develop a process acceptable to AEA for benefits to flow to all affected ratepayers equally.

App #431 Tyonek Native Village Wind Project

Resource: Wind **Proposed Project Phase:** Construction
Design
Proposer: Native Village of Tyonek
AEA Program Manager: Jensen **Applicant Type:** Government Entity

Project Description

The Native Community of Tyonek would like to install one 15kW Proven on a 82ft monopole and a 6kW Proven on a 82ft Momopole on top of a bluff looking over the cook inlet. These turbines would be connected directly into the power line to produce clean power to our Native Community.

Funding & Cost

Cost of Power:	\$0.18 /kWh
Requested Grant Funds:	\$200,000
Matched Funds Provided:	\$40,000
Total Potential Grant Amount:	\$240,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #431 Tyonek Native Village Wind Project

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: Native Village of Tyonek

AEA Program Manager: Jensen

Applicant Type: Government Entity

AEA Review Comments

Applicant proposes feasibility, design, and construction of a 21 kW wind project in the vicinity of Tyonek that would be connected to the Railbelt grid.

Economic analysis indicates a low benefit to cost ratio. AEA does not find other significant public benefits that would result from project development.

Recommend no funding.

App #432 Skyline Mini Wind Farm

Resource: Wind **Proposed Project Phase:** Construction
Design
Feasibility
Proposer: April Park/IPP
AEA Program Manager: Jensen **Applicant Type:** IPP

Project Description

Installation of testing equipment for feasibility information gathering with installation of Two 15KW Proven Turbines with a future development of one or more turbine installations.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$260,000
Matched Funds Provided:	\$80,000
Total Potential Grant Amount:	\$340,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #432 Skyline Mini Wind Farm

Resource: Wind

Proposed Project Phase: Construction
Design
Feasibility

Proposer: April Park/IPP

AEA Program Manager: Jensen

Applicant Type: IPP

AEA Review Comments

Applicant proposes feasibility, design, and construction of a 30 kW wind project in the vicinity of Eagle River that would be connected to the Railbelt grid.

Preliminary economic analysis indicates a low benefit to cost ratio. AEA does not find other significant public benefits that would result from project development.

Recommend no funding.

App #433 Seldovia small wind generation facility

Resource: Wind **Proposed Project Phase:** Construction
Design
Feasibility
Proposer: City of Seldovia
AEA Program Manager: Jensen **Applicant Type:** Local Government

Project Description

The city of Seldovia would like to ask for grant funding to study the feasibility of utilizing wind energy to help alleviate the winter demand and temporary failure of the current gas generation facilities. The city of Seldovia sees an increase of demand for electricity in the winter months that has outpaced their production capabilities. The proposed plan calls for the study and possible installation of Four 15kw Proven wind generators. The city would like to test several sites for wind and accessibility, the relatively small size of the turbines is beneficial in helping the city locate an area that will be readily accessible with the current infrastructure, this may reduce overall costs while maintaining performance of the wind systems.

Funding & Cost

Cost of Power:	\$0.20/kWh
Requested Grant Funds:	\$508,000
Matched Funds Provided:	\$150,000
Total Potential Grant Amount:	\$658,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #433 Seldovia small wind generation facility

Resource: Wind

Proposed Project Phase: Construction
Design
Feasibility

Proposer: City of Seldovia

AEA Program Manager: Jensen

Applicant Type: Local Government

AEA Review Comments

Applicant proposes feasibility, design, and construction of a 60 kW wind project in the vicinity of Seldovia that would be connected to the Railbelt grid.

Preliminary economic analysis indicates a low benefit to cost ratio. AEA does not find other significant public benefits that would result from project development.

Recommend no funding.

App #434 Waste Energy Powered Absorption Refrigeration Unit

Resource: Heat Recovery **Proposed Project Phase:** Design

Proposer: Valdez Fisheries Development Association

AEA Program Manager: Plentovich, Landis **Applicant Type:** IPP

Project Description

Project Type: Waste Energy Recovery.
 The project, located in Valdez, Alaska, will capture waste heat generated at the Petro Star Refinery. Waste heat will be collected by a shell and tube glycol medium recovery system. The medium will drive two technologies operating in a series.
 Ammonia absorption technology will create cooling for a 45 million pound, -20degree cold storage facility. An organic Rankin Cycle Generator will use the medium once it has exited the ammonia absorption system to create 600kw's of power which will be used to operate the Cold Storage facility as well as the Solomon Gulch Hatchery.
 The final benefit will be to use the cold cycle of the generator to create a salmon rearing facility.

Funding & Cost

Cost of Power:	\$0.20/kWh
Requested Grant Funds:	\$1,021,287
Matched Funds Provided:	\$350,000
Total Potential Grant Amount:	\$1,371,287
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,021,287
AEA Funding Recommendation:	\$1,021,287

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #434 Waste Energy Powered Absorption Refrigeration Unit

Resource: Heat Recovery

Proposed Project Phase: Design

Proposer: Valdez Fisheries Development Association

AEA Program Manager: Plentovich, Landis

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 6
- 14
- 10
- 6
- 3
- 0
- 3

Energy Region: Copper River/Chugach

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #434 Waste Energy Powered Absorption Refrigeration Unit

Resource: Heat Recovery

Proposed Project Phase: Design

Proposer: Valdez Fisheries Development Association

AEA Program Manager: Plentovich, Landis

Applicant Type: IPP

DNR/DMLW Feasibility Comments

AEA Review Comments

Valdez Fisheries Development Association is requesting funding for permitting and final design of a system to convert recovered heat from the Petrostar Refinery to 630 kW of power to the CVEA grid, refrigeration to a cold storage and fish processing facility, and tempered water to the Solomon Gulch Hatchery. VFDA submitted a related application in RE Fund round 2 (#207) that was not recommended for funding because it was for the entire cold storage facility, not the energy system. The current application limits the scope to the energy system.

VFDA has not yet secured financing for the cold storage facility that justifies the absorption system.

AEA contacted VFDA to confirm that it is willing to sell to the CVEA grid in order to be eligible as an IPP. AEA also requested confirmation that Petrostar will provide heat to VFDA. VFDA did not provide the confirmation. VFDA provided a feasibility analysis for the absorption chilling portion of the project, but was unable to provide a similar analysis for the ORC power generation component.

The project has substantial value for demonstrating a system that would aid development of fish processing and cold storage in coastal communities with access to recoverable heat.

Recommended full funding with the requirement that prior to disbursing funds, VFDA provide a more detailed breakdown of the design budget and a long-term agreement with Petrostar.

App #435 Nushagak Area Hydropower Project (NAHP)

Resource: Hydro **Proposed Project Phase:** Construction
Design
Feasibility
Recon
Proposer: Nushagak Electric & Telephone
AEA Program Manager: Ott **Applicant Type:** Utility

Project Description

The Grant Lake site facility would be constructed with a dam at the upper falls and diversion tunnel to maximize the power potential at approximately 3.12 MW (397 feet-net head). However, to minimize the impact on salmon resources in Grant River below the dam site the construction as proposed would consist of a canal from behind the dam to an intake structure located in an adjacent dry channel. The dam constructed at the upper falls will be a concrete dam with an uncontrolled spillway. With a maximum height at El 504 and a 225 foot wide spillway at El 500 the spillway flows will be diverted away from the toe of the dam via a concrete apron onto bedrock nearby. The @1 mile diversion canal, 20 foot deep (1/1 side slopes), with an invert 468 El will have a minimum drawdown of 23 feet to El 477. A dike in the canal will direct the water flow into the low pressure 60 inch 6,600 foot long pipeline leading to the surge tank and penstock. The 3,100 foot 48 inch penstock will link the surge tank to the power house. The powerhouse will contain two 1,350 kW generators driven by two 2,000 hp turbines under a rated net head of 233 feet (average 215) with 92cfs. This project will necessitate the construction of approximately 45-65 miles (depending on routing) of new underground three phase transmission tie line from the project site to a new power substation constructed near the village of Aleknagik.

Funding & Cost

Cost of Power:	\$0.46/kWh
Requested Grant Funds:	\$20,000,000
Matched Funds Provided:	\$29,500,000
Total Potential Grant Amount:	\$49,500,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$700,000
AEA Funding Recommendation:	\$700,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #435 Nushagak Area Hydropower Project (NAHP)

Resource: Hydro
Proposer: Nushagak Electric & Telephone

Proposed Project Phase: Construction
 Design
 Feasibility
 Recon

AEA Program Manager: Ott

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	14
2) Matching Resources (Max 20)	20
3) Project Feasibility from Stage 2 (Max 20)	12
4) Project Readiness (Max 10)	4
5) Benefits (Max 15)	12
6) Local Support (Max 5)	2
7) Sustainability (Max 5)	4

Score

Energy Region: Bristol Bay

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #436 Port Alsworth Hydroelectric Construction Project

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Alaska Green Energy

AEA Program Manager: Ott

Applicant Type: IPP

Project Description

The Port Alsworth Improvement Corporation, the Tanalian Electric Cooperative, Tanalian Incorporated, Lake Clark National Park and Preserve, and the Lake and Peninsula Borough support AGE’s proposal to conduct Reconnaissance and Feasibility studies related to locating a micro-hydroelectric facility on the Tanalian River. The project will reduce the community’s dependence on expensive diesel fuel that must be flown into Port Alsworth to provide heat and power.

The reconnaissance phase will include preliminary engineering, environmental determinations and hydrological studies and analyses on the Tanalian River to identify its hydroelectric

resource potential. This phase will include scoping meetings with the community and agencies

to identify issues and study needs that will need to be addressed during the feasibility phase. From a land use and permitting perspective, it will be especially important to work with the National Park Service (NPS) to determine NEPA requirements for work within the Lake Clark National Park and Preserve and to determine the appropriate legal framework and permitting requirements for the potential construction of a micro-hydro facility within the National Park’s boundary that serves users in addition to the NPS. It is anticipated that an environmental assessment will be required at a minimum and the reconnaissance level assessment will establish the scope and level of NEPA documentation required during the feasibility phase. It should be noted that the project lies outside the wilderness boundary and the NPS is cooperating with the State of Alaska and private in-holders to issue easements across the Tanalian River to access the new State airport and private property. Conceptual designs and cost estimates will be provided during this phase and presented in the final report. The final report will also include a preliminary economic analysis and an energy cost and market analysis.

Funding & Cost

Cost of Power:	\$0.64/kWh
Requested Grant Funds:	\$150,000
Matched Funds Provided:	
Total Potential Grant Amount:	\$150,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$150,000

AEA Funding Recommendation: \$150,000

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #436 Port Alsworth Hydroelectric Construction Project

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Alaska Green Energy

AEA Program Manager: Ott

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 20
- 0
- 6
- 0
- 1
- 5
- 3

Energy Region: Bristol Bay

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #436 Port Alsworth Hydroelectric Construction Project

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Alaska Green Energy

AEA Program Manager: Ott

Applicant Type: IPP

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant proposes recon assessment and hydrological resource assessment of a hydro project at Tanalian River near Pt. Alsworth. Overall project site is within the national park, which will result in permitting challenges. Letters of support from National Park Service, Lake and Pen Borough and others are included in the the application. However the letters refer to a hydrokinetic type of project-- a significant departure from micro-hydro typeof project written in the application; this demonstrates some confusion. Application Project management structure is not well-documented in the application and will require further clarification if this project receives funding.

Recommend full funding with the provision that AEA must approve further work after milestone 2 (Resource Identification and Analysis Report).

App #437 Connelly Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Alaska Power Company

AEA Program Manager: Ott

Applicant Type: Utility

Project Description

The Connelly Lake Hydroelectric Project (Project) will be located in Southeast Alaska, approximately 14 miles northeast of the City of Haines and 10 miles southwest of the City of Skagway. Connelly Lake (formerly known as Upper Chilkoot Lake) is an 85 acre alpine lake, and drains into the Chilkoot River. The project will be on state and private land, including the Haines State Forest and Chilkat Bald Eagle Preserve. The project facilities will include a dam at the lake outlet, a penstock about 6,200 feet long, a 12.0 MW powerhouse with two generating units, a 14-mile-long 34.5 kV transmission line and a 14-mile long access road. Final dimensions and capacities of these facilities will be determined by optimization studies to be conducted during Phase II. The Project will be developed by AP&T to provide additional generation to its interconnected Haines and Skagway electrical systems.

Funding & Cost

Cost of Power:	\$0.21 /kWh
Requested Grant Funds:	\$988,000
Matched Funds Provided:	\$247,000
Total Potential Grant Amount:	\$1,235,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$428,888
AEA Funding Recommendation:	\$428,888

AEA Recommendation

- Full Funding
- ✗ Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #437 Connelly Lake Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Recon

Proposer: Alaska Power Company

AEA Program Manager: Ott

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	7
2) Matching Resources (Max 20)	14
3) Project Feasibility from Stage 2 (Max 20)	13
4) Project Readiness (Max 10)	6
5) Benefits (Max 15)	7
6) Local Support (Max 5)	5
7) Sustainability (Max 5)	4

Score

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

Located in the vicinity of the eastern Denali fault (Chilkoot River section) and the Chatham Strait fault.

DNR/DGGS Feasibility Comments

App #437 Connelly Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Alaska Power Company

AEA Program Manager: Ott

Applicant Type: Utility

DNR/DMLW Feasibility Comments

Permits required for stream gauging also. Not sure of impact on Bald Eagle Preserve but will gather attention as do most proposals that potentially touch the Bald Eagle Preserve. Some public concerns expressed.

AEA Review Comments

Applicant proposes feasibility study and final design/permitting for a 12 MW storage hydro project. An IRP is desirable for the Skagway, Haines, Klukwan area before proceeding to final design and construction for these projects. AP&T is also proposing recon and feasibility study of Schubeek Lk hydro project (#441) in response to local input.

Existing recon study proposes a substantially smaller 6 MW project which impounds less water than the current proposal. Project may require intertie and road access across the Chilkat Bald Eagle Reserve if it is not feasible to route through the Haines State Forest. Application includes March 09 letter from BLM indicating land has been transferred to State of Alaska, thus reducing likelihood of FERC jurisdiction. Power sales/benefits limited to offset of diesel costs and air pollution during summer cruise ship landings in Haines and Skagway. Seasonal power production would limit year-round availability.

Recommend \$428,000 partial funding for Phase 2 feasibility study with scope per application with provision that land issues and licensing jurisdiction question be resolved with go/no-go points established.

App #438 Yerrick Creek Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Construction
Design
Proposer: Alaska Power Company

AEA Program Manager: Ott **Applicant Type:** Utility

Project Description

AP&T proposes to construct the 2.0 MW Yerrick Creek Hydroelectric Project (Project) located on Yerrick Creek, approximately 20 miles west of Tok. The Project would off-set diesel generation in the communities of Tetlin, Tanacross, Dot Lake, and Tok. The Project will consist of a small diversion structure, approximately 15,000 feet of penstock, powerhouse with a single generating unit, tailrace, small substation, and transmission line. The Project operation will be run-of-river; annual generation is expected to be approximately 4,900 MWh/yr (approximately 40% of the interconnected load). The Project will provide clean, renewable electricity, as well as rate stabilization. The cost to maintain a hydro project is also significantly lower than diesel generation.

Funding & Cost

Cost of Power:	\$0.39/kWh
Requested Grant Funds:	\$4,000,000
Matched Funds Provided:	\$8,725,000
Total Potential Grant Amount:	\$12,725,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$4,000,000
AEA Funding Recommendation:	\$4,000,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #438 Yerrick Creek Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Construction Design
Proposer: Alaska Power Company

AEA Program Manager: Ott **Applicant Type:** Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	12
2) Matching Resources (Max 20)	20
3) Project Feasibility from Stage 2 (Max 20)	15
4) Project Readiness (Max 10)	6
5) Benefits (Max 15)	12
6) Local Support (Max 5)	5
7) Sustainability (Max 5)	3

Score

Energy Region: Yukon-Koyukuk/Upper Tanana

Election District:

DNR/DGGS Geohazards Comments

Proposed system may cross active traces of the Dot "T" Johnson fault. A site investigation should be conducted to determine the feasibility of moving the proposed location of the project to insure that infrastructure does not cross this active fault.

DNR/DGGS Feasibility Comments

App #438 Yerrick Creek Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Construction
Design

Proposer: Alaska Power Company

AEA Program Manager: Ott

Applicant Type: Utility

DNR/DMLW Feasibility Comments

Application on file. 1/2 project on Tanacross Native Corp land, but records indicate Native Corp may not be interested in authorizing proposed activity on their lands.

AEA Review Comments

AP&T proposes permitting, final design and construction of a 2 MW run-of-river hydro project at Yerrick Cr to serve the communities of Tok, Dot Lake, Tanacross, and Tetlin. Permitting and final design would be completed in Spring 2010, before funding would be available from the current round of RE funding. The project would result in 20 miles of 3-phase transmission. AP&T has received a total of \$1.75 million from Denali Commission and RUS that will cover final design, permitting, and a portion of construction. If AP&T receives \$4 million in round 3 RE Fund support, they would still need to find financing for the remaining \$8.725 million.

AP&T is also requesting \$4.5 million for construction of a wood-fired power system that would serve the same grid (#479). Similar to Yerrick Cr hydro, AP&T plans to complete final design before state fy11 begins and round 3 RE funding is available. If AP&T receives \$4 million in round 3 RE Fund support, they would still need to find financing for the remaining \$16 million of the total project cost of \$20 million.

In round 1 AEA recommended against funding this project because local land owner Tanacross Inc had indicated unwillingness to provide legal access for field investigations. Over the last year AP&T reached a temporary agreement with Tanacross to allow field work. However there remains no permanent agreement with Tanacross to use Tanacross land for the project. Doyon owns subsurface rights on non-state land.

Recommend funding for construction with provision that no funds are disbursed until AP&T provides evidence of ROWs and other development rights with Tanacross, Doyon, DNR and other resource owners.

App #439 Reynolds Creek Hydro Transmission Line

Resource: Transmission **Proposed Project Phase:**

Proposer: Alaska Power Company

AEA Program Manager: Ott

Applicant Type: Utility

Project Description

The overall 34kV power line route is approximately 12 miles long. Approximately 0.9-mile of the westernmost section is an existing APC 2kV distribution line that will be overbuilt. The line will cross Hetta Inlet via Jumbo Island. The route primarily follows existing logging roads.

The power line will begin at a point along Hydaburg Road about 0.45 miles northeast of the town. It will continue northeast along the existing logging road passing north of Deer Bay and intersecting Hetta Inlet opposite Jumbo Island. This section is adjacent to private forested land with a small section of Muskeg and is 7.0 miles long. The logging roads are mostly mild to moderate cut sections with a few rock cuts. The first 0.9 miles of this section is an existing APC corridor adjacent to the road established for a 2kV line.

The water crossing over Hetta Inlet will be accomplished with 3 multi-pole structures with one on each side of the inlet and one at the pinnacle of Jumbo Island. Jumbo Island slopes steeply toward the water on both sides and is heavily forested. A new corridor will need to be established. The structure on the island will likely be set by helicopter. This crossing is 0.9 miles across.

The power line will continue in a new corridor for 0.3 mile to the east until it intersects an existing logging road. Approximately 1500 feet of temporary or permanent access road spurs will need to be constructed to access 2 line structures along this section.

The line route then turns south and follows existing loggings roads 3.8 miles southeast to the powerhouse/switchyard location near Copper Harbor. This section is adjacent to private, recently harvested forest land with very steep and rocky terrain prone to slides. The logging road is primarily full bench construction with several rock cut sections. There are danger trees (and boulders) above the power line route on the eastern side slopes that may need to be removed/secured to protect the power line.

Funding & Cost

Cost of Power:	\$0.20/kWh
Requested Grant Funds:	\$2,000,000
Matched Funds Provided:	\$400,000
Total Potential Grant Amount:	\$2,400,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$2,000,000
AEA Funding Recommendation:	\$2,000,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #439 Reynolds Creek Hydro Transmission Line

Resource: Transmission

Proposed Project Phase:

Proposer: Alaska Power Company

AEA Program Manager: Ott

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 6
- 14
- 16
- 6
- 13
- 0
- 5

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #439 Reynolds Creek Hydro Transmission Line

Resource: Transmission

Proposed Project Phase:

Proposer: Alaska Power Company

AEA Program Manager: Ott

Applicant Type: Utility

DNR/DMLW Feasibility Comments

State ROW and dock applications received.

AEA Review Comments

Alaska Power Company (APC), a subsidiary of Alaska Power and Telephone (AP&T) proposes funding for the transmission portion of the 5 MW Reynolds Creek hydropower project. Haida Energy, a joint venture of AP&T and Haida Corp would own the project and sell power on a wholesale basis to APC, the certificated utility on Prince of Wales (PoW) Island.

The following grant allocations totaling \$4.1 million have been made for the Reynolds Creek project:

- 1) \$100,000 of Denali Comm funds to Haida Corp through the Denali Commission / AEA alternative energy RFP
- 2) \$1 million in RE fund round 1 funds to Haida Corp
- 3) \$1 million in RE fund round 1 funds to Haida Power, a joint venture between APC and Haida Corp
- 4) \$2 in legislative appropriation to Southeast Conference

The project will be dispatched in conjunction with AP&T's existing Black Bear Lk and South Fork hydro projects. Previous applications state that Reynolds Creek hydro will only be used after the existing hydro projects are fully dispatched. An extension of PoW transmission to the northern portion of island has been funded by the Denali Commission and RE Fund round 1.

For the purposes of proposal evaluation and management of all state funds, AEA considers the transmission and generation components of the project as one project.

Recommend full funding with the following grant conditions: Before any construction grant funds are disbursed: 1) APC, AP&T, Haida Corp, Haida Power, Haida Energy, and Southeast Conference must enter into a master agreement that addresses overall fiscal responsibility for the project, disposition of all public grant funds, project debt and equity financing, and project development, operation and maintenance responsibilities, 2) all final design documents, permits, rights-of-way, and FERC license must be in place, 3) all financing for the transmission and generation portions of the project must be in place, 4) the grantee must establish a power purchase agreement acceptable to AEA, based on cost-based rate methodology that demonstrates that benefits of public funds flow to the ratepayers, 5) project owner will be required to petition RCA for a certificate of public convenience and necessity.

App #440 Neck Lake Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Construction
Design
Proposer: Alaska Power & Telephone Company

AEA Program Manager: Ott **Applicant Type:** Utility

Project Description

AP&T proposes to construct a small run-of-river hydroelectric project at Neck Lake, a 1,000 acre lake located 1.5 miles southwest of the community of Whale Pass on Prince of Wales Island. The Project would supply power to the community of Whale Pass, and would offset diesel generation, which is currently the sole source of electricity. The relatively high and modulated flows from the lake combined with the steep drop at the lower end of the outlet stream provide a good opportunity for a small run-of-river hydroelectric development. Facilities would include an access road, intake structure, 400 feet of penstock, a containerized power plant, a tailrace channel, and upgrade of 4 miles of transmission line. The hydroelectric facilities will be designed to avoid interference with the existing salmon rearing and collection facilities operated at Neck Lake by the Southern Southeast Regional Aquaculture Association (SSRAA). AP&T conducted a reconnaissance study of the site in 2008, and determined that there is sufficient potential to almost always provide enough generation for Whale Pass loads (see Section 10 for a copy of the reconnaissance report). The Project will provide clean, renewable electricity, as well as rate stabilization and lower rates for AP&T's Whale Pass customers.

Funding & Cost

Cost of Power:	\$0.44/kWh
Requested Grant Funds:	\$1,844,000
Matched Funds Provided:	\$488,000
Total Potential Grant Amount:	\$2,332,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$90,000
AEA Funding Recommendation:	\$90,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #440 Neck Lake Hydroelectric Project

Resource: Hydro
Proposer: Alaska Power & Telephone Company

Proposed Project Phase: Construction
 Design

AEA Program Manager: Ott

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 14
- 14
- 14
- 5
- 8
- 3
- 4

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #440 Neck Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Construction
Design

Proposer: Alaska Power & Telephone Company

AEA Program Manager: Ott

Applicant Type: Utility

DNR/DMLW Feasibility Comments

Although area plans identify options for hydroelectric and fish hatchery, since SSRAA has developed a fish hatchery operation, we are unsure whether there would be any potential conflict between the two uses.

AEA Review Comments

AP&T proposes to progress to final design, permitting, and construction of a run-of-river 124 kW hydro project at Neck Lake. The project would result in displacing virtually all of the diesel used for power generation in Whale Pass. RE Fund round 2 (#223) provided \$108,000 for feasibility analysis, scheduled for completion in Fall 2010. Permitting and final design would be completed by Summer 2011, while construction would be completed in 2012.

The current application clarifies an earlier concern that the project was located on USFS land.

Recommend partial funding of \$90,000 for permitting and final design with the provision that before funds are disbursed AEA must approve of feasibility recommendations for further development.

App #441 Schubee Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Alaska Power & Telephone Company

AEA Program Manager: Ott

Applicant Type: Utility

Project Description

AP&T is actively looking to add another hydroelectric storage facility to its Upper Lynn Canal (ULC) system serving Haines, Skagway, and nearby communities. To date, AP&T has considered Connelly Lake near Haines and Walker Lake near Klukwan, with Connelly Lake being preferred because of its much greater energy potential. However, some Haines citizens are opposed to development of Connelly Lake, and have expressed their interest in AP&T evaluating the Schubee Lake site as an alternative. AP&T has made a very preliminary evaluation of the Schubee Lake site and believe there is some potential; therefore the proposed grant is to study the Schubee Lake site to approximately the same depth as Connelly Lake so that a fair comparison can be made between the two. In our view, this means bypassing the reconnaissance phase (Phase I) and proceeding directly with conceptual design and feasibility work (Phase II).

Funding & Cost

Cost of Power:	\$0.21 /kWh
Requested Grant Funds:	\$160,000
Matched Funds Provided:	\$40,000
Total Potential Grant Amount:	\$200,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$80,000
AEA Funding Recommendation:	\$80,000

AEA Recommendation

- Full Funding
- ✗ Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #441 Schubee Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Alaska Power & Telephone Company

AEA Program Manager: Ott

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	7
2) Matching Resources (Max 20)	13
3) Project Feasibility from Stage 2 (Max 20)	13
4) Project Readiness (Max 10)	2
5) Benefits (Max 15)	5
6) Local Support (Max 5)	3
7) Sustainability (Max 5)	3

Score

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

General DGGS statement. Located in the vicinity of the eastern Denali fault (Chilkoot River section and the Chatham Strait fault).

DNR/DGGS Feasibility Comments

App #441 Schubee Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Alaska Power & Telephone Company

AEA Program Manager: Ott

Applicant Type: Utility

DNR/DMLW Feasibility Comments

State permitting.

AEA Review Comments

AP&T proposes funding feasibility of developing a 6 MW storage hydro project at Schubee Lake. AP&T has not prepared a formal reconnaissance assessment of the project that meets requirements of the RFA. AP&T is responding to a level of public opposition to developing another hydro site at Connelly Lk. AEA is recommending feasibility funding for Connelly Lk (#437).

AEA has the following concerns with Schubee Lk: 1) it is located on USFS lands and would be subject to FERC licensing, 2) it has a higher relative cost with less energy output than Connelly, 3) it would require an expensive submarine cable.

AEA recognizes the importance for the Haines Borough citizens to make informed decisions regarding development of alternative hydro locations. However we believe that sufficient information for determining the development path can be achieved by more limited analysis.

Recommend partial funding of \$80,000 for reconnaissance assessment with the provision that AP&T must provide a revised scope of work for approval by AEA before funds are disbursed.

App #442 Port Frederick Tidal Power Project

Resource: Ocean/River

Proposed Project Phase: Feasibility
Recon

Proposer: Alaska Power & Telephone Company

AEA Program Manager: McMahon, Lockard

Applicant Type: Utility

Project Description

The Project would be located on two bays and adjacent lands in Port Frederick, which is an inlet off of Icy Strait near the city of Hoonah in Southeast Alaska. As currently envisioned, the Project would be a two-basin tidal energy development wherein the two bays (known as North Bight and South Bight) are isolated from Port Frederick by dikes and gate structures, with a low-head power plant located between the two bays. During high tides, water would be let into South Bight from Port Frederick, and during low tides water would be released from North

Bight into Port Frederick. Water would be continuously released from South Bight into North Bight through the power plant. By controlling the flows, a head can be maintained between the two basins, thus generating power continuously in spite of the variability of the tides. This continuous generation will allow the power to be usable in the small isolated electrical system of Hoonah.

Funding & Cost

Cost of Power:	\$0.42/kWh
Requested Grant Funds:	\$400,000
Matched Funds Provided:	\$100,000
Total Potential Grant Amount:	\$500,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$64,000
AEA Funding Recommendation:	\$64,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #442 Port Frederick Tidal Power Project

Resource: Ocean/River
Proposer: Alaska Power & Telephone Company

Proposed Project Phase: Feasibility
 Recon

AEA Program Manager: McMahon, Lockard

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 13
- 14
- 9
- 4
- 1
- 0
- 4

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #442 Port Frederick Tidal Power Project

Resource: Ocean/River

Proposed Project Phase: Feasibility
Recon

Proposer: Alaska Power & Telephone Company

AEA Program Manager: McMahon, Lockard

Applicant Type: Utility

DNR/DMLW Feasibility Comments

Because this project potentially closes off access to certain tidelands this could be challenging to reconcile with the public trust doctrine. Unknown habitat issues with anadromous species. This will be a challenging permit process.

AEA Review Comments

AP&T proposes recon and feasibility analysis of developing a 400 kW two-basin tidal energy project in Port Frederick to serve Hoonah.

Permitting risk appears high due to limiting inflow and outflow of the marine basins. Due to high estimated development costs and relatively low energy generation, project economics are not compelling. Project would result in developing a single lane road and a submarine intertie to the project from Hoonah.

Recon would begin in summer 2010 while feasibility work would largely be completed during summer and fall of 2011.

Recommend partial funding of \$64,000 for reconnaissance assessment.

App #443 Carlson Creek Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Alaska Power Company

AEA Program Manager: Ott

Applicant Type: Utility

Project Description

AP&T proposes to construct the 300 kW Carlson Creek Hydroelectric Project (Project), which will be located approximately 8 miles north of Slana on the Glenn Highway (Tok Cutoff). The Project would off-set diesel generation which presently supplies power to the communities of Slana and Chistochina. The Project will consist of two small diversion structures, approximately 13,200 feet of penstock, a powerhouse with a single generating unit, tailrace, small substation, and a very short length of transmission line. For about half the year, the Project operation will be run-of-river, but during the colder months the Project will draw water from Carlson Lake. The potential annual generation is estimated to be approximately 1,200 MWh/yr, which is greater than the current annual requirements of the two communities. Therefore, the Project has the potential to offset 100% of the current diesel generation. The Project will provide clean, renewable electricity, as well as rate stabilization. The cost to maintain a hydro project is also significantly lower than diesel generation.

Funding & Cost

Cost of Power:	\$0.49/kWh
Requested Grant Funds:	\$480,000
Matched Funds Provided:	\$120,000
Total Potential Grant Amount:	\$600,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$240,000

AEA Funding Recommendation: \$240,000

AEA Recommendation

- Full Funding
- ✗ Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #443 Carlson Creek Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Alaska Power Company

AEA Program Manager: Ott

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	15
2) Matching Resources (Max 20)	14
3) Project Feasibility from Stage 2 (Max 20)	11
4) Project Readiness (Max 10)	6
5) Benefits (Max 15)	4
6) Local Support (Max 5)	0
7) Sustainability (Max 5)	3

Score

Energy Region: Copper River/Chugach

Election District:

DNR/DGGS Geohazards Comments

General DGGS statement. Located in close proximity to the Denali fault.

DNR/DGGS Feasibility Comments

App #443 Carlson Creek Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Alaska Power Company

AEA Program Manager: Ott

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

AP&T proposes feasibility assessment, permitting and final design for a 300 kW hydro project at Carlson Cr. that would serve Slana and Chistochina. This is a continuation of a project funded in round 2 (#226). AEA has concerns about long penstock and the potential for the project to match resource to load. Flashy stream may increase risk to long term success of project.

Recommend partial funding of \$240,000 for feasibility assessment (phase 2) with provision that AEA must approve of recommendations for continued development from recon report before any funds are disbursed.

App #444 SEAPA Integrated Resource Planning Project (IRP)

Resource: Hydro **Proposed Project Phase:** Feasibility
Recon
Proposer: The Southeast Alaska Power Agency
AEA Program Manager: Ott **Applicant Type:** Government Entity

Project Description

Project Type: Wind, hydro, including run of river, Hydrokinetic, geothermal, including heat pumps and transmission of renewable energy. This project is a combination of reconnaissance, resource assessment and feasibility analysis. The deliverable resulting from the expenditure of grant and matching funds is the first Integrated Resource Plan (IRP) for the interconnected cities of Ketchikan, Wrangell and Petersburg as well as the cities of Kake and Metlakatla. Interties to Kake from Petersburg and to Metlakatla from Ketchikan are presently in the planning phase. Some funding is already in place for both of these interconnections. Ketchikan, Wrangell and Petersburg currently benefit from existing SEAPA and local utility-owned hydro which has provided for very stable power rates. The City of Kake, served by IPEC, is a 100% diesel-dependent community with rates that are 5 or 6 times higher. Providing renewable power to Kake with hydroelectric generation or other alternatives is a critical part of this IRP. Building a transmission line to Kake would not be prudent if adequate renewable generation resources have not been identified to meet their existing and future loads. In general, an IRP identifies the future resource portfolio that achieves a set of objectives that have been established by stakeholders of the IRP process. The stakeholders will include the local utilities, communities, commercial and industrial customers, Federal and State agencies and the general public. The resource portfolio is a set of supply-side and/or demand-side improvements that eliminate any identified energy or capacity deficits. Supply-side improvements would be new generation construction, or modifications to existing generation assets, such that energy production or available capacity is increased. This would include the addition of existing generation through an interconnection to Metlakatla. Demand-side improvements are system efficiency improvements or peak load modification measures. The stakeholders and the IRP issuing body (SEAPA) establish the objectives that govern how the resource portfolio is established. Most IRP objectives are governed by the 3 major categories of cost, risk and environmental impact. The IRP process includes stakeholder input with final content decisions made by the issuing body (SEAPA). Developing an IRP requires an analysis of the regions generation and transmission system, and an estimation of the regions load growth. Generation and load forecasts are modeled to determine when and to what extent future energy and/or capacity deficits occur. Energy and capacity deficits are resolved by a combination of constructing new generation facilities and through load growth rate or peak hour value reduction via demand side management. The IRP then documents a short term and long term plan to address the energy and capacity deficits.

Funding & Cost

Cost of Power:	/kWh
Requested Grant Funds:	\$252,000
Matched Funds Provided:	\$60,000
Total Potential Grant Amount:	\$312,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Southeast

AEA Funding Recommendation:

App #444 SEAPA Integrated Resource Planning Project (IRP)

Resource: Hydro

Proposed Project Phase: Feasibility
Recon

Proposer: The Southeast Alaska Power Agency

AEA Program Manager: Ott

Applicant Type: Government Entity

AEA Review Comments

App #445 District Wood Heating in Fort Yukon

Resource: Biomass **Proposed Project Phase:** Construction

Proposer: Gwitchyaa Zhee Utility Company

AEA Program Manager: Plentovich, Brown **Applicant Type:** Utility
IPP

Project Description

Project Type: Heat Recovery from existing sources, biomass or biofuels, transmission of renewable energy and storage of renewable. This application supports a wood-heating project in Fort Yukon, Alaska. Gwitchyaa Zhee Corporation Board is the authorizing Board for the Applicant, Gwitchyaa Zhee Utility. Local partners include the Council of Athabascan Tribal Governments (DOE recipient of biomass grant support \$1.2 million), Gwitchyaa Zhee Native Corporation & Utility, Gwitchyaa Gwich'in Tribal Government, Yukon Flats School District and the City of Fort Yukon. A wood energy supply analysis, a feasibility and 35% conceptual design analysis has been completed for a district heating loop for primary commercial buildings. This analysis has been integrated with heat capture from a new power plant to be co-located with the wood boiler plant. The feasibility included Net Simple Payback for several size plants and a sensitivity analysis for displacing heating fuel oil based on costs of \$4-\$6/gallon. A centralized wood chip fired boiler will require approximately 1,500 -2,000 tons of chips annually, depending on moisture content, to displace up to 149,000 gallons of fuel of 90+% of the oil used in commercial buildings. The cost is approximately \$18/MMBTU)(\$175/ton @ 25% moisture) for chips, as compared to \$29-43/MMBTU for fuel oil (\$4-6gal). This project is being conducted in concert with a project funded by Denali Commission, US DOE through an Alaska Village Initiatives earmark, and GZ Corporation to develop a wood harvesting system, wood yard and a wood energy utility to supply and maintain the boilers. Both projects have been developed through technical support from Alaska Village Initiatives, Alaska Wood Energy Associates, CATG Resource Department, e-Four Engineering, and ALaska Energy and Engineering. Principle personnel to date include Bill Wall PhD, Peter Olsen, Ben Stevens, Jerry Carroll, Greg Koontz (ME) and Steve Stassel (Alaska Energy and Endgineering).

Funding & Cost

Cost of Power:	\$0.54/kWh
Requested Grant Funds:	\$2,318,255
Matched Funds Provided:	\$990,000
Total Potential Grant Amount:	\$3,308,255
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$2,318,255
AEA Funding Recommendation:	\$2,318,255

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #445 District Wood Heating in Fort Yukon

Resource: Biomass

Proposed Project Phase: Construction

Proposer: Gwitchyaa Zhee Utility Company

AEA Program Manager: Plentovich, Brown

Applicant Type: Utility
IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	17
2) Matching Resources (Max 20)	15
3) Project Feasibility from Stage 2 (Max 20)	12
4) Project Readiness (Max 10)	8
5) Benefits (Max 15)	7
6) Local Support (Max 5)	3
7) Sustainability (Max 5)	3

Score

Energy Region: Yukon-Koyukuk/Upper Tanana

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #445 District Wood Heating in Fort Yukon

Resource: Biomass

Proposed Project Phase: Construction

Proposer: Gwitchyaa Zhee Utility Company

AEA Program Manager: Plentovich, Brown

Applicant Type: Utility
IPP

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant is proposing funding for the construction of a wood chip fired district heating system. The application includes a conceptual design report. There is an existing RE Fund grant for final design work and business plan development.

This is a community wood heating system that combines wood harvest and transport, combustion, district heating and energy sales. AEA remains concerned about the project's complexity and risks. However, these risks are somewhat mitigated by a strong project team and the project's phased development under AEA's oversight. It is very important that provisions be included in the business plan to account for the operation and maintenance of the proposed system.

Recommend full funding contingent on completion of an acceptable final design and business plan.

App #446 Elfin Cove Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Design

Proposer: Elfin Cove Utility

AEA Program Manager: Ott

Applicant Type: Utility

Project Description

The full project is a hydroelectric power plant, and associated infrastructure for access and connection, to serve the community of Elfin Cove. We are currently contracted with Polarconsult for a feasibility study of the project. As part of the feasibility study, in addition to collecting further data from the Crooked Creek/Jim's Lake site, the contractors recommended we examine the potential of Roy's Creek as an alternative project site. Roy's Creek is much closer to the existing power plant, reducing construction and connection costs, and simplifying operation and maintenance. If Roy's Creek is found to be a feasible location, the hydroelectric plant would be a run-of-river project on Roy's Creek. Otherwise, the power plant will be located at the mouth of Crooked Creek, a tributary of Port Althorp in Cross Sound. If located on Crooked Creek, the hydroelectric facility will include: a diversion structure on Crooked Creek; an 800 to 1,200-foot long diversion conduit from Crooked Creek to Jim's Lake; and a 1,700-foot long penstock from Jim's Lake to a powerhouse located at tidewater near the mouth of Crooked Creek. The powerhouse would house a Turgo-type turbine, a generator, programmable automatic paralleling switchgear and controls. The project would also include access trails and a 5,800-foot power line and communications from the powerhouse back to the existing distribution system at the back of the Inner Cove. Dedicated communications may extend an additional 3,000 feet to the existing diesel powerhouse. On Roy's Creek, a hydro development would include a diversion structure at about the 500-foot elevation on Roy's Creek; a 1,300 foot penstock down to tidewater in Elfin Cove; and a powerhouse at tidewater housing a Turgo or Pelton-type turbine, generator, programmable automatic paralleling switchgear and controls. The powerhouse would be located on the boardwalk, and the project would include a boardwalk to the intake site for access. The project would include approximately 50 to 100' of power line to tie into the distribution system, and 2,000 feet of communications cable back to the diesel powerhouse. At the end of Phase 3 (proposed here) we should be prepared to begin construction on the hydroelectric power project.

Funding & Cost

Cost of Power:	\$0.52/kWh
Requested Grant Funds:	\$347,200
Matched Funds Provided:	\$48,000
Total Potential Grant Amount:	\$395,200
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$347,200
AEA Funding Recommendation:	\$347,200

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #446 Elfin Cove Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Design

Proposer: Elfin Cove Utility

AEA Program Manager: Ott

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 16
- 11
- 10
- 6
- 4
- 2
- 3

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #446 Elfin Cove Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Design

Proposer: Elfin Cove Utility

AEA Program Manager: Ott

Applicant Type: Utility

DNR/DMLW Feasibility Comments

State permitting

AEA Review Comments

Applicant proposes final design and permitting of a hydro project at Crooked Creek. Feasibility study was already funded by DC/AEA alternative energy RFP. Project site on USFS land, indicating FERC license will be required. AEA has constructed a power and bulk fuel system under the RUS energy program. Hiring engineering firm underway.

Recommend full funding with requirement that AEA approve the feasibility study now underway before any funds associated with this application are disbursed.

App #447 Indian River Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Design

Proposer: City of Tenakee Springs

AEA Program Manager: Ott

Applicant Type: Utility
Local Government

Project Description

Replace diesel generation of electricity for the community of Tenakee Springs with renewable hydroelectric power. The City of Tenakee Springs proposes to construct a hydroelectric project on Indian River. This will be a low head, run-of-river plant displacing the use of 44,400 gallons of diesel fuel. Design, engineering, and construction will involve the City of Tenakee Springs, multiple state and federal agencies, private contractors, and the Alaska Energy Authority.

Funding & Cost

Cost of Power:	\$0.30/kWh
Requested Grant Funds:	\$203,000
Matched Funds Provided:	\$26,000
Total Potential Grant Amount:	\$229,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$203,000

AEA Funding Recommendation: \$203,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #447 Indian River Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Design

Proposer: City of Tenakee Springs

AEA Program Manager: Ott

Applicant Type: Utility
Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 9
- 11
- 15
- 6
- 11
- 2
- 5

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #447 Indian River Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Design

Proposer: City of Tenakee Springs

AEA Program Manager: Ott

Applicant Type: Utility
Local Government

DNR/DMLW Feasibility Comments

Past experience with projects in Tenakee is that there is generally an active involvement by the community with diverse view points.

AEA Review Comments

The City of Tenakee proposes final design and permitting of a 120 kW run-of-river hydro project at Indian River. Funded by the DC/AEA alternative energy grant program, the City has completed a feasibility assessment for this project. The project would be located on state and city land.

In round 1 AEA recommended against funding final design and permitting before a subregional energy plan that addressed systems in Tenakee, Hoonah, and Pelican was prepared. Hoonah is pursuing hydro development in nearby projects, while Pelican is upgrading its existing hydro project. Given these circumstances and the long distances between these communities, AEA sees no reason to delay consideration of a hydro project in Tenakee further.

Recommend full funding.

App #448 Saint Paul Fuel Economy Upgrade

Resource: Heat Recovery **Proposed Project Phase:** Construction
Design
Proposer: City of Saint Paul Electric Utility

AEA Program Manager: Plentovich, Landis **Applicant Type:** Utility
Local Government

Project Description

The project would be constructed at the existing utility power plant and adjacent buildings. A new low fuel consumption diesel 4,160v generator and switchgear would be installed to replace existing older 480v inefficient diesel generator unit #2. Existing waste heat system from the power plant would be extended by this project to provide space heat to the gas station, bulk fuel office and bulk fuel pump house to replace existing electric baseboard heat. Increase fuel efficiency and reduced electric heat load would benefit all existing electric customers through lower power generation costs. New diesel generator would reduce current high overhaul and maintenance cost for old generator to be replaced. The City would administer the project and contract out to qualified consultants for the final design, and contract with a qualified contractor to install the diesel generators, switchgear and waste heat piping. The existing city workforce would operate and maintain the new equipment.

Funding & Cost

Cost of Power:	\$0.46/kWh
Requested Grant Funds:	\$510,941
Matched Funds Provided:	\$104,650
Total Potential Grant Amount:	\$615,591
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$98,149
AEA Funding Recommendation:	\$98,149

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #448 Saint Paul Fuel Economy Upgrade

Resource: Heat Recovery
Proposer: City of Saint Paul Electric Utility

Proposed Project Phase: Construction
 Design

AEA Program Manager: Plentovich, Landis
Applicant Type: Utility
 Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	14
2) Matching Resources (Max 20)	14
3) Project Feasibility from Stage 2 (Max 20)	16
4) Project Readiness (Max 10)	3
5) Benefits (Max 15)	12
6) Local Support (Max 5)	0
7) Sustainability (Max 5)	5

Score

Energy Region: Aleutians

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #448 Saint Paul Fuel Economy Upgrade

Resource: Heat Recovery

Proposed Project Phase: Construction
Design

Proposer: City of Saint Paul Electric Utility

AEA Program Manager: Plentovich, Landis

Applicant Type: Utility
Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

The City of St Paul is proposing funding for the purchase and installation of a replacement generator and the extension of the existing heating loop for the utility facilities.

The replacement of the generator does not qualify for Renewable Energy Funding. See economist description of allocation between genset and heat recovery costs.

Recommend partial funding of \$98,149 for the design and installation of the heat recovery loop.

App #449 Metlakatla-Ketchikan Intertie

Resource: Transmission

Proposed Project Phase: Construction
Design

Proposer: Metlakatla Indian Community (MIC)

AEA Program Manager: Ott

Applicant Type: Government Entity

Project Description

The proposed Metlakatla-Ketchikan Intertie is a 34.5-kV transmission line that will interconnect the electric systems of Metlakatla Power & Light (MP&L) and Ketchikan Public Utilities (KPU). The Intertie will include 16 miles of overhead wood pole transmission line to be constructed on Annette Island between Metlakatla and Walden Point and an approximate two mile submarine cable crossing of Revillagiedo Channel between Walden Point and KPU's Mountain Point Substation. The project will also include control system upgrades to allow for the integrated operation of the interconnected systems' generating plants.

Design of the Metlakatla – Ketchikan Intertie is presently underway. Transmission poles have also been procured and are currently stored in Metlakatla.

Funding & Cost

Cost of Power:	\$0.09/kWh
Requested Grant Funds:	\$6,332,000
Matched Funds Provided:	\$1,320,000
Total Potential Grant Amount:	\$7,652,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$2,000,000

AEA Funding Recommendation: \$2,000,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #449 Metlakatla-Ketchikan Interie

Resource: Transmission

Proposed Project Phase: Construction
Design

Proposer: Metlakatla Indian Community (MIC)

AEA Program Manager: Ott

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 3
- 9
- 11
- 6
- 2
- 2
- 4

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #449 Metlakatla-Ketchikan Intertie

Resource: Transmission

Proposed Project Phase: Construction
Design

Proposer: Metlakatla Indian Community (MIC)

AEA Program Manager: Ott

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

State ROW needed

AEA Review Comments

Metlakatla Indian Community proposes funding for constructing an 18 mile intertie that connects the Metlakatla and Ketchikan power systems. Permitting and design were funded by RE Fund round 1 (#20).

The application provides no indication of a power sale agreement with Ketchikan Public Utility.

MIC is requesting over \$6.3 million for financing the balance of the project. The proposal does not recognize the maximum funding of \$2 million and no other indication of how the balance of the project would be financed.

Because the project would connect to the SEAPA grid that has numerous existing and proposed alternatives for generation and transmission, AEA concludes that there is insufficient information provided to do an economic analysis.

While there appear to be few technical and permitting barriers for project development, market for hydropower remains questionable with the recent completion of the Swan-Tyee intertie. AEA believes that an integrated energy resource plan is necessary for assessing generation and transmission alternatives in SEAPA grid communities and Metlakatla before allocating additional public funds for phases 3 and 4--final design, permitting and construction in this subregion.

AEA recommends funding in the amount of \$2,000,000.

AEA recommends special provisions be associated with this grant as follows: (1) Before any grant funds can be disbursed, is to submit to AEA for its review and approval, a power sales agreement between MIC and KPU which clarifies the terms, conditions, rates and amount of power for this intertie; (2) Demonstrate completion of all preconstruction activities including final design documents and final construction cost estimate; and (3) Demonstrate project site control, including required easements and Rights-of-way, NEPA requirements and all permits needed to construct have been issued.

App #450 Triangle Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Metlakatla Indian Community (MIC)

AEA Program Manager: Ott

Applicant Type: Government Entity

Project Description

The proposed Triangle Lake hydroelectric project will be located on the west side of Annette Island near the route of the proposed Metlakatla – Ketchikan Intertie. The project as presently envisioned will be comprised of a small embankment dam at the outlet of Triangle Lake, a 1.3 mile long penstock and a powerhouse containing a single horizontal Francis turbine generating unit with a capacity of 4.0 MW. The Triangle Lake project will provide additional hydroelectric power to Metlakatla and, with construction of the Metlakatla – Ketchikan Intertie, to the interconnected electric systems of Ketchikan, Wrangell and Petersburg. MIC will develop and own the Triangle Lake project.

Funding & Cost

Cost of Power:	\$0.09/kWh
Requested Grant Funds:	\$500,000
Matched Funds Provided:	
Total Potential Grant Amount:	\$500,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$500,000

AEA Funding Recommendation: \$500,000

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #450 Triangle Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Metlakatla Indian Community (MIC)

AEA Program Manager: Ott

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 3
- 0
- 11
- 6
- 0
- 2
- 5

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #450 Triangle Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Metlakatla Indian Community (MIC)

AEA Program Manager: Ott

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

Metlakatla Indian Community proposes assessing feasibility of a 4 MW storage hydro project at Triangle Lk. Improved access to the proposed hydro site by recent road construction to Walden Point makes hydro development more reasonable to consider at this site. Project would be located on federal trust land. Major issue remains a market for power, which should be assessed in an regional IRP.

Because the project would connect to the SEAPA grid that has numerous existing and proposed alternatives for generation and transmission, AEA concludes that there is insufficient information provided to do an economic analysis.

Recommend full funding.

App #451 MSB Solar and Wind Potential

Resource: Solar **Proposed Project Phase:** Design
Feasibility
Recon
Proposer: Matanuske-Susitna Borough
AEA Program Manager: Landis **Applicant Type:** Local Government

Project Description

Project Type: Wind and Solar.
 The Matanuska-Susitna Borough proposes to conduct a renewable energy reconnaissance study for the existing and planned public facilities within the borough to evaluate options to decrease energy costs and reduce dependence on fossil fuels. A reconnaissance report will summarize the assessment and findings. This project will be administered and managed by the MSB and will be conducted by a consultant chosen by the MSB. Locations shown to have significant renewable energy potential will undergo a feasibility study and include a conceptual design for identified renewable energy resources.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$300,000
Matched Funds Provided:	\$22,283
Total Potential Grant Amount:	\$322,283
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$75,000
AEA Funding Recommendation:	\$75,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #451 MSB Solar and Wind Potential

Resource: Solar **Proposed Project Phase:** Design
Feasibility
Recon
Proposer: Matanuske-Susitna Borough
AEA Program Manager: Landis **Applicant Type:** Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

<u>Criterion (Weight)</u>	<u>Score</u>
1) Cost of Energy (Max 25)	5
2) Matching Resources (Max 20)	9
3) Project Feasibility from Stage 2 (Max 20)	8
4) Project Readiness (Max 10)	10
5) Benefits (Max 15)	1
6) Local Support (Max 5)	2
7) Sustainability (Max 5)	4

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #451 MSB Solar and Wind Potential

Resource: Solar

Proposed Project Phase: Design
Feasibility
Recon

Proposer: Matanuske-Susitna Borough

AEA Program Manager: Landis

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant is proposing a renewable energy recon, feasibility and conceptual design to utilize solar and wind energy within the Mat-Su Borough. The energy would supply existing and planned public facilities in the borough.

Recommend funding the first step of the project to assess available renewable energy resources for commercial development and preliminary economics. Recommend partial funding only for the "resource identification and analysis" portion of the project for \$75,000.

App #452 Silver Lake Pre-Feasibility Study

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Copper Valley Electric Association, Inc.
(CVEA)

AEA Program Manager: Ott

Applicant Type: Utility

Project Description

Project Type: Hydro and Transmission of Renewable Energy.

A preliminary visit to the site in July 2009 was made by Hatch Acres, CVEA’s consultant for Allison Lake and a draft of the project layout was presented below. In fall 2009 CVEA installed two stream gages, one located on the Duck River and one near the outlet of Silver Lake. In the spring of 2010 water quality data will be collected and further evaluated.

Funding & Cost

Cost of Power:	\$0.20/kWh
Requested Grant Funds:	\$125,000
Matched Funds Provided:	\$46,500
Total Potential Grant Amount:	\$171,500
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$125,000
AEA Funding Recommendation:	\$125,000

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #452 Silver Lake Pre-Feasibility Study

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Copper Valley Electric Association, Inc.
(CVEA)

AEA Program Manager: Ott

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 6
- 15
- 12
- 6
- 2
- 3
- 2

Energy Region: Copper River/Chugach

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #452 Silver Lake Pre-Feasibility Study

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Copper Valley Electric Association, Inc.
(CVEA)

AEA Program Manager: Ott

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

CVEA proposes recon assessment of a 15 MW storage hydro at Silver Lake. Silver Lk was studied in the 1980s and 90s and was not pursued further due to poor economics and fish habitat issues. The project, however, would provide substantial amounts of energy--4 times the output of Alison Lk hydro, currently under development by CVEA.

Recommend full funding.

App #453 Alaska SeaLife center Phase II Seawater Heat Pump Project

Resource: Geothermal **Proposed Project Phase:** Construction
Design
Proposer: City of Seward

AEA Program Manager: McMahon, Lockard **Applicant Type:** Local Government

Project Description

The City of Seward (City) is owner of the Alaska SeaLife Center (ASLC), which is leased and operated by the Seward Association for the Advancement of Marine Science (SAAMS). In conjunction with SAAMS, the City proposes construction of Phase II an innovative heating system that utilizes an emerging heat pump technology that will "lift" latent heat from raw seawater and transfer this energy into low temperature building heat. The proposed seawater heat pump system will serve as a demonstration project designed to test and prove an emerging energy technology that shows promise for providing financial benefits to Alaskans in coastal communities. Construction costs will be reduced by making use of the ASLC's existing seawater intakes and seawater pumping system. Demonstration of this innovative system to the public will be facilitated through creation of a public display that will show ASLC visitors and other communities the benefits and mechanics of the system in real-time.

Funding & Cost

Cost of Power:	\$0.13 /kWh
Requested Grant Funds:	\$286,580
Matched Funds Provided:	\$401,000
Total Potential Grant Amount:	\$687,580
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$286,580
AEA Funding Recommendation:	\$286,580

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #453 Alaska SeaLife center Phase II Seawater Heat Pump Project

Resource: Geothermal
Proposer: City of Seward

Proposed Project Phase: Construction
 Design

AEA Program Manager: McMahon, Lockard

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 4
- 18
- 16
- 6
- 12
- 5
- 4

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #453 Alaska SeaLife center Phase II Seawater Heat Pump Project

Resource: Geothermal

Proposed Project Phase: Construction

Proposer: City of Seward

Design

AEA Program Manager: McMahon, Lockard

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

Seward owns the tidelands there so no land permit. May or may not need a water right - normally DNR does not issue water rights for use of marine water.

AEA Review Comments

Applicant proposes seawater heat pump to supply Alaska Sea Life Center for space heating.

Application includes a complete feasibility analysis that assesses three options for heat pump systems. Denali Commission Emerging Energy Technology grant funds are providing \$426,720 of the total project capital cost of \$713,300. The project appears to be highly economic and a good demonstration of a technology applicable to coastal Alaska.

Recommend full funding.

App #454 Southwest Alaska Regional Geothermal Energy Project

Resource: Geothermal **Proposed Project Phase:** Construction
Proposer: Naknek Electric Association, Inc. (NEA) Design

AEA Program Manager: McMahon, Lockard **Applicant Type:** Utility

Project Description

Project Type: Geothermal, including heat pumps and Transmission of Renewable Energy.
 Naknek Electric Association, Inc. is committed to lowering utility rates and the cost of living in the Bristol Bay Region. To that end the utility has begun characterizing; developing and testing the geothermal resource for production of utility scale electric, home heating and direct use applications. A transmission network will extend the benefits of indigenous, clean and renewable energy to the region. The project will create sustainable “New Energy” jobs during construction and career employment opportunities in operations and maintenance throughout the life of the project. Long-term and regional in scope, both energy generation and distribution aspects of the project are multi-phased to achieve near and long-term economic development, energy security and independence. Initially a 25 MW generation plant, district heating system and interconnection will serve eight communities in the Northern Bristol Bay area, and later up to 50 MW for a larger region of Southwest Alaska. The project will increase economies of scale, replace not displace the use of No.1 and No.2 diesel fuel, and reduce costly and potentially hazardous transportation of fossil fuels along habitat sensitive waterways in Bristol Bay, home of the world’s largest wild salmon runs.

Funding & Cost

Cost of Power:	\$0.42/kWh
Requested Grant Funds:	\$15,000,000
Matched Funds Provided:	\$20,506,477
Total Potential Grant Amount:	\$35,506,477
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Bristol Bay

App #454 Southwest Alaska Regional Geothermal Energy Project

Resource: Geothermal

Proposed Project Phase: Construction
Design

Proposer: Naknek Electric Association, Inc. (NEA)

AEA Program Manager: McMahon, Lockard

Applicant Type: Utility

AEA Review Comments

Naknek Electric Association requests \$15 million to match approximately \$20 million of federal and local funds for geothermal drilling, characterization, and testing activities for developing a 25 MW geothermal plant. Naknek plans to develop an Enhanced Geothermal System (EGS) that would involve drilling two production wells, creating a fracture system and geothermal reservoir, injecting surface waters through the hot, fracture rock and pumping the heated water to the surface.

This project represents a revised approach to a previous proposal to round 1 of the RE Fund (#8).

DGGS comments:

"This project has changed dramatically in presentation since Round I. The applicant now anticipates (quite correctly) a normal geothermal gradient and that the resource will be created using EGS (Enhanced Geothermal System) techniques. EGS involves drilling into warm or hot rock and artificially creating a fracture system with sufficient volume to host a geothermal reservoir; surface waters are then injected and heated by contact with the country rock; finally the heated waters are brought to the surface, the contained heat energy extracted and used, and the waters reinjected. EGS is not a mature technology. There are a few developmental demonstration projects in the world, but none produce electricity in the megawatt range, and none approach economic viability. (In addition, there are earth process which work against the probability of producing an engineered reservoir with the high volume, porosity and permeability necessary to host a geothermal reservoir). Because EGS is unproven despite decades of investigation the probability of success of this project is extremely low.

Additionally, at the normal geothermal gradient that the proposers anticipate, temperatures of only about 300F are accessible at 14,000' – lower than the 390F reservoir temperatures at known high-temperature resources such as Makushin, yet higher than the temperature of fluids at Chena Hot Springs. The total amount of electricity that can be extracted from a geothermal system is directly limited by the difference in temperature between the hot and cold reservoirs. It is unclear if the 25MW described can be produced from a single injection/production doublet.

Finally, it is known that current activity at the proposed site is well under way and that a significant amount of new subsurface data has been gathered. These un-interpreted data would be critical for the reviewers to make further determination of the geothermal potential and make a more informed decision. Nevertheless, given that EGS continues to be in a research phase and is an unproven technology at the scale proposed for this project, and that no new information is presented by this proposal to substantiate the existence of a viable geothermal resource at the proposed site, the reviewer suggests the current proposal should not be funded."

No funding recommended.

App #455 Chenega Bay Hydro Design and Permitting

Resource: Hydro **Proposed Project Phase:** Design
Proposer: Chenega Corporation/Chenega IRA Council
AEA Program Manager: Ott **Applicant Type:** Utility
Government Entitv

Project Description

The vision for this project is to construction a small scale hydroelectric plant to serve the Native Village of Chenega Bay, Alaska. In 1992, Phukan Consulting Engineers and Associates, Inc. prepared a hydroelectric study for the Alaska Energy Authority which identified a viable project site and estimated costs for two alternative designs for completing the project. In 2008-09, an AEA-funded grant allowed the engineering firm of HDR Alaska, Inc to complete a reconnaissance study which confirmed a feasible development site for construction of a hydroelectric facility. This grant funding request is for the design and permitting which are the next steps for this hydroelectric generation project.

Funding & Cost

Cost of Power:	\$0.44/kWh
Requested Grant Funds:	\$252,000
Matched Funds Provided:	\$38,500
Total Potential Grant Amount:	\$290,500
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$252,000
AEA Funding Recommendation:	\$252,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #455 Chenega Bay Hydro Design and Permitting

Resource: Hydro
Proposer: Chenega Corporation/Chenega IRA Council

Proposed Project Phase: Design

AEA Program Manager: Ott

Applicant Type: Utility
Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	14
2) Matching Resources (Max 20)	13
3) Project Feasibility from Stage 2 (Max 20)	18
4) Project Readiness (Max 10)	6
5) Benefits (Max 15)	13
6) Local Support (Max 5)	0
7) Sustainability (Max 5)	4

Score

Energy Region: Copper River/Chugach

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #455 Chenega Bay Hydro Design and Permitting

Resource: Hydro

Proposed Project Phase: Design

Proposer: Chenega Corporation/Chenega IRA
Council

AEA Program Manager: Ott

Applicant Type: Utility
Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

Chenega Corporation/IRA Council propose final design and permitting of a 90 kW run-of-river hydro project on Anderson Cr. The feasibility study, completed by HDR Inc, was funded by the Denali Commission under the joint AEA/Denali Commission Alt Energy RFP.

There is potential for construction cost-share with a penstock replacement for the water supply.

Recommend full funding.

App #456 2MW Refinery Waste Energy Recovery

Resource: Heat Recovery **Proposed Project Phase:** Construction
Design
Proposer: Chena Power, LLC

AEA Program Manager: Plentovich, Landis **Applicant Type:** Utility

Project Description

The main objective of this project is to develop and operate a 2 MW Waste Energy Recovery power plant system at the Flint Hills Resources North Pole Refinery. The power plant is designed to produce electricity using organic Rankine cycle (ORC) systems to extract heat from the heated post-distillation oil. The heated post-distillation oil has the potential to produce 4 MW of electricity that will be sold to the refinery. This project will increase the overall efficiency and reduce operating costs at the refinery providing a model for utilizing waste heat other refineries and plants in the state can follow

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$3,907,500
Matched Funds Provided:	\$3,907,500
Total Potential Grant Amount:	\$7,815,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #456 2MW Refinery Waste Energy Recovery

Resource: Heat Recovery

Proposed Project Phase: Construction
Design

Proposer: Chena Power, LLC

AEA Program Manager: Plentovich, Landis

Applicant Type: Utility

AEA Review Comments

Chena Power is proposing funding for final design, permitting and construction of an ORC system utilizing waste heat from the North Pole Refinery to produce electricity for the refinery.

AEA requested the following information from the applicant:

1. Willingness of Chena Power to sell power from the project to the local certificated utility, GVEA. This is required in order for the proposer to be eligible as an IPP.
2. Detailed feasibility analysis
3. Comprehensive risk assessment
4. Letters of commitment from Flint Hills for supplying waste heat from the refinery, or the status of reaching such an agreement

Chena Power indicated that it was willing to sell power to GVEA.

Chena Power did not provide AEA with a feasibility analysis that addresses the requirements of the RFA including conceptual system and integration design or comprehensive financial and economic analyses. The applicant also did not address AEA's request for information on waste heat availability. AEA notes that Chena Power requested \$3.907,500 in a Railbelt location eligible for grant funding up to \$2 million. Although AEA believes this project has substantial merit as a demonstration of promising technology, the applicant has not provided enough information to justify proceeding to design and construction.

Recommend no funding.

App #457 Hybrid Biomass and Solar Combined Heat and Power System

Resource: Solar

Proposed Project Phase: Construction
Design

Proposer: Chena Power, LLC

AEA Program Manager: Plentovich, Brown

Applicant Type: Utility

Project Description

Project Type: Solar and Biomass or Biofuels.

This proposed \$1.86M program including 50% applicant cost share will develop and demonstrate a 10kW hybrid solar/biomass system powered entirely by renewable resources with more than 65% combined cycle efficiency, more than 95% thermal efficiency, and very low emissions. Using a high efficiency biomass boiler, high efficiency solar collectors, and organic Rankine cycle (ORC) technology to make this possible. The carbon-neutral emissions may be contained for use in greenhouses to aid the year round growth of produce and net reduction of CO2 GHG. The program will be completed in 1 Y2 years and the product can then be commercialized for markets in Alaska and the lower 48.

The main objective of this project is to demonstrate a 10 kW carbon neutral combined heat and power (CHP) systems using entirely renewable resources. The CHP system is designed to utilize heat from a biomass boiler and solar sources to power an ORC turbine system and produce electricity. The excess heat from the ORCs and thermal energy source will be used for water and space heating and directed into colocated greenhouses where produce will be grown. The carbon dioxide from the biomass combustion will be sequestered for the produce in the greenhouses.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$930,750
Matched Funds Provided:	\$930,750
Total Potential Grant Amount:	\$1,861,500
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$67,325
AEA Funding Recommendation:	\$67,325

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #457 Hybrid Biomass and Solar Combined Heat and Power System

Resource: Solar

Proposed Project Phase: Construction Design

Proposer: Chena Power, LLC

AEA Program Manager: Plentovich, Brown

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 18
- 10
- 5
- 3
- 2
- 3

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #457 Hybrid Biomass and Solar Combined Heat and Power System

Resource: Solar

Proposed Project Phase: Construction
Design

Proposer: Chena Power, LLC

AEA Program Manager: Plentovich, Brown

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant proposes design and construction of a 10 kW modular biomass/solar thermal combined heat and power system. The system consists of a GARN WHS 1500 biomass boiler, solar thermal collectors, and organic Rankine cycle units packaged in a shipping container to be located at Chena Hot Springs. The project is designed for potential use in rural communities.

Given the substantial project development costs, the proposal lacks sufficient design basis for AEA to recommend full funding for final design and construction.

Recommend partial funding of \$67,325 with equal match for refinement of conceptual design and feasibility.

App #458 Kenai Winds Expansion

Resource: Wind

Proposed Project Phase: Construction

Proposer: Kenai Winds LLC

AEA Program Manager: Jensen

Applicant Type: IPP

Project Description

Kenai Winds LLC has received AEA support to develop and erect a 10 MW wind energy facility located in the Nikiski industrial area on the Kenai Peninsula. Homer Electric Association has requested that the capacity of the facility be expanded from 10 to 15 MW. This proposal is submitted to secure funding needed for the expansion. The facility will consist of 5 to 10 wind turbines disbursed throughout the site, electrically interconnected to HEA's Nikiski substation.

Funding & Cost

Cost of Power:	\$0.20/kWh
Requested Grant Funds:	\$4,000,000
Matched Funds Provided:	\$6,000,000
Total Potential Grant Amount:	\$10,000,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$2,000,000
AEA Funding Recommendation:	\$2,000,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #458 Kenai Winds Expansion

Resource: Wind

Proposed Project Phase: Construction

Proposer: Kenai Winds LLC

AEA Program Manager: Jensen

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 6
- 20
- 11
- 7
- 1
- 5
- 5

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #458 Kenai Winds Expansion

Resource: Wind

Proposed Project Phase: Construction

Proposer: Kenai Winds LLC

AEA Program Manager: Jensen

Applicant Type: IPP

DNR/DMLW Feasibility Comments

AEA Review Comments

The applicants request funding for construction for a 4.8 MW expansion of a wind farm at or near the Tesoro refinery in Nikiski above the 9.6 MW that being funded by RE Fund round 2 dollars. The applicants are requesting \$4 million in additional grant funds, twice the maximum funding that was stated in the round 3 request for applications.

As noted in AEA's round 2 comments, the project will affect not only HEA but other Railbelt utilities. The 14.4 MW project is included in the draft Railbelt Integrated Resource Plan base case "preferred resource plan".

Recommend partial funding of \$2 million with the following grant conditions: 1) applicant is required to petition RCA for a certificate of public convenience and necessity and economic rate regulation prior to release of construction funds, 2) establish a cost-based power purchase agreement with HEA or other public utility prior to release of construction grant funds.

App #459 City of Kotzebue Biomass Tactical Garbage to Energy Refinery (TGER) Project

Resource: Biomass **Proposed Project Phase:** Construction
Proposer: City of Kotzebue-Maniilaq Services LLC Design
Feasibility
Recon
AEA Program Manager: Plentovich, Brown **Applicant Type:** Local Government

Project Description

TGER is a “Hybrid System” incorporating two complementary technologies:

- Bioreactor to convert carbohydrates, sugars, some cellulosic waste into vaporous ethanol
 - Thermo chemical gasifier to convert bioreactor residuals into “fuel gas”
- Fuel gas and vaporous ethanol are fumigated into the diesel engine as a substitute for diesel fuel
 System of energy & materials exchange between subsystems for o/a system efficiency
 System outputs are benign ash and CO2*

* With exception of Petroleum-based plastics conversion, system is “carbon-neutral”

How it Works:

- Mixed waste is loaded into a chute where wet food waste is separated for fermentation
- Solid waste is ground up and converted into fuel pellets for delivery to a downdraft gasifier
- Hydrous ethanol from fermentation and syngas from thermal decomposition are blended and aspirated into a 60kW generator to produce electricity

Products:

- Electricity – can be used immediately, diverted to a power micro-grid, or used to charge batteries
- Ash – environmentally benign
- Engine exhaust – EPA certified
- Grey water – environmentally benign (filtered and boiled)
- Excess thermal energy-250,000 BTUs captured for heat, hot water, field sanitation, etc.

Funding & Cost

Cost of Power:	\$0.46/kWh
Requested Grant Funds:	\$1,600,000
Matched Funds Provided:	
Total Potential Grant Amount:	\$1,600,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$80,000
AEA Funding Recommendation:	\$80,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #459 City of Kotzebue Biomass Tactical Garbage to Energy Refinery (TGER) Project

Resource: Biomass

Proposed Project Phase: Construction
Design
Feasibility
Recon

Proposer: City of Kotzebue-Maniilaq Services LLC

AEA Program Manager: Plentovich, Brown

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 15
- 0
- 9
- 2
- 2
- 5
- 1

Energy Region: Northwest Arctic

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #459 City of Kotzebue Biomass Tactical Garbage to Energy Refinery (TGER) Project

Resource: Biomass

Proposed Project Phase: Construction

Proposer: City of Kotzebue-Maniilaq Services LLC

Design

Feasibility

Recon

AEA Program Manager: Plentovich, Brown

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

The City of Kotzebue proposes a recon study of using TGER (Tactical Garbage to Energy Refinery) technology under development by the U.S. Army. The unit is packaged in a shipping container, shreds garbage, soaks it in water, pumps sludge into a bioreactor, converts a portion of the waste stream into ethanol, and pelletizes the remaining solids. Pellets are in turn gasified. Gas is fed into a recip diesel generator and converted into power.

AEA recommended \$15,000 in funding for recon in Round 2, However, funding limitations resulted in zero dollars going to the project. Current proposal requests \$1.6MM recon through commissioning. The first phase of recon and feasibility requests \$80,000.

Prototype testing in Iraq by the US Army was not continued. There are no other operating units of this technology. There has been no testing of the technology in the arctic, and there is no O&M data.

This system is complex, and AEA questions whether there are more suitable, simpler systems that would achieve the same aims of waste reduction and energy (such as a modular incinerator with stack heat recovery).

AEA believes that there is insufficient justification to assume that a prototype tested in Iraq can be successfully translated into an arctic environment without substantial research and development. However, AEA recognizes the substantial need for systems to deal with waste in rural areas. Recommend partial funding for recon and feasibility for \$80,000.

App #460 AVTEC Hydro Training Facility Project

Resource: Hydro **Proposed Project Phase:** Construction
Design
Recon
Proposer: AVTEC-Alaska Institute of Technology
AEA Program Manager: Ott **Applicant Type:** Government Entity

Project Description

AVTEC, with the concurrence and approval of the City of Seward, intends to renovate and update the City of Seward's existing unused hydro power plant to be used as an operation training tool in support of AVTEC's Hydro Power Plant Operator training program sponsored by the Alaska Energy Authority.

Funding & Cost

Cost of Power:	\$0.13 /kWh
Requested Grant Funds:	\$260,000
Matched Funds Provided:	
Total Potential Grant Amount:	\$260,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$260,000
AEA Funding Recommendation:	\$260,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #460 AVTEC Hydro Training Facility Project

Resource: Hydro
Proposer: AVTEC-Alaska Institute of Technology

Proposed Project Phase: Construction
 Design
 Recon

AEA Program Manager: Ott

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 4
- 0
- 8
- 6
- 1
- 3
- 3

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #460 AVTEC Hydro Training Facility Project

Resource: Hydro

Proposed Project Phase: Construction

Proposer: AVTEC-Alaska Institute of Technology

Design

Recon

AEA Program Manager: Ott

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

AVTEC proposes refurbishing the 100 kW Marathon Cr hydro project, currently mothballed, to serve as a hydro training facility for AVTEC. The City of Seward would transfer ownership to AVTEC, an agency within Alaska Dept of Labor . AVTEC would not sell power to the Railbelt grid.

Recommend full funding.

App #461 Thermal Engine Generator System (TEGS) for Ugashik, AK

Resource: Heat Recovery **Proposed Project Phase:** Construction
Design
Proposer: Ugashik Traditional Village

AEA Program Manager: **Applicant Type:** Government Entity

Project Description

BRI proposes an 18-month program incorporating a field deployment of six (6) pre-production, 1kW Thermal Engine Generator System (TEGS) units for waste heat conversion to electric power in Ugashik for the 2010 winter season. Unlike larger Renewable Energy (RE) resources (i.e. wind/hydrokinetic) that interface to an existing power grid, TEGS will produce energy for individual structures. TEGS is designed for deployment in remote areas where electrical power is a scarce, but valued, commodity. The system is designed as a retrofit for existing heating stoves, converting waste heat into mechanical energy. The heart of the system is a proprietary, single-cylinder, beta-type Stirling cycle heat engine. The project includes installation to meet safety standards, assessment of mechanical and electrical performance, reliability, maintainability, and overall suitability for commercial sales. Appropriate instrumentation, spares, operating instructions, training, data analysis, and reporting are included in this effort. Stoves used in tests will be renovated or replaced following the conclusion of the test.

Funding & Cost

Cost of Power:	/kWh
Requested Grant Funds:	\$217,170
Matched Funds Provided:	\$15,000
Total Potential Grant Amount:	\$232,170
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Bristol Bay

App #461 Thermal Engine Generator System (TEGS) for Ugashik, AK

Resource: Heat Recovery

Proposed Project Phase: Construction
Design

Proposer: Ugashik Traditional Village

AEA Program Manager:

Applicant Type: Government Entity

AEA Review Comments

Ugashik Traditional Village proposes to partner with Boschma Research Inc to deploy 1 kW residential-scale Stirling generators on heating systems of five houses and the community center.

AEA requested the feasibility analysis for the proposed project. In response BRI provided a one-page email message that provided links to generic technology description websites. BRI indicates in the proposal that the proposed units are in the technology development phase.

Recommend no funding.

App #462 Hoonah-IPEC Hydro Project

Resource: Hydro **Proposed Project Phase:** Construction
Design
Proposer: Inside Passage Electric Cooperative, Inc.

AEA Program Manager: Ott **Applicant Type:** Utility

Project Description

IPEC proposes to construct a run-of-the-river 1,300 kW hydroelectric project powered by Gartina Creek and Water Supply Creek (Project). The Project will supplement existing IPEC-Hoonah diesel generation capacity and reduce annual diesel fuel consumption by almost 60% - over 250,000-gallons/year.

Funding & Cost

Cost of Power:	\$0.42/kWh
Requested Grant Funds:	\$4,000,000
Matched Funds Provided:	\$450,000
Total Potential Grant Amount:	\$4,450,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$850,000
AEA Funding Recommendation:	\$850,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #462 Hoonah-IPEC Hydro Project

Resource: Hydro
Proposer: Inside Passage Electric Cooperative, Inc.

Proposed Project Phase: Construction
 Design

AEA Program Manager: Ott

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	13
2) Matching Resources (Max 20)	11
3) Project Feasibility from Stage 2 (Max 20)	17
4) Project Readiness (Max 10)	6
5) Benefits (Max 15)	12
6) Local Support (Max 5)	4
7) Sustainability (Max 5)	5

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #462 Hoonah-IPEC Hydro Project

Resource: Hydro

Proposed Project Phase: Construction
Design

Proposer: Inside Passage Electric Cooperative, Inc.

AEA Program Manager: Ott

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

Inside Passage Electric Coop proposes final design and permitting and the initial construction phase for 1.3 MW of run-of-river hydro development at Water Supply and Gartina creeks. IPEC anticipates that work will include FERC licensing and NEPA review.

Phase 3 final design and permitting is expected to be complete July 2012.

Recommend partial funding of \$850,000 for final design and permitting.

App #463 Yakutat Wave Energy Pilot Demonstration

Resource: Ocean/River

Proposed Project Phase: Design

Proposer: City and Borough of Yakutat

AEA Program Manager: McMahon, Lockard

Applicant Type: Local Government

Project Description

Project Type: Wave Energy

The City and Borough of Yakutat is pleased to propose a Phase III Final Design and Permitting Project leading to the first Alaska Wave Energy Pilot Demonstration.

A Phase I Reconnaissance and Phase II Feasibility Analysis Phase was completed in 2009 by the Electric Power Research Institute (EPRI) under Yakutat Power funding (\$44,000) which evaluated and assessed in detail the technical, cost, economic and operational viability of a WEC project. The study scope included: (1) a shallow water wave energy resource assessment, (2) a conceptual design based on the Aquamarine Power Oyster shallow water wave energy conversion technology, (3) a cost assessment (capital and O&M), and (4) an economic analysis. The Aquamarine Oyster was chosen after a trade-off analysis showed that a the 500 kW to 1 MW plant scale, a near-shore device would make most sense. Aquamarine Power's shallow water wave energy conversion technology Oyster has been identified as the best suited wave energy technology for the deployment site. Oyster is a wave actuated hydraulic pump that pumps fresh water to shore at a pressure level of about 120 bars, where it is converted into electricity using a conventional hydroelectric system and then returns it to the Oyster in a closed loop.

The major project elements include: (1) the Oyster WEC device, (2) a high pressure (120) bar pressure supply sub sea pipeline and a low pressure (3 bar) return sub sea pipeline, (3) an onshore turbine generator power station, and (3) a distribution line extension to connect the power station to the city electrical grid network. The proposed deployment location and related project elements are shown in the following figure.

Oyster is well suited for the Yakutat location. The system elements that are most prone to require maintenance are located on-shore where the equipment can easily be accessed.

The EPRI study showed that Yakutat has an excellent wave climate for wave energy conversion. A shallow water wave transformation model (SWAN) was used to propagate a full-year of wave data to the deployment location and 13m water depth.

Shallow water power densities at the deployment site of interest were assessed at between 19kW/m and 22kW/m. Based on this wave energy resource data, the resulting capacity factor of the 650 kW rated Oyster machine was assessed at 45.6%. Cost elements, including: (1) device, (2) sub sea pipeline, (3) on-shore power station, (4) overland distribution line extension, (5) installation, and (6) operation and maintenance were assessed for the plant at 4 different sizes (1,2, 4 and 8 units at 650 kW per unit). Cost of electricity was then computed using a Municipal Utility Ownership economic model. Cost of electricity is estimated to be about 45 cents/kWh (in constant Jan 1, 2010 dollars) for a 20 year plant-life. Cost and economic uncertainties at this early stage of project development are still quite substantial and based on EPRI's experience with similar projects at a conceptual stage of development is on the order of +/- 30%.

The cost at this relatively small scale (as far as sizes of utility power plants in the lower 48) is clearly dominated by infrastructure and operational considerations related to the installation of the device in this somewhat remote location. However, present busbar cost of electricity from the existing diesel-based generation facility comes in at about 27 cents/kWh and will only increase in the future. This is comparable to Oyster at an 8 unit scale plant and removes the issue of price volatility of diesel fuel generation. Diesel fuel cost has dramatically increased since the year 2000 and is only temporarily lower at present because the global recession has reduced the demand on fossil fuels, creating a temporary more attractive pricing structure. In the long-term energy cost are expected to increase, which creates an additional economic burden to small communities like Yakutat, that are heavily reliant on diesel fuel.

One of the key results of the EPRI feasibility study was that the level of cost-reduction potential that could come from optimization is substantial. These cost reductions can only be quantified through detailed design and engineering analysis because most cost elements are driven by site-specific considerations. A key part of the proposed next phase is to investigate some of the identified alternate design options and detail the "optimal" solution for the site of interest. Many cost reductions could come from improved installation and operational procedures, economies of scale, and the potential to locate the plant closer to shore. These alternate topologies will be optimized in this proposed phase of development.

Therefore, we propose progressing to Phase III based upon the results of this study. And, if the results of Phase III show adequate benefit cost ratio, Yakutat intends to implement a Phase IV Construction and Operations/Maintenance Phase Alaska has more than 50% of the wave energy resource (about 1,200 TWhr/year) of the entire United States of America off its shores (and that is excluding the Bering Seas to the north of the Aleutian Islands). We believe that wave energy will play an important role in meeting the energy needs of the State of Alaska in the future. With this pilot demonstration project, we propose to be an early adopter and evaluator of emerging Wave Energy Conversion (WEC) technology.

The goal of this Phase III is to complete a detailed construction design of the wave pilot plant and perform permitting/licensing activities required to obtain a FERC 5 year pilot license to construct and operate the plant. The goal of a future Phase IV to construct, operate and maintain the pilot plant rated at 650kW for 5 years. The results of this pilot demonstration plant project will enable Yakutat Power to make an informed evaluation as to whether wave energy should be included in its energy portfolio and whether the technology is ready for building out a full scale plant at Yakutat or anywhere else along the coast of Alaska. If successful, it will be possible to re-license the project to extend the project life to 20-years and additional units could be added to displace additional loads within the village. This increase in deployment scale would further reduce cost of electricity (economies of scale) and allow heating fuel to be displaced.

The specific objective of Phase III Final Design and Permitting is to conduct all work necessary to complete engineering design, conduct baseline environmental studies and submit all license applications required for a pilot wave energy demonstration plant offshore Yakutat.

The specific objective of Phase IV is to implement the technology in the actual environment near Yakutat to obtain real operational experience, environmental, performance and other data gathering and evaluation/analysis.

Results of this project could open up the possibility of more wave energy conversion plants at many sites in Alaska.

Funding & Cost

Cost of Power: \$0.35/kWh

Requested Grant Funds: \$1,200,000

Matched Funds Provided: \$400,000

Total Potential Grant Amount: \$1,600,000

Existing RE Fund Grant Offer:

AEA Funding Recommendation: \$1,200,000
(Not Constrained by Available Funding)

AEA Funding Recommendation: \$1,200,000

AEA Recommendation

✗ Full Funding
 Partial Funding
 Special Provision
 Not Recommended
 Did Not Pass Stage 1

App #463 Yakutat Wave Energy Pilot Demonstration

Resource: Ocean/River

Proposed Project Phase: Design

Proposer: City and Borough of Yakutat

AEA Program Manager: McMahon, Lockard

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 11
- 0
- 11
- 6
- 2
- 2
- 3

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #463 Yakutat Wave Energy Pilot Demonstration

Resource: Ocean/River

Proposed Project Phase: Design

Proposer: City and Borough of Yakutat

AEA Program Manager: McMahon, Lockard

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

New technology may generate concerns. Require land lease and ROW.

AEA Review Comments

Yakutat Power proposes to collaborate with Electric Power Research Institute to perform final design / permitting of a 650 kW demonstration wave energy project. EPRI and Yakutat have completed reconnaissance and feasibility work with their own funding. During the final design and permitting stage Yakutat proposes to conducting siting studies, cost optimization, environmental studies and permitting, and prepare a detailed civil, mechanical, and electrical design. The team will utilize the Aquamarine Oyster technology.

AEA recommended funding for a similar scope of work in round 2. We remain concerned at the high cost and high risk of demonstrating new technology. However, Yakutat and EPRI have put together a strong team and are conducting a logical, staged development that minimizes risk. Alaska has substantial potential for wave energy and it is logical for the state to support ocean energy technology development.

Recommend full funding.

App #464 AVCP Housing Wind Turbines Project

Resource: Wind **Proposed Project Phase:** Construction
Design
Feasibility
Recon
Proposer: AVCP Regional Housing Authority
AEA Program Manager: Jensen **Applicant Type:** Government Entity

Project Description

The AVCP Housing Wind Turbine Project is to purchase land from the City of Bethel for the site of the two turbine towers, construct the power line extension to the new AVCP RHA Office Complex, purchase and construct the wind turbines and the generator building. The total annual projected kWh usage of the Low Income Rental units, Lulu Herron Congregate Housing and the AVCP RHA Office Complex and warehouses is 581,573 kWh. The two wind turbines are projected to supply 582,486 kWh annually.

Funding & Cost

Cost of Power:	\$0.54/kWh
Requested Grant Funds:	\$3,744,546
Matched Funds Provided:	\$750,000
Total Potential Grant Amount:	\$4,494,546
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Lower Yukon-
Kuskokwim

App #464 AVCP Housing Wind Turbines Project

Resource: Wind

Proposed Project Phase: Construction

Proposer: AVCP Regional Housing Authority

Design

Feasibility

Recon

AEA Program Manager: Jensen

Applicant Type: Government Entity

AEA Review Comments

AVCP Regional Housing Authority proposes to construct a 200 kW wind energy project to serve their campus in Bethel. AVCP would first purchase land from the City of Bethel for \$670,000 in late 2010, and begin equipment purchase and construction in spring 2011.

AEA has the following concerns about this proposal:

1. The feasibility study that is provided is not adequate as a basis for proceeding to design and construction. It does not include a conceptual design, detailed cost estimate, a conceptual business and operation plan, or site-specific assessment of the wind resource.
2. The application appears to be structured based on net metering. The RFA requires that an IPP sell all of its power to the certificated utility. There is no indication provided in the application that Bethel Utilities will purchase power from the project.
3. AEA notes that the City of Bethel has been funded through the RE Fund round 1 for a 400 kW wind project. To date the City and utility have not reached an agreement for power purchase or interconnection.
4. The economics of the project are poor with a B/C ratio of less than 0.5.

Recommend no funding.

App #465 Melozi-Horner Hot Springs Geothermal Resource Estimate

Resource: Geothermal

Proposed Project Phase: Feasibility

Proposer: Ruby Tribal Council

AEA Program Manager: McMahon, Lockard

Applicant Type: Government Entity

Project Description

The Ruby Tribal Council is proposing to partner with the Alaska Center for Energy and Power (ACEP) to perform a geothermal Resource Assessment of the Horner and Melozi Hot Springs geothermal resources for potential power generation and space heating for the City of Ruby and the neighboring areas. The project includes using available thermal infrared images to generate a land surface temperature and emissivity map of the study area; using available optical data to create a landcover classification map; acquiring and processing hundreds of airborne thermal infrared images; collecting in-situ field data for geometric rectification of airborne images, driving the remote sensing data analysis, and validating analysis results; conducting economic analysis of the area’s energy resource potential; and community outreach.

Funding & Cost

Cost of Power:	\$0.98/kWh
Requested Grant Funds:	\$219,071
Matched Funds Provided:	
Total Potential Grant Amount:	\$219,071
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Yukon-Koyukuk/Upper Tanana

App #465 Melozi-Horner Hot Springs Geothermal Resource Estimate

Resource: Geothermal

Proposed Project Phase: Feasibility

Proposer: Ruby Tribal Council

AEA Program Manager: McMahon, Lockard

Applicant Type: Government Entity

AEA Review Comments

Applicant Ruby Tribal Council proposes to partner with UAF to conduct assessment of Horner and Melozi hot springs geothermal resources using infrared imagery and aerial photos. The sites are more than 30 miles from Ruby and located on the other side of the Yukon River from Ruby.

DGGS comments: "This study has the objective "to determine the potential extent and amount of the energy resource that is available" at Melozi Hot Springs. However, the only data that are proposed to be collected and analyzed are remotely sensed (satellite and airborne), along with "limited field validation". The proposal also outlines an economic feasibility study of "developing the resource". Satellite and airborne visible and infrared data are necessarily restricted to surface evaluation, where emerging geothermal fluids cool by mixing with surface waters and by conduction and convection. Surface temperatures underestimate reservoir temperatures by an unpredictable amount. For evaluation of the geothermal resource the reservoir itself must be characterized in terms of volume, temperature, depth, porosity, and permeability (i.e. the temperature and sustainable rate of production of fluids need to be known). This proposal should be considered a minimal first step in acquiring the data necessary to evaluate Melozi as a geothermal resource. Not recommended for funding at this time."

No funding recommended.

App #466 Pilgrim Hot Springs Geothermal Resource Assessment

Resource: Geothermal **Proposed Project Phase:** Feasibility
Recon
Proposer: UAF, Institute of Northern Engineering,
AK Center for Energy & Power
AEA Program Manager: McMahon, Lockard **Applicant Type:** Government Entity

Project Description

The Pilgrim Hot Springs geothermal system was extensively studied in the late 1970s and early 1980s with a variety of geological, geochemical, and geophysical studies. Unfortunately the execution of these surveys and interpretation of the data from these earlier studies did not result in a thorough understanding of the area, and the most important conclusions for potential future development – such as locating the upflow zone of the geothermal fluid – were not conclusively determined. This proposal will fund a ground-based survey to complement a Department of Energy award under DE-FOA-0000109 in the amount of \$4,616,879. A similar submission was recommended for funding under Round II, but fell below the cutoff for the \$25 million in projects that was ultimately funded. The goal of the larger project (combining DOE and State funding) will be to pinpoint the upflow zone using advanced geophysical survey techniques, and to verify the location, depth to the resource, and temperature through a new drilling program. Both the existing wells and the new hole will be flow tested to obtain water samples for chemical analysis, and to conduct pressure interference surveys between the wells. These data, combined with an airborne thermal imaging survey to determine total heat flow to the surface should be adequate to determine total potential output of the system for sustainable long term development. The proposed project is a joint effort between the Alaska Center for Energy and Power (ACEP) and the Catholic Bishop of Northern Alaska, (owner of Pilgrim Hot Springs). The project will be led by ACEP. In addition to the project partners, letters of support have been provided by Mary’s Igloo Native Council (owners of property adjacent to Pilgrim) and Nome Joint Utilities, both of whom would be impacted in their organizations’ long-term decision making by conclusions reached through this study. Letters of support from both of these organizations is included as attachments.

Funding & Cost

Cost of Power:	\$0.37/kWh
Requested Grant Funds:	\$1,748,343
Matched Funds Provided:	\$407,667
Total Potential Grant Amount:	\$2,156,010
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,748,343
AEA Funding Recommendation:	\$1,748,343

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #466 Pilgrim Hot Springs Geothermal Resource Assessment

Resource: Geothermal **Proposed Project Phase:** Feasibility Recon
Proposer: UAF, Institute of Northern Engineering, AK Center for Energy & Power
AEA Program Manager: McMahon, Lockard **Applicant Type:** Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

<u>Criterion (Weight)</u>	<u>Score</u>	Energy Region: Bering Straits
1) Cost of Energy (Max 25)	12	
2) Matching Resources (Max 20)	13	
3) Project Feasibility from Stage 2 (Max 20)	15	Election District:
4) Project Readiness (Max 10)	7	
5) Benefits (Max 15)	8	
6) Local Support (Max 5)	5	
7) Sustainability (Max 5)	4	

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

[Round II comments apply] This study was recommended for funding during Round II -- that recommendation from DGGS still stands. This is a comprehensive, appropriately sequential study. A resource of some sort must exist at Pilgrim, and the likelihood that it is capable of generating the amount of power discussed in this proposal is high. The recent award by DOE of funds for portions of the greater Pilgrim project, of which this proposal is part, does not necessarily obviate the need for funding from the state for this proposal. In terms of temperature, chemistry, and flow rate of fluids coming to the surface Pilgrim is one of the most attractive of the moderate temperature geothermal systems in the state. Because of this it was targeted for detailed study, including drilling, in the 1970s to early '80s. Frustratingly, the drilling only pierced a thin perched layer of hot water, with strong temperature reversal below the layer. Finding the upwelling source which feeds this outflowing layer remains. Understanding the full potential of Pilgrim requires knowing the dimensions of this zone and its temperature and volume at depth. <P> This proposal is for a clearheaded stepwise exploration program which will gather necessary preliminary data and, ultimately, correctly site a drill hole for direct sampling of the upwelling fluid.

App #466 Pilgrim Hot Springs Geothermal Resource Assessment

Resource: Geothermal

Proposed Project Phase: Feasibility
Recon

Proposer: UAF, Institute of Northern Engineering,
AK Center for Energy & Power

AEA Program Manager: McMahon, Lockard

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

UAF proposes to assess geothermal resources at Pilgrim Hot Springs through refurbishing existing shallow wells and drilling deep wells. This is a resubmittal of a RE Fund round 2 proposal (#258) that was recommended for funding, but which did not receive funding due to limits. In October 2009 USDOE notified UAF that the university's proposal for exploration was accepted subject to negotiation. USDOE funding requires a minimum 20% nonfederal match for exploration and a 50% match for confirmation drilling.

The Nome Energy Study identified development of the Pilgrim Hot Springs geothermal resource as the least-cost option for long-term power supply. The applications includes letters of support from Nome Joint Utilities and Mary's Igloo Native Council (the owner of the adjacent land). DGGS indicates support for the project (see above). The application also includes a support letter from landowner Catholic Church Diocese of Fairbanks. In December 2009 AEA learned that the Chuch plans to sell the land.

Recommend full funding with the provision that prior to the disbursement of funds, UAF confirm legal access to the resource with the new landowner.

App #467 Waste to Energy Feasibility Assessment for UAF and other medium sized communities

Resource: Biomass **Proposed Project Phase:** Feasibility
Proposer: UAF Institute of Northern Engineering,
 AK Center for Energy & Power
AEA Program Manager: Plentovich, Brown **Applicant Type:** Government Entity

Project Description

This project will incorporate a technical and economic feasibility assessment for replacing the University of Alaska coal-fired power plant with a waste-to-energy biomass energy project. This study will compare three scenarios – 1) the base case of coal only fuel, 2) a mixed fuel consisting primarily of municipal waste from the campus only and/or renewable energy from local resources, and 3) 100% municipal waste and biomass, a portion of which would be diverted from the Fairbanks North Star Borough Landfill. In addition to comparing the economics of these options, we will complete a comprehensive survey of waste-to-energy technologies that could be applicable for Alaskan communities. We will not limit the technical feasibility assessment component to this site alone. There are a number of potential technologies that have been proposed for use in Alaska, including gasification, combustion, and plasma gasifiers. We will consider each of these configurations, plus specific products and manufacturers and the market-readiness of their products.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$275,142
Matched Funds Provided:	
Total Potential Grant Amount:	\$275,142
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$275,142
AEA Funding Recommendation:	\$275,142

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #467 Waste to Energy Feasibility Assessment for UAF and other medium sized communities

Resource: Biomass

Proposed Project Phase: Feasibility

Proposer: UAF Institute of Northern Engineering,
AK Center for Energy & Power

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 0
- 13
- 4
- 3
- 3
- 5

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #467 Waste to Energy Feasibility Assessment for UAF and other medium sized communities

Resource: Biomass

Proposed Project Phase: Feasibility

Proposer: UAF Institute of Northern Engineering,
AK Center for Energy & Power

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant proposes assessing feasibility of retrofitting existing coal-fired power system at UAF with biomass or biomass/coal fuel and studying other related waste to energy technologies.

AEA believes the proposal is viable for the following reasons:

- potential for substantial displacement of fossil resources with renewables.
- has potential to utilize unrecyclable waste, extending the life of landfills.
- applicant has the technical capabilities and resources to conduct a successful project.

Recommend full funding.

App #468 Alaska Wind for Schools Program

Resource: Wind

Proposed Project Phase: Construction

Proposer: UAF Alaska Center for Energy & Power_Wind Diesel Application Center

AEA Program Manager: Jensen

Applicant Type: Government Entity

Project Description

Wind Powering America and the National Renewable Energy Laboratory (NREL) launched the Wind for Schools project in 2005 by conducting a pilot project in Colorado that resulted in one small wind turbine installed in Walsenburg, wind energy curriculum development, and a great deal of enthusiasm for the Wind for Schools project's potential. The Wind for Schools project will be replicated in Alaska by installing many more small wind turbines, engaging local citizens in a wind energy discussion, and developing a knowledge base for wind energy within schools.

The general approach of the Wind for Schools project is to install small wind turbines at rural elementary and secondary schools (hosts) while developing Wind Application Centers at higher education institutions. Teacher training and hands on curricula are implemented at each host school to bring the wind turbine into the classroom through interactive and interschool wind related research tasks. The students at the Wind Application Centers assist in the assessment, design, and installation of the small wind systems at the host schools, acting as wind energy consultants. They also participate in class work and other engineering projects in the wind energy field, preparing them to enter the energy workforce pursuing fields, such as engineering and technical trades, as well as economics, social science, education, and environmental sciences.

Funding & Cost

Cost of Power:	\$0.45/kWh
Requested Grant Funds:	\$293,238
Matched Funds Provided:	
Total Potential Grant Amount:	\$293,238
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$293,238
AEA Funding Recommendation:	\$293,238

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #468 Alaska Wind for Schools Program

Resource: Wind

Proposed Project Phase: Construction

Proposer: UAF Alaska Center for Energy & Power_Wind Diesel Application Center

AEA Program Manager: Jensen

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 14
- 0
- 10
- 3
- 1
- 0
- 3

Energy Region: Statewide

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #468 Alaska Wind for Schools Program

Resource: Wind

Proposed Project Phase: Construction

Proposer: UAF Alaska Center for Energy &
Power_Wind Diesel Application Center

AEA Program Manager: Jensen

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

UAF ACEP proposes funding for 10 2.4 kW wind turbines to be located in Palmer, Kodiak, St. Paul, Pt. Hope, Dillingham, Togiak, Kwigillingok, Kongiganak, Unalakleet, and Gambell through the NREL-organized Wind for Schools program.

The primary focus of the program is education--not power production. Through its wind energy development program AEA has pledged up to \$36,000 for program activities in non-RE Fund dollars to match federal funding if ACEP is awarded competitive grants.

While many of these communities have a good wind resource, the turbines are small and will be located near the school where wind resources tend to be poorer. It is expected that only a portion of the power generated will offset diesel. Thus economics are expected to be marginal to poor.

Recommend full funding.

App #469 Akutan Hydroelectric System Repair and Upgrade

Resource: Hydro **Proposed Project Phase:** Construction
Design
Proposer: City of Akutan

AEA Program Manager: Ott **Applicant Type:** Local Government

Project Description

This grant request identifies the repairs and upgrades required to bring the system back on line and to improve its long term efficiency, output, and sustainability. Therefore, this grant application is requesting funds for:

- Phase IV Final Design, Construction, Commissioning, Operation

The tasks for this project are as defined in Sections 2.5 and 2.6 of the grant application instructions.

Funding & Cost

Cost of Power:	\$0.32/kWh
Requested Grant Funds:	\$1,391,000
Matched Funds Provided:	\$100,000
Total Potential Grant Amount:	\$1,491,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,391,000
AEA Funding Recommendation:	\$1,391,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #469 Akutan Hydroelectric System Repair and Upgrade

Resource: Hydro **Proposed Project Phase:** Construction
Design
Proposer: City of Akutan

AEA Program Manager: Ott **Applicant Type:** Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	10
2) Matching Resources (Max 20)	10
3) Project Feasibility from Stage 2 (Max 20)	16
4) Project Readiness (Max 10)	9
5) Benefits (Max 15)	12
6) Local Support (Max 5)	2
7) Sustainability (Max 5)	5

Score

Energy Region: Aleutians

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #469 Akutan Hydroelectric System Repair and Upgrade

Resource: Hydro

Proposed Project Phase: Construction
Design

Proposer: City of Akutan

AEA Program Manager: Ott

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant City of Akutan requests funding for repair of 105 kW hydro project at Town Creek. Work would include upgrading the existing access road, repairs to the intake, rebuilding the hydro turbine, providing hydro maintenance equipment and storage building, and upgrading the system controls. AEA has awarded round 2 funding for final design and permitting and notes that \$64,000 has not been spent from the current grant.

Recommend full funding with the provision that any funds remaining after completion of permitting and final design from round 2 will be returned for reallocation to other grantees.

App #470 Akutan Geothermal Development Project

Resource: Geothermal **Proposed Project Phase:** Construction
Design
Feasibility
Proposer: City of Akutan
AEA Program Manager: McMahon, Lockard **Applicant Type:** Local Government

Project Description

This project is the continuation of the Hot Springs Bay Valley Geothermal Reconnaissance Project, previously funded under Alaska Energy Authority (AEA) Renewable Energy Grant Fund application #246. A surface investigation, detailed analysis of geological data, an economic analysis and project permitting are being completed under the existing grant authorization. The purpose of this request for funding is to provide the supplemental funds necessary for test well drilling during the 2010 field season (June – October). A heliportable coring drill rig will be employed to drill four (4) slimholes, three at 1500 feet in depth and one at 3,500 feet. A baseline comprehensive well testing program will be conducted shortly after well completion, followed by long-term well monitoring. The project will result in confirmation of the geothermal resource sufficient for final design and permitting as described in the Phase III requirements listed in Section 2.5 of RFA AEA 10-015.

Funding & Cost

Cost of Power:	\$0.32/kWh
Requested Grant Funds:	\$2,870,000
Matched Funds Provided:	\$250,000
Total Potential Grant Amount:	\$3,120,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$2,870,000
AEA Funding Recommendation:	\$2,870,000

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #470 Akutan Geothermal Development Project

Resource: Geothermal **Proposed Project Phase:** Construction
Design
Feasibility
Proposer: City of Akutan
AEA Program Manager: McMahon, Lockard **Applicant Type:** Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

<u>Criterion (Weight)</u>	<u>Score</u>	
1) Cost of Energy (Max 25)	10	Energy Region: Aleutians
2) Matching Resources (Max 20)	10	
3) Project Feasibility from Stage 2 (Max 20)	17	Election District:
4) Project Readiness (Max 10)	5	
5) Benefits (Max 15)	14	
6) Local Support (Max 5)	2	
7) Sustainability (Max 5)	3	

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

[Round II comments apply] This proposal represents the continuation of a successful geothermal resource investigation at Akutan. The work is appropriately progressive – from reconnaissance to detailed surface geophysical and geochemical studies to exploratory drilling and reservoir testing. From the DGGS perspective the nature and quality of the work, the pace, and the team are all part of a robust prospecting project. Recommend continued support. Hot Springs Bay/Akutan is one of four stand-out high-temperature geothermal systems identified during the statewide geothermal resource inventory of the late 1970's and early 1980's. The other three are Makushin/Unalaska, Geyser Bight/central Umnak Island, and Atka. Makushin was chosen for additional study, including drilling, only because of the larger nearby electrical load (Unalaska/Dutch Harbor). Surface studies, including chemical geothermometry of spring waters, have always indicated that the geothermal resource at HSB is substantial. <P> This proposal seeks to take the next step – drilling (after necessary prospecting) to confirm the temperatures inferred from surface samples and make direct observations of the depth of the system, and, through flow testing, reservoir volume and permeability. The proposed project is very similar in scale to that carried out at Makushin during the 1980's. <P> In terms of geologic science and resource exploration DGGS fully supports this proposal. The management team is fully capable and all indications are that a resource exists and is capable of megawatt-scale electrical production. The fact that the City of Akutan is an active participant, rather than a potential customer (as at Makushin) bodes well for successful integration of a geothermal resource into the local economy and infrastructure.

App #470 Akutan Geothermal Development Project

Resource: Geothermal

Proposed Project Phase: Construction

Proposer: City of Akutan

Design

Feasibility

AEA Program Manager: McMahon, Lockard

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

The City of Akutan requests funding for continuing with geothermal resource assessment in Hot Spring Bay Valley. AEA awarded Akutan \$2,595,000 of RE Fund round 2 funding geothermal assessment (#249). Following quotes from drilling and helicopter contractors, however, Akutan has determined that their earlier proposal, based on AEA's statewide Geothermal Cost Matrix was overly optimistic. The current proposal asks for additional funds for drilling up to four slim hole wells.

AEA has requested and received documentation of the additional costs of the drilling program and finds they are reasonable. DGGS recommends continued support.

Recommend full funding.

App #471 Virgin Creek Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Feasibility

Proposer: Bering Pacific Engineering

AEA Program Manager: Ott **Applicant Type:** IPP

Project Description

The Virgin Creek Hydroelectric Project is a potential hydroelectric resource in the Girdwood valley with a capacity of 1.2 MW. A feasibility study is required to determine the appropriate project size and to scope development issues.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$125,000
Matched Funds Provided:	\$25,000
Total Potential Grant Amount:	\$150,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #471 Virgin Creek Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Bering Pacific Engineering

AEA Program Manager: Ott

Applicant Type: IPP

AEA Review Comments

Bering Pacific proposes assessing conceptual design and feasibility of a 1.2 MW run-of-river hydro project at Virgin Creek near Girdwood.

AEA requested the reconnaissance study for this project. In response AEA received a four-page document that included a vicinity map, a photo of the creek, a simulated flow duration curve, and an estimated power output profile. The document did not substantially provide the required elements of a recon study listed in the RFP, including anticipated project alternatives, barriers to project development, environmental screening addressing issues and impacts, land use restrictions, access to the site, adequately supported cost estimate, and basic economic analysis of alternatives,

Recommend no funding.

App #472 Eska Creek Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Feasibility

Proposer: Bering Pacific Engineering

AEA Program Manager: Ott **Applicant Type:** IPP

Project Description

The Eska Creek Hydroelectric Project is a potential hydroelectric resource located near Sutton, AK with a capacity of 1.5 MW. A feasibility study is required to determine the appropriate project size and to scope development issues.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$70,000
Matched Funds Provided:	\$15,000
Total Potential Grant Amount:	\$85,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #472 Eska Creek Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Bering Pacific Engineering

AEA Program Manager: Ott

Applicant Type: IPP

AEA Review Comments

Bering Pacific proposes conceptual design and feasibility assessment of a 1.5 MW run-of-river hydro project at Eska Creek near Sutton.

AEA requested the reconnaissance study for this project. In response AEA received a one-paragraph document. The document did not provide the required elements of a recon study listed in the RFP.

Recommend no funding.

App #473 Hope Regional Hydroelectric Study

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Bering Pacific Engineering

AEA Program Manager: Ott

Applicant Type: IPP

Project Description

The Resurrection Valley Projects have a combined capacity of 7.0 MW based on a review existing maps. A reconnaissance study is required to determine the viability of the projects and select the preferred developments.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$115,000
Matched Funds Provided:	\$25,000
Total Potential Grant Amount:	\$140,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$115,000
AEA Funding Recommendation:	\$115,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #473 Hope Regional Hydroelectric Study

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Bering Pacific Engineering

AEA Program Manager: Ott

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 13
- 9
- 1
- 8
- 0
- 2

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

General DGGS statement. Located near the Kenai lineament, a structure depicted as suspicious on the Neotectonic map of Alaska

DNR/DGGS Feasibility Comments

App #473 Hope Regional Hydroelectric Study

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Bering Pacific Engineering

AEA Program Manager: Ott

Applicant Type: IPP

DNR/DMLW Feasibility Comments

This is a popular recreation area. Not sure of the exact location and impact but that may engender substantial comment during the public permitting process.

AEA Review Comments

Applicant proposes recon study of developing hydro projects in four side drainages of Resurrection Valley near Hope totalling 7 MW.

All projects would be on USFS land, likely require FERC licensing, and be located in an area used frequently for recreation. DNR DLWM expects substantial public comment during permitting.

Recommend full funding.

App #474 Chignik Lagoon Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Construction

Proposer: Chignik Lagoon Power Utility (CLPU)

AEA Program Manager: Ott

Applicant Type: Utility

Project Description

The Chignik Lagoon Hydroelectric Project is a run-of-river hydroelectric project located on Packers Creek in Chignik Lagoon. The 190 kW project can provide for most of the communities current power needs, which peak at about 125 kW. The project involves construction of an intake, a 4650 foot long, 18 inch diameter pipeline, a powerhouse, a 2000 foot long transmission line, and access roads.

Funding & Cost

Cost of Power:	\$0.50/kWh
Requested Grant Funds:	\$2,350,000
Matched Funds Provided:	\$150,000
Total Potential Grant Amount:	\$2,500,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Bristol Bay

App #474 Chignik Lagoon Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Construction

Proposer: Chignik Lagoon Power Utility (CLPU)

AEA Program Manager: Ott

Applicant Type: Utility

AEA Review Comments

Chignik Lagoon Power Utility proposes to construct a 190 kW run-of-river hydro project on Packers Creek. AEA has awarded \$150,000 to the utility for feasibility and final design. Final design and permitting is not yet complete, and is expected in "mid-2010".

Funding not recommended since final design and permitting are not yet complete.

App #475 Hunter Creek Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Recon

Proposer: Eklutna Inc

AEA Program Manager: Ott

Applicant Type: IPP

Project Description

The Hunter Creek Hydroelectric Project is a potential hydroelectric resource in the Matanuska-Susitna valley to may be able to economically produce 6.5 MW or more. This phase of the project, a reconnaissance study, involves investigating the resource to determine if a project is viable and to also perform preliminary feasibility work on the project location, size, and resource availability.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$84,000
Matched Funds Provided:	\$16,000
Total Potential Grant Amount:	\$100,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$84,000

AEA Funding Recommendation: \$84,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #475 Hunter Creek Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Eklutna Inc

AEA Program Manager: Ott

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 13
- 13
- 1
- 12
- 0
- 2

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #475 Hunter Creek Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Eklutna Inc

AEA Program Manager: Ott

Applicant Type: IPP

DNR/DMLW Feasibility Comments

Believe the land ownership is incorrect at this time. I believe it is still BLM land. This is a popular recreation area, although future land transfers to Eklutna will eliminate the ability to voice complaint, but will have some public opposition.

AEA Review Comments

Eklutna Inc proposes recon assessment of a 6.5+MW hydro project on Hunter Cr. The project would include a 13,000 ft cross-basin pipeline, 8,000 ft penstock, and 26 miles of transmission.

DNR DMLW questions that Eklutna owns the land as stated in the application. If BLM owns the land this project falls under FERC jurisdiction. DNR also notes this is popular recreation area and the project may garner public opposition.

Recommend full funding.

App #476 City Tribe Biomass Energy Conservation

Resource: Biomass

Proposed Project Phase: Construction

Proposer: City of Tanana

AEA Program Manager: Plentovich, Brown, Landis

Applicant Type: Local Government

Project Description

Project Type: Solar and Biomass or Biofuels.

The City of Tanana in collaboration with the Tanana Tribal Council proposes to install a biomass heating source and solar panels for the Assisted Living Facility for elders in Tanana, the Tanana Tribal Offices and the Internet high tech training center in Tanana. All three buildings are located close to one another. The City of Tanana will oversee the construction and implementation of this project; the Tribal Council will provide in-kind and collaborative oversight of the project. The project site is on 4.3 acres of land dedicated to this project. The Biomass Center building will be located in the middle of the complex of three buildings within 100 feet of the center of these building. The Biomass Center will house three (3) GARN heating units that will provide hot water heat to each of the buildings. The biomass heating units will greatly reduce the use of expensive fuel oil and save money for the Assisted Living Facility and Tribal Council. The installation of 63 solar panels will provide electricity to the three buildings during the summer months significantly reducing the cost of electricity.

Funding & Cost

Cost of Power:	\$0.66/kWh
Requested Grant Funds:	\$492,642
Matched Funds Provided:	\$95,723
Total Potential Grant Amount:	\$588,365
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$412,642
AEA Funding Recommendation:	\$412,642

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #476 City Tribe Biomass Energy Conservation

Resource: Biomass

Proposed Project Phase: Construction

Proposer: City of Tanana

AEA Program Manager: Plentovich, Brown, Landis

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 21
- 13
- 14
- 3
- 6
- 2
- 5

Energy Region: Yukon-Koyukuk/Upper Tanana

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #476 City Tribe Biomass Energy Conservation

Resource: Biomass

Proposed Project Phase: Construction

Proposer: City of Tanana

AEA Program Manager: Plentovich, Brown, Landis

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant proposes funding to install a biomass heating source and solar panels for the Assisted Living Facility for elders in Tanana, the Tanana Tribal Offices and the Internet high tech training center in Tanana. The project would replicate the successful wood fired boiler system at the washeteria.

The economics of the photovoltaic system are not favorable. AEA estimates that the \$80,000 cost of the photovoltaic system would displace approximately 800 gallons of diesel per year.

Recommend partial funding of \$412,642 for the biomass portion of the project.

App #477 Mount Spurr Geothermal Project

Resource: Geothermal

Proposed Project Phase: Feasibility
Recon

Proposer: Ormat Nevada, Inc.

AEA Program Manager: McMahon, Lockard

Applicant Type: IPP

Project Description

Mount Spurr represents what currently appears to be the best opportunity in Alaska to develop a utility-scale base-load geothermal energy power plant. Located 80 miles west of Anchorage on State lands leased by Ormat in October of 2008, a successful power project at Mt. Spurr would serve communities along the Railbelt through power purchased by one or more of the Railbelt electric utilities. Preliminary analysis of data from field reconnaissance of the region conducted by Ormat in July-August 2009, coupled with historical exploration work from the mid-1980's, is encouraging as to the potential existence of a commercial size geothermal resource. However, further exploration is required in order to confirm it. The grant request is for a two-phase program for continued resource studies and assessment surveys with a planned timeline of roughly one year (from July 2010 to mid summer of 2011). Phase I — reconnaissance - will include mapping, further geochemical sampling, remote sensing, and aerial and ground-based geophysics. These studies will eventually culminate in gradient/slim hole drilling to be performed in the second phase, if justified. If successful, future work beyond the scope of this grant application will include further slim/production hole drilling in 2011-2012, and if the resource is confirmed, construction of a power plant and drilling of additional geothermal production and re-injection wells will follow.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$1,993,158
Matched Funds Provided:	\$2,159,647
Total Potential Grant Amount:	\$4,152,805
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,993,158
AEA Funding Recommendation:	\$1,993,158

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #477 Mount Spurr Geothermal Project

Resource: Geothermal

Proposed Project Phase: Feasibility
Recon

Proposer: Ormat Nevada, Inc.

AEA Program Manager: McMahon, Lockard

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 19
- 15
- 10
- 6
- 5
- 4

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

[Round II comments apply] Ormat submitted a similar proposal to AEA for REF Round II, and all of our comments on that proposal remain valid. This proposal is for staged, sequential geothermal resource investigation moving from reconnaissance to detailed field studies, with confirmation by drilling is warranted. Ormat is clearly aware that go - no go decisions will need to be made at each stage, depending on the results of the previous stage. The state needs to know if there is a geothermal resource at Spurr or not, and Ormat is correct in assuming that the prospects are encouraging although the presence or absence of a resource has not yet been confirmed. Geotechnically, this is a very solid proposal and deserves to be supported. Ormat is among the most highly experienced companies in the world in geothermal exploration and development. This proposal is for appropriate resource assessment work. The proposed work is correctly stepwise, with surface geology leading to targeted geophysics and exploratory drilling, leading to resource confirmation drilling. Ormat is clearly up to speed on previous work which has been done at Spurr, including the largely unpublished (at least in geothermal literature) conclusion that existing petrologic and geochemical data do NOT suggest the existence of a persistent high-level magma chamber/heat source – but note the unequivocal fact that high temperatures must nevertheless exist at shallow depths. They also note that existing exploration data is permissive of the existence of an accessible geothermal resource, yet in many respects is equivocal. Their view of the Spurr system is accurate. <P> It is in the State's interest to know if there is a geothermal resource at Spurr, and to move toward development of that resource if feasible. This proposed work is the best way forward. It may be problematic for the State to fund a private for-profit entity, but that issue is outside DGGS' responsibility.

App #477 Mount Spurr Geothermal Project

Resource: Geothermal

Proposed Project Phase: Feasibility
Recon

Proposer: Ormat Nevada, Inc.

AEA Program Manager: McMahon, Lockard

Applicant Type: IPP

DNR/DMLW Feasibility Comments

AEA Review Comments

Ormat proposes a staged recon and assessment of the geothermal resources on Mt. Spurr, consisting of aeromagnetic gravity, electromagnetic geophysical surveys, field work, mapping, geochemical sampling, and drilling four temperature gradient and two slim holes. Work will begin in spring-summer 2010 and be completed by fall 2011.

AEA recommended against funding Ormat until reconnaissance field work was completed in 2009. Since then Ormat has completed this field work and proposes follow-up activities.

Based on the results of the proposed work, Ormat will decide whether to proceed to drilling production wells and further commercial development. Ormat anticipates a minimum installed capacity of 50-100 MW.

DGGS review indicates that Ormat is one of the most highly experienced companies in the world and that the proposed stepwise approach is the best way to move toward potential development of the Mt. Spurr resource. The AEA-sponsored Railbelt integrated energy resource plan identifies Mt. Spurr geothermal, if feasible, as a beneficial component of the Railbelt energy system.

REcommend full funding with provision that all information resulting from the project will be available to the public.

App #478 Kodiak High School Renewable Energy Analysis

Resource: Geothermal **Proposed Project Phase:** Feasibility
Recon
Proposer: Kodiak Island Borough
AEA Program Manager: McMahon, Lockard **Applicant Type:** Local Government

Project Description

Project Type: Wind, Geothermal, including Heat Pumps and Solar.
 The Kodiak Island Borough is proposing to perform analysis or assessment to evaluate the potential for use of alternative energy sources to supplement the use of oil in the Kodiak High School facility. Specifically, we will investigate the potential for utilization of the following:

- Ground source heat pumps utilizing latent ground heat tapped through a closed loop wellfield and distributed throughout the building via conventional heat pumps;
- Site generated wind power;
- Photovoltaic power generation;
- Solar heat and power generation in conjunction with daylighting.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$187,750
Matched Funds Provided:	\$129,440
Total Potential Grant Amount:	\$317,190
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$38,100
AEA Funding Recommendation:	\$38,100

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #478 Kodiak High School Renewable Energy Analysis

Resource: Geothermal

Proposed Project Phase: Feasibility
Recon

Proposer: Kodiak Island Borough

AEA Program Manager: McMahon, Lockard

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 18
- 9
- 4
- 2
- 5
- 3

Energy Region: Kodiak

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #478 Kodiak High School Renewable Energy Analysis

Resource: Geothermal

Proposed Project Phase: Feasibility
Recon

Proposer: Kodiak Island Borough

AEA Program Manager: McMahon, Lockard

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

Kodiak Island Borough proposes to assess options for ground source heat pump, photovoltaic, solar thermal, and wind systems in conjunction with a planned addition and renovation of the high school. KIB proposes a phased approach--systems options would be identified and narrowed in the reconnaissance phase with completion by October 2010, followed by more detailed analysis in the feasibility phase.

AEA recommends partial funding of \$38,100 for reconnaissance.

App #479 Alaska Biomass Combined Heat & Power Demonstration Project

Resource: Biomass

Proposed Project Phase: Construction

Proposer: Alaska Power Company

AEA Program Manager: Plentovich, Brown

Applicant Type: Utility

Project Description

Alaska Power & Telephone (AP&T), in partnership with Nexterra Systems, and with support from GE Energy, the Upper Tanana communities of Tok, Tetlin, Dot Lake and Tanacross, and the State of Alaska Department of Natural Resources (DNR), propose a Phase IV Construction project with grant support from the Alaska Energy Authority (AEA). This collaborative project will demonstrate the AEA’s commitment to community-scale renewable energy systems for rural Alaskans through the deployment of a 2MWe CHP (combined heat and power) system utilizing locally sourced woody biomass as fuel. The system combines Nexterra’s proprietary gasification technology and syngas conditioning systems with GE Energy’s high-efficiency internal combustion engines. The system is an Internal Combustion (IC) engine powered by conditioned syngas produced from the gasification of locally sourced woody biomass, with excess heat being made available for district heating. The system will serve the rural Alaskans on the local (isolated) power grid of Tok, Tetlin, Dot Lake and Tanacross, now fueled by diesel generators.

Funding & Cost

Cost of Power:	\$0.39/kWh
Requested Grant Funds:	\$4,525,605
Matched Funds Provided:	\$15,474,395
Total Potential Grant Amount:	\$20,000,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Yukon-Koyukuk/Upper Tanana

App #479 Alaska Biomass Combined Heat & Power Demonstration Project

Resource: Biomass

Proposed Project Phase: Construction

Proposer: Alaska Power Company

AEA Program Manager: Plentovich, Brown

Applicant Type: Utility

AEA Review Comments

Alaska Power Company proposes construction of a 2MW wood gasification power generation system to serve the Tok area power system. The system includes a 30 mmBtu/hr Nexterra gasification system and GE Jenbacher reciprocating generators. An important component of the proposed project is demonstration of an innovative gas clean up system.

APC has applied for a \$10 million grant from USDOE and expects to be notified of results in early 2010. APC proposes to use USDOE funds and its own resources to complete feasibility/concept design and permitting/final design during the first half of 2010.

AEA is strongly supportive of demonstrating the Nexterra/GE technology in Alaska. This proposal is particularly attractive because

1. APC has a good track record as a well-operated utility and a leader in renewable energy development in Alaska
2. APC, Nexterra, Tok Community Umbrella Corp and GE are offering a substantial cash and in-kind match to the project
3. Tok, located on the road system, is an excellent site for demonstration of a wood-fired biopower project
4. The upper Tanana Valley has a substantial wood resource and a number of sawmills in operation.

However, AEA notes that

1. Conceptual design and feasibility and final design and permitting have not been completed as required in the RE Fund RFA
2. The RE Fund is funding a significant wood energy project in Tok to supply the school with heat (#49). The current proposal indicates that public involvement and local meetings will be held in the Tok area during preconstruction phases. However at this point there is no indication of coordination between the two projects.
3. APC is applying for construction funding for Yerrick Creek hydro which would also serve the Tok area.
4. Grant funding has not been committed by USDOE as of yet.

AEA recommends no funding at this time.

App #480 Ionia Renewable Energy Training Center

Resource: Biomass

Proposed Project Phase: Construction

Proposer: The State of Alaska Mental Health Trust Authority

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

Project Description

Project Type: Solar and Biomass or Biofuels.

Alaska Mental Health Trust is applying to the Alaska Energy Authority (AEA) Renewable Energy Fund Round III grant program, seeking funding for equipment purchase and installation of a GARN biomass heating system for the community of Ionia. The Ionia community is building a two-story 6,000 square foot community center/barn on their property near Kasilof for the purpose of demonstrating renewable energy systems and sustainable living strategies for their neighbors of Kenai Peninsula and other rural Alaskans.

Ionia has been a successful example of sustainable and healthy “intentional community” living for many years and is now expanding its outreach to a more active demonstration and educational center. There are many books, magazines, websites, and videos about sustainable living, intentional communities, and conscious living. Ionia is a living-breathing village where seekers and the merely curious can interact and get a real feel for viable alternatives.

The Ionia Renewable Energy Training Center (RETC) will be the first renewable energy educational center located on the Kenai Peninsula. The Center, in its design and use of sustainable and renewable energy technology, will serve as an educational resource and conference center for the demonstration of renewable energy technologies specific to local ecosystems. A wind “met tower” (anemometers and wind vane on a 100 foot tower connected to a data logger computer) was recently installed nearby to assess the wind resource for proper sizing of a wind turbine, as part of the overall suite of community scale renewable energy systems. A combination of grants and private funds has been raised for the construction of the RETC building. The Ionia Community has provided all the labor and the log milling for the project.

GARNs use cordwood, (not chips or pellets), burned hot and fast—cleanly—in a boiler to heat a large reservoir of liquid, which is pumped through tubes in floors and radiators to heat the building. This request also includes funding for a solar-thermal heating system to augment the biomass system for this unique community. Both systems will provide heat for the RETC and for the South-facing greenhouse on the side of the building.

The Ionia RETC building is already under construction and is approximately 30% finished (as of October '09). When completed, the building will serve as barn/storage, classrooms, meeting and office space, and conference center. The building itself will be an integral part of the demonstration of energy efficient building techniques, a renewable energy heating system and food production, preparation and storage. The anticipated date of the commissioning and start-up of the educational center is October 1, 2011.

This funding request is to complete Phase IV (Construction and Commissioning) of renewable energy systems to heat the educational center, which includes the Garn cordwood boiler, solar thermal system, radiant heat flooring and hydronic radiators. The project will establish an integrated, alternative energy heating system for the building that effectively models energy conservation while using local renewable resources (wood and solar).

Funding & Cost

Cost of Power:	\$0.20/kWh
Requested Grant Funds:	\$235,523
Matched Funds Provided:	\$33,000
Total Potential Grant Amount:	\$268,523
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$235,523
AEA Funding Recommendation:	\$235,523

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #480 Ionia Renewable Energy Training Center

Resource: Biomass **Proposed Project Phase:** Construction
Proposer: The State of Alaska Mental Health Trust Authority
AEA Program Manager: Plentovich, Brown **Applicant Type:** Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

<u>Criterion (Weight)</u>	<u>Score</u>
1) Cost of Energy (Max 25)	6
2) Matching Resources (Max 20)	11
3) Project Feasibility from Stage 2 (Max 20)	15
4) Project Readiness (Max 10)	4
5) Benefits (Max 15)	8
6) Local Support (Max 5)	5
7) Sustainability (Max 5)	5

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #480 Ionia Renewable Energy Training Center

Resource: Biomass

Proposed Project Phase: Construction

Proposer: The State of Alaska Mental Health Trust Authority

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant (Alaska Mental Health Trust Authority) proposes to develop a wood fired and solar heating system for the Ionia Renewable Energy Training Center. The Trust intends to act as grantee/sponsor for this project and accepts responsibilities under RFA section 1.4 for ownership and control of the facilities. The applicant provides an unsigned draft resolution to this effect.

Ionia has successfully developed a similar wood fired system that supplies heat and domestic hot water for the Community Long House.

Recommend full funding with requirement that before any funds are disbursed the Mental Health Trust and Ionia enter into an agreement acceptable to AEA which addresses details of ownership and operation of the facility.

App #481 Tok Forestry Renewable Biomass Energy Demonstration Project

Resource: Biomass **Proposed Project Phase:** Construction
Design
Proposer: State of AK DNR Division of Forestry Tok
Area Office
AEA Program Manager: Plentovich, Brown **Applicant Type:** Government Entity

Project Description

Construct 16 x 20 building adjacent to Tok Main office building to house pellet boiler, water storage tank and pellet storage. Install pellet boiler, water storage and radiant heating system in the Tok Main office. Purchase pellets on contract with local pellet manufactures in Dry Creek (50 miles from Tok with trees harvested from the Tanana Valley State Forest) currently producing pellets. Track use of pellets for three year period and compare cost to fuel oil usage and cost. Invite other state and federal agencies and general public to visit the facility to learn the local renewable biomass heating options, the environmental benefits, local economic benefits and the cost savings, This is a very simple, straight forward, proven, dependable system with a high quality dependable fuel source that we have already used 6 tons in small pellet stove this last year in the office. Radiant heating systems are used extensively in the Tok area with the outside wood boilers. No engineering will be required. We will also displace a 50 gallon electric hot water heater with domestic hot water exchanger to provide all the hot water we could use.

Funding & Cost

Cost of Power:	\$0.53/kWh
Requested Grant Funds:	\$67,000
Matched Funds Provided:	\$10,000
Total Potential Grant Amount:	\$77,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$67,000
AEA Funding Recommendation:	\$67,000

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #481 Tok Forestry Renewable Biomass Energy Demonstration Project

Resource: Biomass

Proposed Project Phase: Construction
Design

Proposer: State of AK DNR Division of Forestry Tok
Area Office

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 17
- 10
- 15
- 4
- 8
- 0
- 5

Energy Region: Yukon-Koyukuk/Upper
Tanana

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #481 Tok Forestry Renewable Biomass Energy Demonstration Project

Resource: Biomass

Proposed Project Phase: Construction
Design

Proposer: State of AK DNR Division of Forestry Tok
Area Office

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

Contact Rick Rogers with State Forestry (269-8473) for additional assessment of biomass availability.

AEA Review Comments

Applicant proposes installing a pellet boiler heating system at the Alaska Division of Forestry in Tok. Pellets would be supplied from local supplier(s). The proposal is attractive in that it demonstrates the use of local renewable fuels in a state office building.

Recommend full funding.

App #482 Turnagain Arm Tidal Electric Generation Project

Resource: Ocean/River

Proposed Project Phase: Feasibility

Proposer: Little Susitna Construction Co., Inc.

AEA Program Manager: McMahon, Lockard

Applicant Type: Utility
IPP

Project Description

Project Type: Transmission of Renewable Energy and Hydrokinetic (Tidal Energy).

The Turnagain Arm Tidal Electrical Generation Project (TATEP) consists of the installation of patented and proven Davis tidal electrical generation turbines in areas with at least 80 ft. of water at high tide and 54 ft. low tide, housed in piling supported platforms designed to allow ice flow beneath the platforms. Specific sites of the platforms will be selected after further research into environmental, hydrodynamics of tides and water movement in specific areas of the inlet. The plan calls for 200 10MW generators with a total capacity of 2000 MW at 60% efficiency which produces 1200MW net electricity. Platforms will be connected by transmission lines and submarine cable will bring the electricity produced to Chugach Electric on the Anchorage side and to Homer Electric on the Kenai side, accessing existing utility corridors as much as possible. Electricity produced by the project will be available for purchase by all the electric utilities in the railbelt area at a rate between 6¢ to 8¢ per kilowatt hour, which will reduce the cost of electricity to railbelt consumers by 50% to 67% and will benefit the 70% of the Alaskan population who live in this area. (See Map.)

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$4,000,000
Matched Funds Provided:	
Total Potential Grant Amount:	\$4,000,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #482 Turnagain Arm Tidal Electric Generation Project

Resource: Ocean/River

Proposed Project Phase: Feasibility

Proposer: Little Susitna Construction Co., Inc.

AEA Program Manager: McMahon, Lockard

Applicant Type: Utility
IPP

AEA Review Comments

Applicant proposes an RE Fund grant of \$4 million to assess feasibility of constructing a 2000 MW tidal flow generator at the mouth of Turnagain Arm. The project would include three arrays of vertical axis turbines and submarine interties connecting to Pt Possession on the Kenai Peninsula and Pt. Campbell in southwestern Anchorage.

AEA has the following concerns about the proposal:

1. Applicant proposes to deploy 200 10MW turbines from Blue Energy Canada. Currently Blue Energy's technology is in the pre-commercial stage. Blue Energy itself is proposing through the RE Fund to develop a 375 kW pilot project to test the technology near Angoon (#520).
2. At \$2.5 billion, the project has an extremely high capital cost. The applicant indicates a Chinese firm will finance \$500 million. The applicant proposes to use \$200,000 of RE Fund dollars to prepare an application to USDOE to finance the remaining portion of the project.
3. The applicant requests \$4 million in a low cost energy area that is capped at a maximum of \$2 million.

No funding recommended.

App #483 High Penetration Wind Diesel Power and Heat

Resource: Wind **Proposed Project Phase:** Construction
Design
Proposer: Kipnuk Light Plant

AEA Program Manager: Jensen **Applicant Type:** Utility

Project Description

The proposed project is a village wind power and heating system for the community of Kipnuk, Alaska. The project will be owned and operated by the Kipnuk Light Plant and the community of Kipnuk, and includes the installation of 675 kW of wind generation capacity, using three Vestas V- 27 wind turbines, new wind diesel controls and switchgear, a Power store flywheel energy storage unit for grid stabilization and 30 thermal electric heating and energy storage devices distributed throughout the community. The wind power and heating system ties in with the power plant and power store module through the existing power distribution grid. The wind turbines and power store module will be mounted on pile foundations, on property provided by the community. The power store and control/switchgear modules will be placed near the diesel power plant. The system is designed to produce, capture and meter excess wind energy separately from diesel generation. Thirty electric thermal heating stoves will be placed in residential homes and three-80 KW electric thermal boilers will be placed in community building. These storage units will be used to capture excess energy to lower heating costs. The Power store flywheel will provide the grid stability allowing the village energy system to accept any and all contributions from the wind turbines. This wind diesel system architecture enables ease of expansion by adding more wind turbines and more electric thermal storage devices

Funding & Cost

Cost of Power:	\$0.65/kWh
Requested Grant Funds:	\$3,947,236
Matched Funds Provided:	\$1,400,000
Total Potential Grant Amount:	\$5,347,236
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Lower Yukon-
Kuskokwim

App #483 High Penetration Wind Diesel Power and Heat

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: Kipnuk Light Plant

AEA Program Manager: Jensen

Applicant Type: Utility

AEA Review Comments

Kipuk Light and Power of the Chaninik Wind Group requests funding for construction of a high-penetration 675 kW wind farm consisting of 3 V27 turbines, 20 residential heaters, three commercial electric boilers, and a 500 kW flywheel.

Chaninik is currently funded by the RE Fund for construction of similar wind systems in Kwigillingok, Tuntutuliak, and Kongiganak. Construction in Kong is planned to be completed in winter 2010-11.

AEA believes that it makes sense to first prove out the system design at smaller scales (Kwigillingok, Kongiganak and Tuntutuliak) before moving to the scale and expense of this project.

Recommend no funding.

App #485 Scenery Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Design

Proposer: City of Angoon

AEA Program Manager: Ott

Applicant Type: Local Government

Project Description

On February 3, 2009, the City of Angoon (Angoon) filed an application with the Federal Energy Regulatory Commission (FERC) for a three-year preliminary permit under Section 4(f) of the Federal Power Act (FPA) to study the feasibility of the proposed Scenery Lake Hydroelectric Project No. 13365-000. On October 2, 2009, the City of Angoon received the FERC preliminary permit for the project. The project would be located on Scenery Creek and Scenery Lake near Petersburg, Alaska. The project would be located within the Tongass National Forest, which is administered by the U.S. Forest Service (Forest Service). The proposed project would consist of: (1) a 15-foot-high concrete dam with a spillway impounding Scenery Lake; (2) a lake tap or siphon; (3) a 13,000-foot-long by 8-foot-diameter buried steel penstock; (4) a powerhouse containing two to four new generating units having a total installed capacity of 30 megawatts; (5) a 7-mile-long, 69-kilovolt (kV) and a 22-mile-long, 138-kV transmission line; and (6) appurtenant facilities. The proposed Scenery Lake Hydroelectric Project would have an estimated average annual generation of 130 gigawatt-hours. On October 2, 2009, the City of Angoon received the FERC preliminary permit for Scenery Lake.

Funding & Cost

Cost of Power:	\$0.42/kWh
Requested Grant Funds:	\$1,624,240
Matched Funds Provided:	\$411,060
Total Potential Grant Amount:	\$2,035,300
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,624,240
AEA Funding Recommendation:	\$1,624,240

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #485 Scenery Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Design

Proposer: City of Angoon

AEA Program Manager: Ott

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 13
- 0
- 5
- 2
- 1
- 5
- 2

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #485 Scenery Lake Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Design

Proposer: City of Angoon

AEA Program Manager: Ott

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

Would probably require State ROW and dock permitting. This project may have higher probability for problems in that it is nearer to Petersburg than Angoon and Ancoon already has its own hydro project at Thayer Lake.

AEA Review Comments

The City of Angoon proposes to conduct feasibility and conceptual design for FERC pre-licensing work on Scenery Lake hydro. The hydro project, a significant distance from the City, will not be connected to the Angoon system within the foreseeable future. The City of Angoon has also submitted an application #430 in Round 3 to conduct feasibility and conceptual design for FERC pre-licensing work on Ruth Lake hydro. That hydro project, a significant distance from the City, will also not be connected to the Angoon system within the foreseeable future.

AEA believes that in order for a project of this type to be successful, there needs to be demonstrated buy-in from all regional stakeholders, including the City, SEAPA, IPEC, and Kootznoowoo. There is no indication that the stakeholders listed have agreed to this concept. In particular on p22 the application indicates the City would sell power to the utilities of Petersburg and Wrangell. However, there is no indication that these communities would purchase power from the project, nor description of a mechanism to flow the benefits of the project directly to the ratepayers of Angoon.

Kootznoowoo is has submitted a proposal for Thayer Lake hydro (#517 and 523) that would serve the Angoon system, indicates a direct path for benefits to flow to Angoon ratepayers, and has the support of the local utility IPEC.

Recommend full funding with the provision that prior to release of any funds, the applicant must 1) convene an in-state stakeholder meeting, 2) secure letters of support from SEAPA, Thomas Bay Power Authority, and the cities of Petersburg, Wrangell, Kake, and Ketchikan, and 3) develop a process acceptable to AEA for benefits to flow to all affected ratepayers equally.

App #486 Pilot Point Wind Power & Heat

Resource: Wind **Proposed Project Phase:** Construction
Design
Proposer: City of Pilot Point
AEA Program Manager: Jensen **Applicant Type:** Utility
Local Government

Project Description

The proposed project consists of the installation and integration into the Pilot Point community diesel power system, one Northwind 100, 21 meter wind turbine wind, on a 38 meter tubular steel tower. The project will include the upgrading of approximately 1.5 miles of 3 phase power line, diesel plant controls, and communications improvements, and installation of a heat recovery boiler in the school. The proposed system provides scalable village wind-diesel power system architecture, using proven components, which can be expanded to add wind capacity as well as other sources of alternative energy sources.

Funding & Cost

Cost of Power:	\$0.50/kWh
Requested Grant Funds:	\$1,421,240
Matched Funds Provided:	\$150,000
Total Potential Grant Amount:	\$1,571,240
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,421,240
AEA Funding Recommendation:	\$1,421,240

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #486 Pilot Point Wind Power & Heat

Resource: Wind

Proposed Project Phase: Construction Design

Proposer: City of Pilot Point

AEA Program Manager: Jensen

Applicant Type: Utility
Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 16
- 12
- 10
- 5
- 0
- 0
- 4

Energy Region: Bristol Bay

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #486 Pilot Point Wind Power & Heat

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: City of Pilot Point

AEA Program Manager: Jensen

Applicant Type: Utility
Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

The City of Pilot Point requests funding for design and construction of a high penetration wind project consisting of one 100 kW Northwind turbine to be sited on City land. Pilot Point has operated a 10 kW Bergey turbine for 6 years. The City has consulted with USFWS and an archeologist to assess wildlife and historic/archaeological issues. There no indications that permitting will be an issue.

AEA completed a power system upgrade in 2008 which facilitates wind integration. A diesel heat recovery system supplies the school.

Recommend full funding.

App #487 Kwigillingok Flywheel Energy Storage

Resource: Wind **Proposed Project Phase:** Construction
Design
Proposer: Kwig Power Co.

AEA Program Manager: Jensen **Applicant Type:** Utility

Project Description

Project Type: Storage of Renewable.
 This project demonstrates the use of flywheel energy storage to stabilize any village power grid. Grid stability is needed to achieve increased use of wind and other renewable energy sources in diesel mini grids. The proposed project consists of installation of a Powerstore flywheel energy storage system, along with a state of the art Distributed Digital Control System, to create a very high-penetration wind diesel system with residential thermal storage in Kwigillingok, Alaska.
 The demonstration of this system will enable the effective sizing and cost reduction measures to be identified so that the system can be widely replicated throughout the state and other power systems throughout the country.

Funding & Cost

Cost of Power:	\$0.55/kWh
Requested Grant Funds:	\$1,495,231
Matched Funds Provided:	\$166,137
Total Potential Grant Amount:	\$1,661,368
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
 Lower Yukon-
 Kuskokwim

App #487 Kwigillingok Flywheel Energy Storage

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: Kwig Power Co.

AEA Program Manager: Jensen

Applicant Type: Utility

AEA Review Comments

Kwig Power Company, owned by the Native Village of Kwigillingok, proposes to install a 5 kWh/500 kW Powerstore flywheel as a component of their 450 kW wind-diesel system. The proposed project is essentially identical to two other applications for flywheels in Tuntutuliak and Kongiganak (# 497 and 484). The wind system in Kwigillingok is currently under design and construction and funded in-part by RE fund round 1 (#107). The function of the proposed flywheel is to maintain power quality and stability by quickly supplying power to the system when load or wind energy supply changes quickly. This allows the system to run less diesel capacity to supply the needed spinning reserve.

The HOMER optimization model that Kwig Power used as a basis for assessment of system benefits was loosely based on Kongiganak's power system. HOMER modeling has no ability to evaluate power quality. Therefore the true economic benefit of the system is difficult to determine. Despite the uncertain economic benefit, AEA considers flywheels as a promising technology to increase the value of high penetration wind power. AEA recommends that one of the three proposed flywheel projects be funded as a demonstration. The other flywheel projects should be reconsidered after the technology has been assessed.

Kongiganak has been selected as the best site for demonstration given that this project is furthest along in development and shows the highest benefit/cost ratio of the three proposals.

Recommend no funding.

App #488 Port Graham Village Council Alternative Energy - Biomass Electric Generation Project

Resource: Biomass **Proposed Project Phase:** Construction
Design
Proposer: Port Graham Village Council

AEA Program Manager: Plentovich, Brown **Applicant Type:** Government Entity

Project Description

Port Graham Village Council along with its regional non-profit corporation Chugachmiut are working to implement (develop and operate) a 1.5-megawatt biomass combined heat and power (CHP) system for Port Graham, Alaska. A feasible biomass technology option was identified in 2007 by an independent research group, Energy & Environmental Research Center (EERC) at the University of North Dakota (a copy is supplied in the CD for this RFA). This research identified feasibility of generating three-phase 220-volt electrical power from a woody biomass fuel source that can be obtained from Port Graham Village Corporation lands and local Native allotment lands on a sustained basis. An existing road system supplies access to the fuel source. The project will provide electrically generated heat to Port Graham’s and Nanwalek’s community buildings and homes at the price comparable to current heating costs using fuel oil. Heating cost from biomass-generated electricity is anticipated to increase at a much lower rate than heating with fuel oil. Community buildings and homes can be retrofitted for electrical heating at a much lower cost than installing a community wide biomass heated hot water distribution loop and hot water heating systems in each community building and home. Current oil-fired hot-water baseboard heating will remain as a backup heat system in each community building and home. The electrical heating option and electrical power will provide power cost without the need for state sponsored price cost equalization supplement and would experience less cost increase over time.

Funding & Cost

Cost of Power:	\$0.20/kWh
Requested Grant Funds:	\$3,313,920
Matched Funds Provided:	\$5,449,307
Total Potential Grant Amount:	\$8,763,227
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #488 Port Graham Village Council Alternative Energy - Biomass Electric Generation Project

Resource: Biomass

Proposed Project Phase: Construction
Design

Proposer: Port Graham Village Council

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

AEA Review Comments

Port Graham Village Council proposes final design and construction of a project that would convert local biomass into 1.5 MW of power.

The Council has provided two feasibility documents: 1) An in-depth biomass alternatives report by University of North Dakota EERC which concludes that biodiesel and indoor wood boiler technologies appear most viable. The report also addresses biomass gasification for distributed power production. 2) A brief preliminary design package by rem Engineering in Atlanta that provides a schematic of a village district heating system for Port Graham and a generic drawing of a steam engine generator. There is no clear tie between the two documents.

AEA has the following concerns about the proposal:

1. The proposal is inconsistent with the findings of the EERC feasibility report in that it requests funding for a system that provides power to individual households for space heating--not district heating as concluded by the report.
2. The main electrical load for the project appears to be residential space heating. Given conversion losses, the fuel-to-heat efficiency is low. This and the high system cost results in unfavorable economics.
3. As pointed out in the application, the current distribution system will not support the planned loads and will require a 3-phase upgrade. Although local utility HEA is interested, there is no funding available for the upgrade at this time.
4. Project development costs are high. The RE Fund RFA caps Railbelt grants at \$2 million, but the proposal is for \$3.3 million.

Recommend no funding.

App #489 Statewide run-of-river hydropower assessment

Resource: Hydro **Proposed Project Phase:** Feasibility
Recon
Proposer: UAA State Controlled Institute of Higher Learning
AEA Program Manager: **Applicant Type:** Government Entity

Project Description

This GIS-based project will conduct a detailed statewide run-of-river hydropower resource assessment with a particular focus on southwest, south central and southeast Alaska. If the project scope and budget do not allow for a full statewide assessment, the project team will identify priority areas for study in consultation with AEA staff. The study will determine the current hydropower resource and estimate the future hydropower resource (in 2060) using available data on climate trends. The project will benefit from synergies with the active AEA-funded statewide hydrokinetic energy assessment and with the AEA-supported and DOE-funded nationwide hydrokinetic energy assessment project which will begin in Dec. 2009.

The study will be conducted using river/stream discharge data generated and consolidated by the University of Alaska team and using the Rapid Hydro Assessment Model (RHAM), a GIS tool developed by Kerr Wood Leidal of Burnaby, BC. RHAM calculates the amount of hydroelectric power available on all streams in a study area, screening out sites within protected or environmentally sensitive areas, and estimates project costs. RHAM can also assess the suitability of hydroelectric development in a given area, taking into account economic, environmental and social factors, and can assess storage hydro and clustered developments. The resulting data and GIS maps would improve and build upon existing public data sources on Alaska hydropower including:

- Alaska Energy Authority hydroelectric site database
- US Department of Energy, Hydropower Program (Idaho National Laboratory): statewide hydropower resource computer models done in 2006, 2004 and 1997.
- USGS hydrology data from all over the state
- Other data sources from state and federal agencies such as topographic maps (digital elevation models, and existing public GIS files with layers for existing road and power transmission line and generation infrastructure, power plants, land status, protected areas, and fish habitat information.

Funding & Cost

Cost of Power:	/kWh
Requested Grant Funds:	\$675,185
Matched Funds Provided:	
Total Potential Grant Amount:	\$675,185
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- ✗ Did Not Pass Stage 1

Energy Region:
Statewide

App #489 Statewide run-of-river hydropower assessment

Resource: Hydro

Proposed Project Phase: Feasibility
Recon

Proposer: UAA State Controlled Institute of Higher
Learning

AEA Program Manager:

Applicant Type: Government Entity

AEA Review Comments

App #490 Tribal & Regional Energy Planning

Resource: Other **Proposed Project Phase:** Feasibility
Recon
Proposer: Cheesh'na Tribal Council
AEA Program Manager: **Applicant Type:** Government Entity

Project Description

Project Type: Wind, Hydro, including run of river, Geothermal, including Heat Pumps, Heat recovery from existing sources, solar, biomass or biofuels, transmission of renewable energy, hydrokinetic and storage of renewable.
 This project will develop a comprehensive Tribal Energy Plan for the community of Chistochina that includes a reconnaissance study of various renewable energy resources, preliminary engineering on renewable energy systems for the most abundant and available resources, and a technical/cost analysis of constructing an intertie system that would connect Chistochina to the appropriate electrical grid (Copper Valley or AP&T). The project will also contribute funds to support Ahtna, Inc.'s efforts to complete a regional energy plan to ensure that Chistochina's Tribal Energy Plan is compatible with the broader regional energy plan.

Funding & Cost

Cost of Power:	\$0.46/kWh
Requested Grant Funds:	\$267,024
Matched Funds Provided:	
Total Potential Grant Amount:	\$267,024
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Copper River/Chugach

App #490 Tribal & Regional Energy Planning

Resource: Other

Proposed Project Phase: Feasibility
Recon

Proposer: Cheesh'na Tribal Council

AEA Program Manager:

Applicant Type: Government Entity

AEA Review Comments

App #491 Transmission Line to Renewable Energy Resources

Resource: Transmission **Proposed Project Phase:** Design
Feasibility
Proposer: Chugach Electric Association, Inc.

AEA Program Manager: Strandberg **Applicant Type:** Utility

Project Description

Chugach is proposing to begin the process of route selection and permitting for a new transmission line linking the potential geothermal renewable energy resource at Mt. Spun to the existing Chugach system. The project would include one or more high voltage transmission lines which will connect to the existing substation and transmission lines at Beluga. The line would be built for a maximum operating voltage of 230kV but could be initially operated at a lower voltage to match first stage development of 50 MW of the geothermal project. The line would cover a distance of at least 40 miles, depending on the routing. The initial phase would investigate feasible routes and select a preferred route, including permitting and right of way acquisition. While Chugach would own and operate the line, all purchasers (presumably all Railbelt utilities) would be able to access the renewable energy. The line would be designed to also accommodate the development of a hydro resource at Lake Chakachamna.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$1,700,000
Matched Funds Provided:	\$80,000
Total Potential Grant Amount:	\$1,780,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$600,000
AEA Funding Recommendation:	\$600,000

AEA Recommendation

- Full Funding
- ✗ Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #491 Transmission Line to Renewable Energy Resources

Resource: Transmission

Proposed Project Phase: Design
Feasibility

Proposer: Chugach Electric Association, Inc.

AEA Program Manager: Strandberg

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)

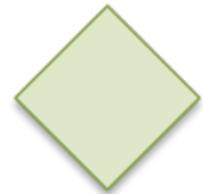


Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 8
- 13
- 4
- 3
- 3
- 4

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #491 Transmission Line to Renewable Energy Resources

Resource: Transmission

Proposed Project Phase: Design
Feasibility

Proposer: Chugach Electric Association, Inc.

AEA Program Manager: Strandberg

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

Chugach Electric Association proposes a multiphased approach toward developing electrical transmission on the west side of Cook Inlet to carry power from potential geothermal project at Mt Spurr and a potential hydropower project at Lake Chakachamna. Phase 1 (feasibility) consists of preliminary design, route selection, and assessment of permit requirements. Phase 2 (final design) would consist of permits and rights-of-way, geotechnical and survey work, and final design.

Chugach Electric would complete feasibility activities in June 2011. Following feasibility, Chugach would complete final design activities in June 2013. The proposal provides only a general description of project tasks and costs.

The two power generation projects have not been proven to be technically and economically viable. AEA has received RE Fund round 3 applications for resource assessment and field studies for Mt Spurr (#xxx) and Lk Chakachamna (#505). AEA is recommending round 3 funding for both projects. Railbelt IRP findings are favorable for both projects.

AEA believes that the Greater Railbelt Energy and Transmission Corporation (GRETC) should ultimately be the owner of new transmission infrastructure such as this.

Since the two energy generation projects remain in the feasibility determination phase, AEA believes it is reasonable to provide funding for the proposed transmission project to completion of the feasibility.

Recommend partial funding of \$600,000 with the requirements that CEA prepares a more detailed scope and budget for AEA approval.

App #492 Archangel Creek Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Feasibility

Proposer: Bering Pacific Engineering

AEA Program Manager: Ott **Applicant Type:** IPP

Project Description

The Archangel Creek Hydroelectric Project is a potential hydroelectric resource located in Hatcher Pass, AK with a capacity of 1.7 MW. A feasibility study is required to determine the appropriate project size and to scope development issues.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$70,000
Matched Funds Provided:	\$15,000
Total Potential Grant Amount:	\$85,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App #492 Archangel Creek Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Bering Pacific Engineering

AEA Program Manager: Ott

Applicant Type: IPP

AEA Review Comments

Bering Pacific proposes conceptual design and feasibility assessment of a 1.7 MW run-of-river hydro project at Archangel Creek near Hatcher Pass.

AEA requested the reconnaissance study for this project. In response AEA received a two-paragraph document. The document did not provide the required elements of a recon study listed in the RFP.

Recommend no funding.

App #493 Glacier Fork Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Glacier Fork Hydro, LLC

AEA Program Manager: Ott

Applicant Type: Utility
IPP

Project Description

The Glacier Fork Hydroelectric Project is an approximately 75 MW storage project proposed for the Glacier Fork of the Knik River. Electricity from the project would be delivered into the railbelt transmission grid via a new approximately 20-mile transmission line to existing transmission infrastructure in the vicinity of the Old Glenn Highway bridge over the Knik River. A map of the project is included at the end of the application in Attachment H.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$420,000
Matched Funds Provided:	\$80,000
Total Potential Grant Amount:	\$500,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$420,000

AEA Funding Recommendation: \$420,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #493 Glacier Fork Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Glacier Fork Hydro, LLC

AEA Program Manager: Ott

Applicant Type: Utility
IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 13
- 12
- 2
- 9
- 2
- 3

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

Located in the vicinity of the eastern segment of the Castle Mountain fault, Caribou fault, Hicks Creek fault, and East Boulder Creek fault. Given the large dam proposed, the project should incorporate a complete geotechnical report and seismic hazards assessment.

DNR/DGGS Feasibility Comments

App #493 Glacier Fork Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Recon

Proposer: Glacier Fork Hydro, LLC

AEA Program Manager: Ott

Applicant Type: Utility
IPP

DNR/DMLW Feasibility Comments

This project will gain much attention as it involves a legislatively designated Knik River Public Use Area which recently had a management plan adoption. Heavy recreational use. Expect substantial resistance as it changes a relatively undeveloped area that is used for recreation and tourism.

AEA Review Comments

Applicant proposes reconnaissance assessment for a potential 75 MW storage hydro project in the Knik River valley near Palmer. Given the large scale of this project and complexity involved in management and financing, a business plan will need to be prepared as a part of the reconnaissance study which details involvement of railbelt utilities and private developers. Also to be included in study will be a determination of licensing barriers specific to this project. FERC accepted the preliminary permit application filed by Glacier Fork Hydro LLC on November 10, 2008.

DGGS notes that geotechnical studies will be very important since the project is in the vicinity of several faults. DLWM notes that project lays within the legislatively designated Knik River Public Use Area, receives heavy recreational use, and may be subject to significant public opposition.

The project was recommended for further study in the Railbelt IRP in December 2009.

AEA notes that the proposal requests substantial funding for reconnaissance but is not broken into sub-phases with decision points.

Recommend full funding with requirement that before grant award is finalized grantee prepares a detailed project budget with go/no go milestones acceptable to AEA for inclusion into grant document. Additionally requirement that stream gauging to be accomplished by USGS.

App #494 Fourth of July Creek Hydroelectric Project

Resource: Hydro **Proposed Project Phase:** Feasibility

Proposer: Independence Power, LLC

AEA Program Manager: Ott **Applicant Type:** IPP

Project Description

The Fourth of July Creek Hydroelectric Project is a low-impact run-of-river renewable energy project proposed near Seward, Alaska. The project would be located east of the Spring Creek Correctional Facility and Fourth of July Creek Industrial Park, across Resurrection Bay from the City of Seward. The project is anticipated to have an installed capacity of 5.4 MW and provide an estimated 21,700 MWh of energy annually. The project would supply approximately 1/3rd of Seward Electric System's annual energy requirements.

Funding & Cost

Cost of Power:	\$0.13 /kWh
Requested Grant Funds:	\$136,500
Matched Funds Provided:	\$61,500
Total Potential Grant Amount:	\$198,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$136,500
AEA Funding Recommendation: \$136,500	

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #494 Fourth of July Creek Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Independence Power, LLC

AEA Program Manager: Ott

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	4
2) Matching Resources (Max 20)	15
3) Project Feasibility from Stage 2 (Max 20)	17
4) Project Readiness (Max 10)	6
5) Benefits (Max 15)	13
6) Local Support (Max 5)	3
7) Sustainability (Max 5)	3

Score

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

General DGGS statement. Located near the Kenai lineament and the Johnson Bay fault

DNR/DGGS Feasibility Comments

App #494 Fourth of July Creek Hydroelectric Project

Resource: Hydro

Proposed Project Phase: Feasibility

Proposer: Independence Power, LLC

AEA Program Manager: Ott

Applicant Type: IPP

DNR/DMLW Feasibility Comments

State land lease and ROW

AEA Review Comments

Independence Power LLC proposes conceptual design and feasibility assessment of 5.4 MW project on Independence Creek near the Seward Correctional Facility.

Independence Power received a grant for recon assessment from RE Fund round 1 (#86). A 55-page draft recon report was delivered to AEA in early December 2009.

Generally AEA agrees with the report's conclusions that further study is warranted.

Recommend full funding.

App #495 Hoonah City Schools Biomass Heating System

Resource: Biomass

Proposed Project Phase: Feasibility

Proposer: Hoonah City School District

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

Project Description

The Hoonah City Schools desires to upgrade our heating system to employ the use of low-emission nontoxic wood biomass as the source for wood-fired boilers to provide heat (through an insulated pipe distribution system) initially to the K-12 School building and the combined gymnasium/pool building. The school will reduce our dependence on costly fossil fuels, while employing cleaner, renewable, and locally available resources, through the use of locally available wood biomass material. A resource assessment and preliminary feasibility study was completed in October 2008. The resulting report was directed toward the use of hand-stoked hydronic heaters with background information on bulk fuel boilers. An in-depth feasibility study is required to identify land and regulatory issues, permitting and environmental analysis. A conceptual design analysis and cost estimate will be included, followed by a 35% conceptual design plan set.

Funding & Cost

Cost of Power:	\$0.42/kWh
Requested Grant Funds:	\$140,000
Matched Funds Provided:	
Total Potential Grant Amount:	\$140,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$140,000

AEA Funding Recommendation: \$140,000

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #495 Hoonah City Schools Biomass Heating System

Resource: Biomass

Proposed Project Phase: Feasibility

Proposer: Hoonah City School District

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 13
- 0
- 12
- 6
- 2
- 4
- 4

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #495 Hoonah City Schools Biomass Heating System

Resource: Biomass

Proposed Project Phase: Feasibility

Proposer: Hoonah City School District

AEA Program Manager: Plentovich, Brown

Applicant Type: Government Entity

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant proposes funding to conduct the feasibility and conceptual design of a wood-fired heating system for K-12 school building and pool. The proposal provides a practical phased approach for feasibility, design, and construction. The school district proposes to choose a project manager with the assistance of AEA.

Icy Straits Lumber and Milling provides a letter proposing to supply chips and hog fuel at \$60 per green ton and the USFS indicates a commitment to supply timber for long term fuel supply.

Recommend full funding.

App #496 Kenny Lake School biomass-Fired Heating System

Resource: Biomass

Proposed Project Phase: Construction

Proposer: Copper River School District

AEA Program Manager: Plentovich

Applicant Type: Local Government

Project Description

The Copper River School District (CRSD) plans to install a wood pellet-fired heating system at the Kenny Lake School. With this application, CRSD is requesting grant monies for Phase IV – Construction. This will include purchase of pellet-fired boiler, pellet storage bin, delivery system, and boiler building construction. Public bid solicitations will be advertised for purchase of the wood pellet boiler system and facility infrastructure construction. Local contractors will be targeted.

Funding & Cost

Cost of Power:	\$0.20/kWh
Requested Grant Funds:	\$648,284
Matched Funds Provided:	
Total Potential Grant Amount:	\$648,284
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$648,284
AEA Funding Recommendation:	\$648,284

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #496 Kenny Lake School biomass-Fired Heating System

Resource: Biomass

Proposed Project Phase: Construction

Proposer: Copper River School District

AEA Program Manager: Plentovich

Applicant Type: Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 6
- 0
- 12
- 6
- 2
- 2
- 5

Energy Region: Copper River/Chugach

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #496 Kenny Lake School biomass-Fired Heating System

Resource: Biomass

Proposed Project Phase: Construction

Proposer: Copper River School District

AEA Program Manager: Plentovich

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant proposes funding for the construction of a wood-fired boiler system for the Kenny Lake School, with project completion by December 2010. The project is follow-up to RE Fund project #46 which is being managed by AEA, currently under feasibility and design. Based on project work to date, pellets or cord wood are the feasible wood fuels being considered.

Recommend full funding with requirement that final design indicates a viable project.

App #497 Tuntutuliak Flywheel Energy Storage

Resource: Wind **Proposed Project Phase:** Construction
Design
Proposer: Tuntutuliak Community Services
Association Electrical Services
AEA Program Manager: Jensen **Applicant Type:** Utility

Project Description

Project Type: Storage of Renewable
 This project uses flywheel energy storage to stabilize the Tuntutuliak wind-diesel power grid. Grid stability is needed to achieve increased use of wind and other renewable energy sources in diesel mini grids. The proposed project consists of installation of a Powerstore flywheel energy storage system, along with a state of the art Distributed Digital Control System, to create a very high-penetration wind diesel system with residential thermal storage in Tuntutuliak, Alaska. The demonstration of this system will enable the effective sizing and cost reduction measures to be identified so that the system can be widely replicated throughout the state and other power systems throughout the country.

Funding & Cost

Cost of Power:	\$0.53/kWh
Requested Grant Funds:	\$1,495,231
Matched Funds Provided:	\$166,137
Total Potential Grant Amount:	\$1,661,368
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Lower Yukon-
Kuskokwim

App #497 Tuntutuliak Flywheel Energy Storage

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: Tuntutuliak Community Services
Association Electrical Services

AEA Program Manager: Jensen

Applicant Type: Utility

AEA Review Comments

Tuntutuliak Community Services Association Electric Division, proposes to install a 5 kWh/500 kW Powerstore flywheel as a component of their 450 kW wind-diesel system. The proposed project is essentially identical to two other applications for flywheels in Kwigillingok and Kongiganak (# 487 and 484). The wind system in Tuntutuliak is currently under design and construction and funded in-part by RE fund round 2 (#273). The function of the proposed flywheel is to maintain power quality and stability by quickly supplying power to the system when load or wind energy supply changes quickly. This allows the system to run less diesel capacity to supply the needed spinning reserve.

The HOMER optimization model that the utility used as a basis for assessment of system benefits was loosely based on Kongiganak's power system. HOMER modeling has no ability to evaluate power quality. Therefore the true economic benefit of the system is difficult to determine. Despite the uncertain economic benefit, AEA considers flywheels as a promising technology to increase the value of high penetration wind power. AEA recommends that one of the three proposed flywheel projects be funded as a demonstration. The other flywheel projects should be reconsidered after the technology has been assessed.

Kongiganak has been selected as the best site for demonstration given that this project is furthest along in development and shows the highest benefit/cost ratio of the three proposals.

Recommend no funding.

App #498 City of Napaskiak Wind Study

Resource: Wind **Proposed Project Phase:** Feasibility
Recon
Proposer: City of Napaskiak-Napaskiak Electric Utility
AEA Program Manager: Jensen **Applicant Type:** Local Government

Project Description

The City of Napaskiak requests funding for a Wind Study as the first and second steps towards supplementing the high cost of diesel generators currently in use. This Wind Study will satisfy Phases I, Reconnaissance and Phase II, Feasibility of the AEA’s basic outline of the Wind Resource Development Partnering Plan Procurement. The study will result in a feasibility report on the benefits, costs and guidelines of implementing the next three phases of a wind turbine system, both in terms of a stand-alone system operated independently by Napaskiak Electric Utility, and in the context of a possible sub-regional intertie.

Funding & Cost

Cost of Power:	\$0.60/kWh
Requested Grant Funds:	\$144,301
Matched Funds Provided:	
Total Potential Grant Amount:	\$144,301
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$144,301
AEA Funding Recommendation:	\$144,301

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #498 City of Napaskiak Wind Study

Resource: Wind
Proposer: City of Napaskiak-Napaskiak Electric Utility

Proposed Project Phase: Feasibility Recon

AEA Program Manager: Jensen

Applicant Type: Local Government

Scoring & Location



Overall Rank (out of 90)



Stage 3 Total Score (out of 100)

Economic Analysis



Benefit/Cost Ratio (Applicant)



Benefit/Cost Ratio (AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 19
- 0
- 14
- 2
- 4
- 5
- 4

Energy Region: Lower Yukon-Kuskokwim

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #498 City of Napaskiak Wind Study

Resource: Wind

Proposed Project Phase: Feasibility
Recon

Proposer: City of Napaskiak-Napaskiak Electric
Utility

AEA Program Manager: Jensen

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

City of Napaskiak requests funding for recon, feasibility study, resource assessment and conceptual design of a wind energy system.

In their application the City provides preliminary wind resource data based on AEA high-resolution wind maps, identifies four potential turbine manufacturers/models, and a potential project site. Work would be contracted out to Marsh Creek LLC and completed in 2011-12.

Recommend full funding.

App #499 Biomass for Energy: Supply Side Knowledge Base

Resource: Biomass

Proposed Project Phase: Recon

Proposer: UAF

AEA Program Manager:

Applicant Type: Government Entity

Project Description

There are numerous projects that are planned or are being implemented, especially in rural Alaska, that will use biomass as the sole or major energy source for heat and/or power. These projects have dealt with such questions as how much energy needs to be produced, boiler size and type, and capital costs for installation of biomass burning equipment, and in some cases actual construction. However, they have for the most part ignored the supply side of the equation. Some important questions that must be addressed before Alaska communities can expect to successfully and sustainably use biomass as an energy source are: how much biomass is needed for any given energy producing system; how much biomass is currently available; how much land is needed to supply the biomass; what is the total cost of supply including harvest and logistics of handling, storage, and transport; how fast will biomass regrow with or without management; and it is feasible to farm biomass in Alaska? All must be considered before the myriad of biofuel projects proposed and envisioned can successfully move forward, and before existing, commercially available technologies that use biomass to produce energy for heat, fuel, and power can be most effectively, and most successfully, deployed. Although some information exists to address these questions, it is scattered and often in formats not readily available. This project addresses the availability, quality and feasibility of sustainable, economic use of agricultural and forestry biomass in Alaska. The goal of the project is to 1) assimilate all existing information on the total forest and crop biomass available in Alaska into one data base, 2) determine the gaps in the data base and the information needed to fill the gaps, and 3) when possible, determine the biological, physical, and economic feasibility of using Alaskan biomass as biofuels. The project will have major statewide application as it will serve as the basis for all agricultural and forestry biomass-based energy projects; the greatest number of which are being proposed for rural and village communities. Project cooperators are the School of Natural Resources and Agricultural Sciences(SNRAS) and the Agricultural and Forestry Experiment Station(AFES) at the University of Alaska Fairbanks(UAF) (project primary/agricultural energy crops and forest biomass), Fairbanks Economic Development Corporation(FEDC) (logistics, data support, and information dissemination), Alaska Division of Forestry (forest biomass, and harvest, transport, and storage technologies), and Tanana Chiefs Conference (current biomass assessment projects, forest inventories)..

Funding & Cost

Cost of Power:	/kWh
Requested Grant Funds:	\$212,942
Matched Funds Provided:	
Total Potential Grant Amount:	\$212,942
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Statewide

App #499 Biomass for Energy: Supply Side Knowledge Base

Resource: Biomass

Proposed Project Phase: Recon

Proposer: UAF

AEA Program Manager:

Applicant Type: Government Entity

AEA Review Comments

App #500 Kachemak Bay Tidal Power-Feasibility & Conceptual Design

Resource: Ocean/River
Proposer: City of Homer

Proposed Project Phase: Design
 Feasibility
 Recon

AEA Program Manager: McMahon, Lockard

Applicant Type: Local Government

Project Description

The proposed project will assess the tidal energy potential and development feasibility of four sites within Kachemak Bay. With assistance from the National Oceanic and Atmospheric Administration (NOAA), the project will utilize historical water level and current data, recent sea floor mapping data, and new ocean current measurements to construct a comprehensive ocean circulation model of the entire Kachemak Bay region. The model and tidal current data analyses will provide detailed information on tidal energy potential throughout Kachemak Bay. With this tidal power information, four sites will be selected and power production costs, output, and availability, as well as potential environmental issues, will be assessed to determine initial feasibility of tidal energy projects. For all feasible sites, a conceptual design to optimize tidal energy production will be produced, along with a construction cost estimate for that design.

Funding & Cost

Cost of Power:	\$0.20/kWh
Requested Grant Funds:	\$547,611
Matched Funds Provided:	\$711,324
Total Potential Grant Amount:	\$1,258,935
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$547,611

AEA Funding Recommendation: \$547,611

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App # 500 Kachemak Bay Tidal Power-Feasibility & Conceptual Design

Resource: Ocean/River

Proposed Project Phase: Design

Proposer: City of Homer

Feasibility

Recon

AEA Program Manager: McMahon, Lockard

Applicant Type: Local Government

DNR/DMLW Feasibility Comments

Depending on location may need state land authorizations. As noted in the application, habitat concerns will be paramount to address because of the critical habitat areas and the Estuarine Research Reserve.

AEA Review Comments

The City of Homer proposes reconnaissance assessment and feasibility analysis/conceptual design of a 250 kW hydrokinetic device in Kachemak Bay. This is a modified resubmittal of round 2 application #282 that was recommended for funding, but that was not funded due to limited funding. Homer has assembled a strong project team that includes a number of entities with experience in assessing tidal energy feasibility and resources—NOAA’s Center for Operational Oceanographic Products and Services, Terrasond, and Revision. There are letters of support from the Native Village of Port Graham and the Seldovia Village Tribe who are also interested in the project. The application appropriately addresses potential wildlife impacts and includes the involvement of ADFG. NOAA commits to \$650,000 in in-kind project support.

We are concerned that Homer Electric Association, the likely power purchaser or owner of a potential project, is not included in the plan for implementing the feasibility stage in a more concrete way.

Recommend full funding of \$547,611.

App # 501 Reconnaissance Study of Tenakee Inlet Geothermal Resource

Resource: Geothermal

Proposed Project Phase: Recon

Proposer: Inside Passage Electric Cooperative

AEA Program Manager: McMahon, Lockard

Applicant Type: Utility

Project Description

This project is to investigate the potential of using the known geothermal resource at Tenakee Inlet to supply a geothermal power plant. Springs near the head of Tenakee Inlet have the highest recorded surface temperature (176° F) of any of the numerous geothermal springs tested on Chichagof Island and listed on the Geothermal Resources of Alaska Map. Geochemistry of the spring waters indicate a maximum subsurface temperature of 243° F. The surface flow rate of the spring has been measured at 90 L/min and the convective heat discharge estimated at 0.5 MW. Using geophysical and geochemical exploratory methods, we propose to conduct a field exploration of this resource in order to choose a location for two exploratory wells. This phase of the project will culminate with the drilling and testing of two exploratory wells, which will allow for an economic and technical assessment of the potential power generation from this resource. This work is a necessary first step in determining the viability of generating region-wide power from this resource.

Funding & Cost

Cost of Power:	\$0.42/kWh
Requested Grant Funds:	\$2,589,200
Matched Funds Provided:	
Total Potential Grant Amount:	\$2,589,200
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$2,589,200
AEA Funding Recommendation:	\$2,589,200

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #501 Reconnaissance Study of Tenakee Inlet Geothermal Resource

Resource: Geothermal

Proposed Project Phase: Recon

Proposer: Inside Passage Electric Cooperative

AEA Program Manager: McMahon, Lockard

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

Score

1) Cost of Energy (Max 25)	13
2) Matching Resources (Max 20)	0
3) Project Feasibility from Stage 2 (Max 20)	9
4) Project Readiness (Max 10)	1
5) Benefits (Max 15)	2
6) Local Support (Max 5)	4
7) Sustainability (Max 5)	3

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

Tenakee Inlet hot springs is known to be one of the hottest springs in southeast Alaska -- ~175F at the surface and ~240F at depth (by geothermometry) – somewhat hotter than Chena Hot Springs. This suggests the existence of a resource capable of generating a moderate amount of electricity (as much as a few MW, but probably not tens of MW). However, not much is known beyond the temperature and flow rate of the springs at the surface. Any attempt to utilize this resource must be preceded by a more focused investigation of the size, temperature, and depth of the reservoir and the rate at which fluids can be sustainably produced. This proposal is aimed at producing that next-level understanding in a direct and simple way – surface geophysics to target small-diameter drill holes that will intersect the resource. The work outlined in this study needs to be done before a rational decision can be made about the potential utility of Tenakee Inlet springs as a power generation site. This proposal is recommended for funding, but at a lower priority than other geothermal proposals recommended for funding in this round.

App #501 Reconnaissance Study of Tenakee Inlet Geothermal Resource

Resource: Geothermal

Proposed Project Phase: Recon

Proposer: Inside Passage Electric Cooperative

AEA Program Manager: McMahon, Lockard

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant IPEC proposes a staged assessment of geothermal resources of Tenakee Inlet Hot Springs consisting of field work in 2010 followed by exploratory drilling in the summer 2011.

DGGS notes that the hot spring is one of the hottest in Southeast Alaska suggesting a maximum capacity of less than 10 MW. From a resource assessment standpoint DGGS recommends exploration, but at a lower priority than other locations in Alaska. The hot springs is located in a remote location on Tongass NF land and would require a special land use permit. Exploration will be covered by a programmatic EIS, but it is likely that permitting will be a significant effort.

The hot springs is approximately 20 miles from Hoonah with no road access. Hoonah has also submitted an application to construct a hydro project at Gartina and Water Supply creeks. The hot springs is approximately 10 miles from Pelican, which has a hydro resource that supplies all of its power.

The project represents an option for displacing the 350,000 gpy diesel consumption for power in Hoonah. At an estimated installed cost of \$27 million not including transmission to Hoonah or other infrastructure, however, project economics do not appear to be attractive.

AEA recommends full funding.

App #502 Cook Inlet TidGen Project

Resource: Ocean/River

Proposed Project Phase: Construction

Proposer: ORPC Alaska, LLC

Design

AEA Program Manager: McMahon, Lockard

Applicant Type: IPP

Project Description

ORPC Alaska, LLC ("ORPC") is a wholly owned subsidiary of Ocean Renewable Power Company, LLC ("the Company"), which was founded in 2004 to develop technology and projects generating reliable, economical, emission-free electricity from tidal, river and deep-water ocean currents. ORPC is currently developing two projects in Alaska: the Cook Inlet Tidal Energy Project and a river in-stream hydrokinetic project in Nenana. The Company's proprietary ocean current generation technology is adaptable, and is used in different design configurations depending on the current and water depth of the application. The bottom-mounted RivGen™ Power System is designed for small river applications, particularly in remote communities without a centralized power grid; the bottom-mounted TidGen™ Power System is designed for shallow tidal current applications; and the buoyant, moored OCGen™ Module is designed for deeper tidal and ocean current applications.

The Company expects to receive a Pilot Project License for the Cook Inlet Tidal Energy Project from the Federal Energy Regulatory Commission ("FERC") by October 2010. This license permits the Cook Inlet Tidal Energy Project to be built to a rated peak generating capacity of 5 megawatts ("MW") in a 6-knot current. The first part of this 5 MW project will involve installing the TidGen™ Power System, with a rated peak generating capacity of 1 MW in a 6-knot current. The TidGen™ Power System will consist of four (4) TidGen™ devices; each TidGen™ device is made up of a single TidGen™ turbine generator unit ("TGU") and a bottom support frame. The TidGen™ Project will begin in the third quarter of 2010, and will incorporate environmental and site characterization studies performed to date; consultations with federal and state agencies; and data obtained in the summer 2010 testing of a TidGen™ Power System prototype in Maine. The TidGen™ Project will include detailed engineering and specifications for all project components, including the TidGen™ TGUs, the bottom support frames, the power electronics and transmission system, the deployment and retrieval systems, the environmental monitoring systems, and the data acquisition systems. Upon completion of this phase and receipt of the FERC Pilot Project License, ORPC will release the TidGen™ Project components for manufacture by February 2011, allowing for the completion of fabrication and shipment of the first of four TidGen™ devices to Anchorage by May 2011. The TidGen™ Power System will be assembled at the Port of Anchorage, and installed in phases from May to October 2011. ORPC will extensively monitor the system to collect data essential to further site development.

In the second round of the Alaska Renewable Energy Fund, the Alaska Energy Authority ("AEA") recommended ORPC for full funding of the reconnaissance and feasibility phases of the Cook Inlet Tidal Energy Project; however, due to state budget concerns, this funding was never awarded. Despite the lack of state funding, ORPC was able to raise sufficient private funds to complete these two phases of the Cook Inlet Tidal Energy Project. As the first stage of the Cook Inlet Tidal Energy Project, the 1 MW TidGen™ Project is estimated to cost \$6,501,066, of which \$4,514,650 will be funded by the Company and \$392,426 will be funded by a grant from the U.S. Department of Energy. Through this proposal ORPC requests that the AEA fund the remaining \$1,954,000 for the final design and construction phases of the TidGen™ Project. The subsequent stages of the Cook Inlet Tidal Energy Project, which are not in the scope of this application, will follow one year of testing and monitoring of the TidGen™ Power System. These subsequent stages will include the deployment of OCGen™ Modules to gradually increase the generating capacity to 2 MW by the end of 2012, to 5 MW by the end of 2013, and ultimately to a commercial scale (up to 100 MW) development of the site. In order to develop to this level, ORPC will obtain a FERC Operating License before the end of the Pilot Project License term in 2019, in all likelihood by 2015. The TidGen™ Project will be interconnected to the Railbelt power grid through the Chugach Electric Raspberry Substation; the electricity generated will be sold to the Railbelt utilities under purchase agreements yet to be negotiated. ORPC will complete the TidGen™ Project work with the cooperation of Terrasond LTD, HDR|DTA, The University of Alaska Anchorage, LGL Alaska Research Associates Inc., Aquacoustics, PND Engineering, the Port of Anchorage, Port MacKenzie, and other local contractors.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$1,954,000
Matched Funds Provided:	\$4,547,066
Total Potential Grant Amount:	\$6,501,066
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,954,000
AEA Funding Recommendation:	\$1,954,000

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #502 Cook Inlet TidGen Project

Resource: Ocean/River

Proposed Project Phase: Construction Design

Proposer: ORPC Alaska, LLC

AEA Program Manager: McMahon, Lockard

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 19
- 13
- 7
- 2
- 5
- 4

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App # 502 Cook Inlet TidGen Project

Resource: Ocean/River

Proposed Project Phase: Construction
Design

Proposer: ORPC Alaska, LLC

AEA Program Manager: McMahon, Lockard

Applicant Type: IPP

DNR/DMLW Feasibility Comments

Extra hurdles have been placed by the listing of the beluga whales on the endangered species list. Would require land authorization and ROW but ORPC is in communication with DNR on this.

AEA Review Comments

Ocean Renewable Power Corporation proposes to permitting, final design and construction of a 1 MW array of proprietary cross-flow tidal instream electric conversion units for potential scale-up to 5 MW. ORPC will complete conceptual design and feasibility analysis in March 2010. The units would use a gravity foundation on the bottom of Cook Inlet near Fire Island. Currently the technology is under development in Maine. The proposer states that the most substantial challenges will be impacts on beluga, migrating fish, and sediment flow. Undersea cable would bring power to shore. ORPC has obtained a preliminary FERC permit and prepared a request to FERC for pilot project license. Other permits will include ADFG fish habitat, DNR water and subsurface use, Army Corps title 10, Coastal Zone, and Coast Guard navigational assessment. ORPC has developed a team of specialists that they state will address technical and habitat issues.

ORPC proposes to pay for almost all of the design and permitting. RE Fund dollars would support construction. While AEA remains concerned about the risks associated with deploying new technology, we note that the Alaska-based developers have assembled a credible project team and have invested substantially in developing the technology. Alaska has most of the nation's potential for tidal energy and it is logical for the state to support ocean energy technology development.

Recommend full funding with provision that before any funds are released AEA must accept the conceptual design and feasibility assessment.

App #503 St. Paul Wind Diesel Project

Resource: Wind **Proposed Project Phase:** Construction
Design
Proposer: TDX Corporation

AEA Program Manager: Jensen **Applicant Type:** IPP

Project Description

TDX Power will assess the existing diesel plant owned by the City of St. Paul electric utility. TDX will design and engineer the necessary modifications so that this plant will efficiently integrate wind energy from the POSS Camp Wind Farm. TDX will design and engineer modifications to the controls at the POSS Camp Wind Farm in order to sell electrons to the City of St. Paul electric utility. TDX Power will assess, engineer, and construct all required distribution line additions and upgrades. Acceptance of any funding from this grant is contingent upon a power purchase agreement

between TDX Power and the City of St. Paul. In the event TDX cannot secure a PPA with the City of St. Paul, and agree on the TDX conceptual design for the integration, no project funds will be requested.

Funding & Cost

Cost of Power:	\$0.46/kWh
Requested Grant Funds:	\$1,900,000
Matched Funds Provided:	\$1,700,000
Total Potential Grant Amount:	\$3,600,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,900,000
AEA Funding Recommendation:	\$1,900,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #503 St. Paul Wind Diesel Project

Resource: Wind **Proposed Project Phase:** Construction
Design
Proposer: TDX Corporation

AEA Program Manager: Jensen **Applicant Type:** IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

<u>Criterion (Weight)</u>	<u>Score</u>
1) Cost of Energy (Max 25)	14
2) Matching Resources (Max 20)	12
3) Project Feasibility from Stage 2 (Max 20)	19
4) Project Readiness (Max 10)	8
5) Benefits (Max 15)	14
6) Local Support (Max 5)	0
7) Sustainability (Max 5)	5

Energy Region: Aleutians

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App # 503 St. Paul Wind Diesel Project

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: TDX Corporation

AEA Program Manager: Jensen

Applicant Type: IPP

DNR/DMLW Feasibility Comments

AEA Review Comments

TDX Corporation proposes design and construction of the interconnection and integration of TDX's 675 kW wind farm and the City of Saint Paul's power system. TDX proposes to work with the City to resolve a longstanding impasse on sales of wind power to the City. The application indicates that if TDX and the City cannot secure an agreement on power purchase terms and conceptual design of modifications to the City power system, no funds will be requested.

Recommend full funding with the requirement that 1) before final design and construction funds are disbursed TDX and the City must finalize an agreement that addresses power purchase terms and 2) before construction funds are disbursed the TDX and City must finalize an agreement on the design of modifications to the City power system.

App #504 Wave Power Project Evaluation Study

Resource: Ocean/River

Proposed Project Phase: Design
Feasibility

Proposer: TDX Power, Inc.

AEA Program Manager: McMahon

Applicant Type: IPP

Project Description

Project Type: Wave Power.

TDX Power will work with Voith Hydro Wavegen to deliver this project. Voith Hydro Wavegen is an industry leader in the development of wave power technologies and a long track record of success with the deployment of their nine year old commercial wave power generation facility in Scotland. Management from TDX Power have worked with Wavegen since 1999 and have formed a joint relationship to pursue the development of Alaska's first wave power generation facility together. It is our intention that this project will be a continuation of a study that has already been started by the project team and will be completed prior to grant award. The objective of the initial phase will be to identify 3 suitable sites for fixed Oscillating Water Column wave energy plants in Alaska. The initial phase will be carried out using publicly available data from NOAA and other public bodies. This data will be used to generate a preliminary assessment of wave resource, transmission infrastructure, other site users and energy demand for various sites throughout the state. The data will then be used to expand and update the report 'Wave power in Alaska: Community Profiles' written by Nick Goodman in 1999. From this report 3 sites will be selected and a full technical, economic and environmental assessment will be carried out. It is this full site assessment that is the subject of this grant application. Upon completion of the study, it is anticipated that the project team will be in possession of all the data required to apply for a full FERC license for the sites selected.

Funding & Cost

Cost of Power:	\$0.20/kWh
Requested Grant Funds:	\$247,360
Matched Funds Provided:	\$30,000
Total Potential Grant Amount:	\$277,360
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$247,360
AEA Funding Recommendation:	\$247,360

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #504 Wave Power Project Evaluation Study

Resource: Ocean/River

Proposed Project Phase: Design Feasibility

Proposer: TDX Power, Inc.

AEA Program Manager: McMahon

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 6
- 11
- 9
- 4
- 1
- 0
- 4

Energy Region: Statewide

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App # 504 Wave Power Project Evaluation Study

Resource: Ocean/River

Proposed Project Phase: Design
Feasibility

Proposer: TDX Power, Inc.

AEA Program Manager: McMahon

Applicant Type: IPP

DNR/DMLW Feasibility Comments

AEA Review Comments

Applicant TDX proposes to team with Voith Hydro Wavegen to assess NOAA wave resource data to expand an earlier report and choose three sites for technical, economic, and environmental assessment for the purpose of further development. The work will result in sufficient info for TDX to apply to FERC for licensing on viable projects.

Voith's technology has been in use in the Scottish island of Islay for 8 years and is performing well. Another 300 kW project is scheduled to be commissioned in spring 2010 in Northern Spain.

Since TDX has not chosen sites their application does not provide any preliminary information on O&M, capacity, tie-in to existing system, siting and land ownership, fuel displacement, or transmission issues.

Recommend full funding.

App #505 West Cook Inlet Energy Cumulative Impacts

Resource: Other

Proposed Project Phase: Construction

Proposer: TDX Power, Inc.

AEA Program Manager: Strandberg

Applicant Type: IPP

Project Description

Project Type: Wind, Hydro, including run of rivers, Geothermal, including Heat Pumps.

The west side of Cook Inlet contains several energy projects that may well provide the majority of future electrical energy supply for the Railbelt region of Alaska where 70% of the Alaska populations resides. These projects include the Chakchamna hydropower project, Mt. Spurr geothermal project, in-situ coal gasification, and wind generation. While there are limited existing pioneer roads in the area of consideration, if any or all of the potential projects move forward, infrastructure needed for the development and operation of these projects could be significant. Funds provided under this application would be used to conduct field inventories of fisheries and wildlife resources in the area and their habitat. The project would evaluate the individual and cumulative infrastructure needs of the energy projects and the subsequent environmental impact that this infrastructure might have on area fisheries and wildlife. The largest majority of the funding will be utilized to inventory area fisheries, and their seasonal and aerial distribution throughout the study area. Infrastructure of concern which may impact these

resources include temporary and permanent access roads, bridges, airfields, and transmission lines.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$4,000,000
Matched Funds Provided:	
Total Potential Grant Amount:	\$4,000,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$2,000,000

AEA Funding Recommendation: \$2,000,000

AEA Recommendation

- Full Funding
- ✗ Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #505 West Cook Inlet Energy Cumulative Impacts

Resource: Other

Proposed Project Phase: Construction

Proposer: TDX Power, Inc.

AEA Program Manager: Strandberg

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

Score

1) Cost of Energy (Max 25)	5
2) Matching Resources (Max 20)	0
3) Project Feasibility from Stage 2 (Max 20)	9
4) Project Readiness (Max 10)	4
5) Benefits (Max 15)	2
6) Local Support (Max 5)	0
7) Sustainability (Max 5)	4

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

The projects are located in the vicinity of the western Castle Mountain fault, Lake Clark fault, and Bruin Bay faults. All infrastructure related to the proposed projects should incorporate seismic safety design based on a seismic hazards analysis and complete geotechnical reports

DNR/DGGS Feasibility Comments

Grant application mentions the CIRI proposed in situ coal gasification study and further states that the resource, technology and economics in the western Cook Inlet is unproven. This is an accurate assessment

App # 505 West Cook Inlet Energy Cumulative Impacts

Resource: Other

Proposed Project Phase: Construction

Proposer: TDX Power, Inc.

AEA Program Manager: Strandberg

Applicant Type: IPP

DNR/DMLW Feasibility Comments

Normally the applicant for a power project is the one doing the environmental baseline studies once the project concept is approved. That way the correct information is collected for the agencies making decisions. It potentially seems premature to gather this data before understanding the scope of the proposed projects. This may be more appropriate once projects start moving forward and funding is approved for power projects.

AEA Review Comments

TDX Power proposes to conduct field inventories of fish and wildlife populations and habitat on the west side of Cook Inlet. Additionally TDX proposes to conduct onsite assessment of wind resource on the west foreland. Work would support potential development of Mt. Spurr geothermal, Chakachamna hydro, Beluga in situ coal gasification, and wind development at the foreland.

These power generation projects have not been proven to be technically and economically viable. AEA has received RE Fund round 3 applications for resource assessment and field studies for Mt Spurr (#477) and for feasibility and design of transmission to west Cook Inlet (#491). AEA is recommending round 3 funding for both projects. Railbelt IRP findings are favorable for Mt. Spurr and Chakachamna projects.

Given the potential for interaction and overlap among project development in the area, AEA believes that it will be important for the proposed work to be coordinated closely with other work in the vicinity.

The proposal is very general. It does not identify particular geographic locations, fish and wildlife issues, or development schemes. TDX proposes to begin work after receiving grant funds in March 2010 and complete the final report by November 2010. This schedule appears unrealistic given funding availability, time constraints, the scale of the work, and the need to consult with multiple landowners and resource agencies. The proposer requests \$5 million from the grant program despite the state cap of \$2 million indicated in the RFA.

Recommend partial funding of \$2 million with the requirement that TDX submit a revised detailed scope, budget, and timeline consistent with the funding level provided.

App # 506 Tatitlek High Penetration Wind-Diesel Project

Resource: Wind **Proposed Project Phase:** Construction Design
Proposer: Tatitlek IRA Council/Tatitlek Electric Company
AEA Program Manager: Jensen **Applicant Type:** Government Entity

Project Description

The Tatitlek IRA Council, in partnership with Tatitlek Corporation, has a teaming agreement with TDX Power to complete the wind resource assessment, feasibility study, and conceptual design with funding from Round II of the Renewable Energy Grant Program. Assuming the resource proves adequate and the project economical, we propose to proceed with the final design, permitting, and construction of a high penetration wind-diesel project. We understand our current diesel plant will require a new low-load diesel gen-set and new automated controls in order to successfully integrate wind energy.

Funding & Cost

Cost of Power:	\$0.76 /kWh
Requested Grant Funds:	\$903,970
Matched Funds Provided:	\$8,030
Total Potential Grant Amount:	\$912,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Copper River/Chugach

App # 506 Tatitlek High Penetration Wind-Diesel Project

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: Tatitlek IRA Council/Tatitlek Electric
Company

AEA Program Manager: Jensen

Applicant Type: Government Entity

AEA Review Comments

Tatitlek IRA Council/Tatitlek Electric Company proposes final design, permitting, and construction of a 100 kW high-penetration wind system in Tatitlek. Currently the applicant is funded for resource assessment and feasibility by RE Fund round 2 (#316). Tatitlek has secured federal funding of \$900,000 for project development. Feasibility, final design, and permitting is scheduled for completion in May 2011. Construction would commence in summer 2011.

Given that round 3 funding would not be expended until summer 2011, the applicant can reapply for RE Fund round 4 support in 2010.

Recommend no funding at this time.

App # 507 Adak Renewable/Diesel Project

Resource: Wind

Proposed Project Phase: Design
Feasibility

Proposer: TDX Adak Generating, LLC

AEA Program Manager: Jensen

Applicant Type: Utility

Project Description

Project Type: Wind, Hydro, including run of river, Geothermal, including Heat Pumps.

We propose to accomplish the four phases of a project to integrate one or more renewable energy resources with a properly sized efficient diesel plant in Adak, Alaska.

Phase I (Reconnaissance) was funded.

Phase II, this proposal, addresses Resource Assessment/Feasibility Analysis/Conceptual Design.

Phase III (Final Design and Permitting), will include the final design of the winning resource(s). Phase IV (Construction) will cover the construction portion of this project.

Funding & Cost

Cost of Power:	\$0.71 /kWh
Requested Grant Funds:	\$229,500
Matched Funds Provided:	
Total Potential Grant Amount:	\$229,500
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$229,500

AEA Funding Recommendation: \$229,500

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #507 Adak Renewable/Diesel Project

Resource: Wind

Proposed Project Phase: Design Feasibility

Proposer: TDX Adak Generating, LLC

AEA Program Manager: Jensen

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 22
- 0
- 15
- 4
- 7
- 3
- 3

Energy Region: Aleutians

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App # 507 Adak Renewable/Diesel Project

Resource: Wind

Proposed Project Phase: Design
Feasibility

Proposer: TDX Adak Generating, LLC

AEA Program Manager: Jensen

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

TDX proposes to assess feasibility of developing wind, hydro, and geothermal resources for the Adak power system. The work is follow-on to an earlier RE Fund round 2 grant for reconnaissance study (#315) which is not yet complete.

44% of the proposed funding is for avian interactions with wind development.

Recently Adak Fisheries closed its plant. However the application states that the processing facility may resume operation.

Recommend full funding with the requirements that 1) before round 3 funds are disbursed AEA accepts recon assessment findings that justify further project development and 2) before funding for avian study is disbursed grantee must identify that further wind development requiring such study will be pursued.

App # 508 Cook Inlet Tidal Hydrokinetic Power Generation

Resource: Ocean/River **Proposed Project Phase:** Design

Proposer: Baker Hughes, Inc.

AEA Program Manager: McMahon, Lockard **Applicant Type:** IPP

Project Description

The waters of Cook Inlet offer a clean and renewable power source for the communities of South Central Alaska. Our project will utilize existing infrastructure, namely the King Salmon platform, and proven submersible technologies to capture the tidal energy of the Inlet. Baker Hughes Centrifluid develops electrical submersible pumps (ESP) for the oil industry and given our product's reliable history in very demanding oil well environments, their ESP system was chosen as the power generating unit. The smaller diameter of an ESP Generator allows for higher speed operation and lower impact to fish than propeller-based systems. The ESP Generator would consist of 1) aquatic life diverters to protect the environment and minimize the environmental impact of the system, 2) rotating multistage turbine anchored in water at optimum flow velocity depth, 3) submersible electric power cable would carry the energy to shore connecting to 4) local utility substation or transformer. Buoys would be placed strategically near the system to alert boat traffic. The existing platform would act as an anchoring structure and intermediate for power distribution.

Funding & Cost

Cost of Power:	\$0.15 /kWh
Requested Grant Funds:	\$400,000
Matched Funds Provided:	\$1,960,000
Total Potential Grant Amount:	\$2,360,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$400,000
AEA Funding Recommendation:	\$400,000

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #508 Cook Inlet Tidal Hydrokinetic Power Generation

Resource: Ocean/River

Proposed Project Phase: Design

Proposer: Baker Hughes, Inc.

AEA Program Manager: McMahon, Lockard

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 5
- 19
- 8
- 2
- 2
- 3
- 3

Energy Region: Railbelt

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App # 508 Cook Inlet Tidal Hydrokinetic Power Generation

Resource: Ocean/River

Proposed Project Phase: Design

Proposer: Baker Hughes, Inc.

AEA Program Manager: McMahon, Lockard

Applicant Type: IPP

DNR/DMLW Feasibility Comments

Although this is just design, there are some future hurdles to consider. First, attaching generators to operating oil platforms would require separate authorizations that are not included in the oil lease operations permits. If the intention is to attach to "aging" infrastructure that will be decommissioned as oil platform, this has considerable risk by having an investment attached to a platform that will need to be removed unless the power company is willing to assume the platform removal liability. Lastly, there are existing FERC authorizations that have "locked up" Cook Inlet until the existing permit holders fail to advance their projects to licensing.

AEA Review Comments

Applicant Baker Hughes (BHI) proposes to develop new technology that would modify existing Baker Hughes Centrilift H Series pumps currently used in Cook Inlet oil and gas platforms to convert hydrokinetic to energy. The team would first develop a bench scale unit at UAF then test a 50 kW unit in the Tanana River. BHI would then use their own funding and resources to test a 500 kW unit at the King Salmon Platform in Cook Inlet.

BHI is pledging to match \$400,000 in RE Funds with \$560,000 in private funds for the prototype development and initial demonstration. A substantial portion of BHI's investment would be in survey and environmental assessment at the Cook Inlet site--information that would be useful to other projects. Input from NMFS would be sought for developing an aquatic life diverter.

Since there is no existing prototype technology risk is very high.

Recommend full funding.

App # 509 Jarvis Creek Natural Gas Project

Resource: Gas **Proposed Project Phase:** Design
Feasibility
Recon
Proposer: Alaska Wind Power, LLC

AEA Program Manager: **Applicant Type:** IPP

Project Description

This Phase II project will investigate, evaluate, and provide a conceptual design for partially stabilizing wind-generated power at the Delta Wind Farm with locally-produced natural gas. It is intended to address the technical, economic, financial, and operational viability of producing natural gas from the Jarvis Creek area 30 miles south of Delta Junction. If sufficient natural gas is present, the conceptual design will include piping that gas to Delta Junction for use within the community for space heat and stationary power uses.

Stabilizing wind power with a rapidly controllable natural gas generator will allow the wind project to better serve its customers with a more stable power supply. Rapid variations in the amount of wind energy available can be smoothed using natural gas generation, and operational procedures involving anticipatory wind turbine shutdowns, or sequential wind turbine startups, as well as wind forecasting.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$300,000
Matched Funds Provided:	\$100,000
Total Potential Grant Amount:	\$400,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App # 509 Jarvis Creek Natural Gas Project

Resource: Gas

Proposed Project Phase: Design

Proposer: Alaska Wind Power, LLC

Feasibility

Recon

AEA Program Manager:

Applicant Type: IPP

AEA Review Comments

App #510 Slana Wind Farm-Wind Energy Resource Assessment

Resource: Wind

Proposed Project Phase: Construction

Proposer: Village Wind Power, LLC

Design
Feasibility

AEA Program Manager: Jensen

Applicant Type: IPP

Project Description

The Slana Wind Project is located approximately seven miles west of Slana and will contribute up to one MW of clean, renewable wind power to the Alaska Power Company Slana distribution system. Grant monies from this application will initially be used to help erect and monitor one 50-meter meteorological tower to confirm that favorable wind energy is available at the site to justify commercial development. A favorable resource assessment will result in final design, permitting and construction.

The communities served will include all communities within the Alaska Power Company (APC, an Alaska Power & Telephone Company public utility subsidiary) service area including Slana (2009 population 110), Chistochena (81) and when it is connected, Mentasta (126). The total population of the served area will be 313.

The project will include construction of a 1.7 mile long transmission line across Ahtna Corporation and state-owned land from the Tok Cutoff to the proposed wind power generation facility on the ridgetop. The power generation facility will include approximately one MW of wind turbines, the size and type subject to final design. These turbines will be founded in shallow bedrock prevalent on the ridge crest. Power collection cables and control wiring will lead from each turbine to the transformer substation. Overhead transmission lines (distribution voltage) from the transformer substation will extend 1.7 miles to the existing APC distribution line on the Tok Cutoff.

The grant participant is Village Wind Power LLC who has three Alaska wind projects under development (Tok, Slana, and Bethel). There will be a number of contractors involved in completing the project. In addition to our own in-house efforts, other experienced contractors will be chosen to carry out selected components of the project. These components may include:

- State Land Use Permit for Wind Resource Assessment – already completed
- State and Native Corp easement for the transmission line
- State land lease acquisition for the wind farm site
- Topographic mapping for the wind farm and transmission line
- Wetlands mapping for the wind farm and transmission line
- Archeological review for the wind farm and transmission line
- Detailed design for the wind farm and transmission line
- Power Purchase Agreement with APC
- Transmission line construction
- Wind farm construction
- Electrical hookup
- Commissioning and testing

Funding & Cost

Cost of Power:	\$0.52/kWh
Requested Grant Funds:	\$4,000,000
Matched Funds Provided:	
Total Potential Grant Amount:	\$4,000,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$60,000
AEA Funding Recommendation:	\$60,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #510 Slana Wind Farm-Wind Energy Resource Assessment

Resource: Wind

Proposed Project Phase: Construction
Design
Feasibility

Proposer: Village Wind Power, LLC

AEA Program Manager: Jensen

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

Score

1) Cost of Energy (Max 25)	16
2) Matching Resources (Max 20)	0
3) Project Feasibility from Stage 2 (Max 20)	7
4) Project Readiness (Max 10)	2
5) Benefits (Max 15)	1
6) Local Support (Max 5)	3
7) Sustainability (Max 5)	3

Energy Region: Copper River/Chugach

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #510 Slana Wind Farm-Wind Energy Resource Assessment

Resource: Wind

Proposed Project Phase: Construction
Design
Feasibility

Proposer: Village Wind Power, LLC

AEA Program Manager: Jensen

Applicant Type: IPP

DNR/DMLW Feasibility Comments

In process of data gathering before leasing.

AEA Review Comments

Village Windpower LLC proposes feasibility, final design and construction of a 1 MW wind farm near Slana. A met tower would be erected in summer 2010 and collect data for one year. Construction is scheduled to be completed in late 2011. The project would serve Slana, Chistochina, and Mentasta currently or soon-to-be connected by intertie.

Locating a met tower on state land will require access over AHTNA Inc. lands, currently under negotiation. AEA's high resolution wind map indicates that proposed project location is in a class 2-3 wind resource.

Given the questionable wind resource AEA believes it is reasonable to collect met tower data before proceeding with further project development.

Recommend partial funding of \$60,000 for wind resource assessment.

App #511 Stebbins Wind-Feasibility Analysis, Resources Assessment and Conceptual Design

Resource: Wind

Proposed Project Phase: Design
Feasibility

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

Project Description

AVEC proposes to install a wind meteorological (met) tower and complete geotechnical work to determine the possibility of installing wind towers in Stebbins. The work will involve obtaining a letter of non-objection for placement of the wind tower and geotechnical fieldwork, permitting, transporting and installing a met tower at this location, studying the wind resource for one year, and conducting a geotechnical investigation to determine the soil conditions and needed engineering at the site. A conceptual design will be created based on the outcome of the met tower recordings and geotechnical investigation.

Funding & Cost

Cost of Power:	\$0.61 /kWh
Requested Grant Funds:	\$142,500
Matched Funds Provided:	\$7,500
Total Potential Grant Amount:	\$150,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$142,500
AEA Funding Recommendation:	\$142,500

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #511 Stebbins Wind-Feasibility Analysis, Resources Assessment and Conceptual Design

Resource: Wind

Proposed Project Phase: Design
Feasibility

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 19
- 8
- 12
- 5
- 2
- 0
- 4

Energy Region: Bering Straits

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #511 Stebbins Wind-Feasibility Analysis, Resources Assessment and Conceptual Design

Resource: Wind

Proposed Project Phase: Design
Feasibility

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

AVEC proposes onsite wind resource assessment, geotech analysis, feasibility, and conceptual design of a wind system to supply Stebbins and St. Michaels. AVEC requested funding of \$108,691 for a similar project in RE Fund round 2 (#301). AEA notes that the current project request of \$142,500 for feasibility costing \$150,000 has risen substantially in the current application. However the revised cost appears consistent with AEA's experience for a project of this nature.

Recommend full funding.

App #512 Kivalina Wind-Intertie Feasibility Analysis & Conceptual Design

Resource: Wind **Proposed Project Phase:** Design
Feasibility
Proposer: AVEC

AEA Program Manager: Jensen **Applicant Type:** Utility

Project Description

Project Type: Wind, Transmission of Renewable Energy.

To determine the feasibility of installing wind towers in the vicinity of Kivalina, AVEC proposes to complete a wind power study and conceptual design. To this end, AVEC will install a wind meteorological (met) tower and complete geotechnical work. AVEC also proposes to conduct a feasibility study and conceptual design to examine the extension of a power intertie from Kivalina to the power system at the AIDEA-owned DMTS Port, 17 miles to the southwest, with the addition of wind power generation along the intertie. AVEC will analyze and report findings about both areas to partners and community members. AVEC This total project concept, with wind generation and an intertie, could be segmented into the following phases:

- Phase 1. Feasibility study & conceptual design.
- Phase 2. Financing and negotiation of power purchase agreement.
- Phase 3. Design and engineering.
- Phase 4. Installation of transmission and wind energy.
- Phase 5. Operations and maintenance.

Funding & Cost

Cost of Power:	\$0.73/kWh
Requested Grant Funds:	\$183,350
Matched Funds Provided:	\$9,650
Total Potential Grant Amount:	\$193,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$183,350
AEA Funding Recommendation:	\$183,350

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #512 Kivalina Wind-Intertie Feasibility Analysis & Conceptual Design

Resource: Wind

Proposed Project Phase: Design
Feasibility

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	23
2) Matching Resources (Max 20)	8
3) Project Feasibility from Stage 2 (Max 20)	15
4) Project Readiness (Max 10)	5
5) Benefits (Max 15)	7
6) Local Support (Max 5)	3
7) Sustainability (Max 5)	4

Score

Energy Region: Northwest Arctic

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #512 Kivalina Wind-Intertie Feasibility Analysis & Conceptual Design

Resource: Wind

Proposed Project Phase: Design
Feasibility

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

AVEC proposes resource assessment, conceptual design, feasibility assessment, final design, permitting, and construction of a 300 kW project in Kivalina. AVEC is also interested in assessing a wind project up to 3.3 MW in capacity and an intertie connecting Kivalina to the Delong Mountain Transportation System.

If the larger project is viable AVEC proposes establishing a power purchase agreement with Teck Alaska. The proposal includes a letter of support from NANA.

Recommend full funding.

App #513 Teller Wind-Final Design, Permitting & Construction

Resource: Wind

Proposed Project Phase: Construction

Proposer: AVEC

Design

AEA Program Manager: Jensen

Applicant Type: Utility

Project Description

The project involves the final design, permitting, construction, erection, startup, and commissioning of three wind turbines to supplement a new power generation system for the communities of Teller and Brevig Mission. AVEC is currently working on preliminary design and permitting of the wind turbines under a Round 2 AEA grant award. This work will be accomplished in the next year, prior to initiating this phase.

Funding & Cost

Cost of Power:	\$0.73/kWh
Requested Grant Funds:	\$3,501,038
Matched Funds Provided:	\$389,004
Total Potential Grant Amount:	\$3,890,042
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$240,300

AEA Funding Recommendation: \$240,300

AEA Recommendation

- Full Funding
- ✗ Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #513 Teller Wind-Final Design, Permitting & Construction

Resource: Wind

Proposed Project Phase: Construction Design

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 23
- 12
- 11
- 4
- 1
- 0
- 5

Energy Region: Bering Straits

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #513 Teller Wind-Final Design, Permitting & Construction

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

AVEC proposes final design, permitting, and construction of a 300 kW wind farm that will serve the communities of Teller and Brevig Mission. AVEC has received funding from the Denali Commission for the intertie connecting the two villages and funding from RE Fund round 2 for resource assessment and feasibility (#297). A met tower was erected in September 2009. Preliminary wind resource assessment numbers based on Tier 3 wind mapping program output estimate a gross capacity factor of 16%.

Recommend partial funding of \$240,300 for final design and permitting with the requirement that AEA accepts that wind resource data collected to date justifies continued project development.

App #514 Scammon Bay Wind Project

Resource: Wind

Proposed Project Phase: Feasibility

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

Project Description

A meteorological (met) tower installed in New Stuyahok between 2003 and 2005 found that winds were class 3 (fair to good); however, placement of the met tower was hindered by the active runway at the time (location new airport has now been constructed out of town), and it is expected that the wind resource could be better. Before going forward with the final design and construction of wind turbines, AVEC would like to better determine the wind potential in the community.

The work would involve permitting, purchasing, transporting, and installing a met tower, studying the wind resource for one year, and conducting a geotechnical investigation to determine the soil conditions and needed engineering at the site. A conceptual design will be created based on the outcome of the met tower recordings and geotechnical investigation.

Funding & Cost

Cost of Power:	\$0.62/kWh
Requested Grant Funds:	\$142,500
Matched Funds Provided:	\$7,500
Total Potential Grant Amount:	\$150,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$142,500
AEA Funding Recommendation:	\$142,500

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #514 Scammon Bay Wind Project

Resource: Wind

Proposed Project Phase: Feasibility

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 19
- 8
- 12
- 4
- 2
- 3
- 5

Energy Region: Lower Yukon-Kuskokwim

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #514 Scammon Bay Wind Project

Resource: Wind

Proposed Project Phase: Feasibility

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

AVEC proposes onsite wind resource assessment, geotech analysis, feasibility, and conceptual design of a wind system to supply Scammon Bay. AVEC requested funding of \$117,610 for a similar project in RE Fund round 2 (#299). AEA notes that the current project request of \$142,500 for feasibility costing \$150,000 has risen substantially in the current application. However the revised cost appears consistent with AEA's experience for a project of this nature.

Recommend full funding.

App #515 New Stuyahok Wind-Feasibility Analysis, Resources Assessment & Conceptual Design

Resource: Wind

Proposed Project Phase: Design
Feasibility

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

Project Description

A meteorological (met) tower installed in New Stuyahok between 2003 and 2005 found that winds were class 3 (fair to good); however, placement of the met tower was hindered by the active runway at the time (location new airport has now been constructed out of town), and it is expected that the wind resource could be better. Before going forward with the final design and construction of wind turbines, AVEC would like to better determine the wind potential in the community.

The work would involve permitting, purchasing, transporting, and installing a met tower, studying the wind resource for one year, and conducting a geotechnical investigation to determine the soil conditions and needed engineering at the site. A conceptual design will be created based on the outcome of the met tower recordings and geotechnical investigation.

Funding & Cost

Cost of Power:	\$0.63/kWh
Requested Grant Funds:	\$142,500
Matched Funds Provided:	\$7,500
Total Potential Grant Amount:	\$150,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$142,500

AEA Funding Recommendation: \$142,500

AEA Recommendation

- ✗ Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #515 New Stuyahok Wind-Feasibility Analysis, Resources Assessment & Conceptual Design

Resource: Wind

Proposed Project Phase: Design
Feasibility

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 20
- 8
- 11
- 4
- 0
- 5
- 4

Energy Region: Bristol Bay

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #515 New Stuyahok Wind-Feasibility Analysis, Resources Assessment & Conceptual Design

Resource: Wind

Proposed Project Phase: Design
Feasibility

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

AVEC proposes onsite wind resource assessment, geotech analysis, feasibility, and conceptual design of a wind system to supply New Stuyahok. AVEC requested funding of \$117,610 for a similar project in RE Fund round 2 (#301). AEA notes that the current project request of \$142,500 for feasibility costing \$150,000 has risen substantially in the current application. However the revised cost appears consistent with AEA's experience for a project of this nature.

Recommend full funding.

App #516 St. Mary's Wind-Final Design, Permitting & Construction

Resource: Wind

Proposed Project Phase: Construction Design

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

Project Description

Project Type: Wind & Transmission of Renewable Energy.

This project includes final design, permitting, construction, erection, startup, and commissioning of four wind turbines to supplement the existing power generation and distribution systems for the villages of Saint Mary's, Mountain Village, and Pilot Station.

At present, Saint Mary's and Pitka's Point are connected by a distribution power line, but Mountain Village and Pilot Station are stand-alone diesel powered communities. This project would:

- Electrically intertie Mountain Village and Pilot Station to Saint Mary's
- Install 900 kW of wind between Pitka's Point and Saint Mary's to create a wind-diesel hybrid power system

- Install a secondary load boiler to dump excess wind power
- Manage the new integrated power system with a new SCADA system

Standby generation capability will be maintained in Mountain Village and Pilot Station but primary generation will be delivered by the existing St. Mary's power plant.

Funding & Cost

Cost of Power:	\$0.61 /kWh
Requested Grant Funds:	\$14,954,626
Matched Funds Provided:	\$1,661,625
Total Potential Grant Amount:	\$16,616,251
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$446,400

AEA Funding Recommendation: \$446,400

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #516 St. Mary's Wind-Final Design, Permitting & Construction

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

<u>Criterion (Weight)</u>	<u>Score</u>	Energy Region: Lower Yukon-Kuskokwim
1) Cost of Energy (Max 25)	19	
2) Matching Resources (Max 20)	13	
3) Project Feasibility from Stage 2 (Max 20)	12	Election District:
4) Project Readiness (Max 10)	5	
5) Benefits (Max 15)	2	
6) Local Support (Max 5)	0	
7) Sustainability (Max 5)	4	

App #516 St. Mary's Wind-Final Design, Permitting & Construction

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

AEA Review Comments

AVEC proposes final design, permitting, and construction of a 900 kW wind project and intertie to serve the communities of St. Marys, Mountain Village, Pitkas Point, and Pilot Station. AVEC requested funding for feasibility assessment for this project in Round 2 (#298). AEA recommended this project for funding; however there was not sufficient funding.

In 2009 AVEC continued with resource monitoring. Met towers between Pitkas and St Marys indicate a class 6 wind resource but also a potential problem with icing. AVEC plans to locate another met tower near Mountain Village at a lower elevation. AVEC proposes to complete final design and permitting in November 2010 and commence construction in summer 2011. In November 2010 AVEC requests \$2.6 million in funding to procure four 225 kW Vestas turbines and other integration equipment.

Feasibility and conceptual design are not yet complete.

Recommend partial funding of \$446,400 for completing feasibility, final design, and permitting with the requirement that before final design funds are disbursed AEA accept resource assessment, feasibility and conceptual design report.

App #516 St. Mary's Wind-Final Design, Permitting & Construction

Resource: Wind

Proposed Project Phase: Construction
Design

Proposer: AVEC

AEA Program Manager: Jensen

Applicant Type: Utility

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

DNR/DMLW Feasibility Comments

App #517 Thayer Lake Hydropower Development (TLHD) Transmis

Resource: Transmission **Proposed Project Phase:** Construction
 Design
 Feasibility
Proposer: Kootznoowoo Inc.
AEA Program Manager: Ott **Applicant Type:** IPP

Project Description

Application combined with #523 - only that one (#523) scored and not this one.

Project Type: Hydro, including run of river and Transmission of Renewable Energy.
 Thayer Lake Hydropower Development consists of a 1MW + run of the river hydropower project located in the Tongass Forest within the Admiralty Island National Monument based on a proposal that Kootznoowoo submitted in March 2000 which is described more full in the Angoon Hydrologic Project Feasibility Evaluation Report (Project). The development would be located on Thayer Creek approximately 6 miles north of Angoon. Thayer Creek flows out of Thayer Lake (64 square mile reservoir) at a gentle grade through a broad forested valley then steepens for 6,800 feet through a narrow forested canyon and finally flattens again for 2000 feet before flowing into Chatham Strait. The development will tap the energy potential in the steep section of the stream and will avoid any impact on anadromous fish that use the lower portion of the creek. The average flow of Thayer Creek is approximately 370 cfs and can vary from 25 cfs during the coldest periods of the winter to over 2000 cfs during storms in the fall and winter. The generating facility has a head of 250 feet which is approximate because of the wording of the Forest Service Record of Decision (ROD) requiring maintenance of fish habitat. An additional restriction set forth in the ROD which is not considered in the HDR proposal requires the overland transmission line be buried where feasible along the access road to the community of Angoon. The transmission line funding is the subject of this funding and is a companion to the separate companion application for Round III funds.

Funding & Cost

Cost of Power: \$0.42/kWh
Requested Grant Funds:
Matched Funds Provided:
Total Potential Grant Amount:
Existing RE Fund Grant Offer:
AEA Funding Recommendation:
 (Not Constrained by Available Funding)

AEA Funding Recommendation:

AEA Recommendation

Full Funding
 Partial Funding
 Special Provision
 Not Recommended
 Did Not Pass Stage 1

Energy Region:
 Southeast

App #517 Thayer Lake Hydropower Development (TLHD) Transmis

Resource: Transmission

Proposed Project Phase: Construction

Proposer: Kootznoowoo Inc.

Design

Feasibility

AEA Program Manager: Ott

Applicant Type: IPP

AEA Review Comments

Combined with # 523 - See it for score and recommendations

App #518 High Penetration Wind-Battery-Diesel Hybrid

Resource: Wind **Proposed Project Phase:** Construction

Proposer: Kotzebue Electric Association

AEA Program Manager: Jensen

Applicant Type: Utility

Project Description

Rural residents in NW Alaska are facing some of the highest costs anywhere in the nation. In order to proactively address the region’s energy crisis, KEA is working to implement long term energy options. While there are a variety of alternative energy options available to the Kotzebue region, such as wind, solar, and geothermal; wind energy has a proven track record of success in this community.

The goals of the proposed project are:

1. To increase the wind capacity of KEA from 1.14MW to 2.95MW using 2 EWT 900KW wind turbines.
2. To integrate the increased wind capacity with a 500KW/3.7 MW Premium Power Flow Battery.
3. To utilize the excess electricity in a distributed heating system. This is a two year project. year one involves performing all pre-construction and foundation construction tasks. Year two involves the wind turbine erection and commissioning.

Funding & Cost

Cost of Power:	\$0.46/kWh
Requested Grant Funds:	\$4,000,000
Matched Funds Provided:	\$2,755,497
Total Potential Grant Amount:	\$6,755,497
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$4,000,000
AEA Funding Recommendation:	\$4,000,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #518 High Penetration Wind-Battery-Diesel Hybrid

Resource: Wind

Proposed Project Phase: Construction

Proposer: Kotzebue Electric Association

AEA Program Manager: Jensen

Applicant Type: Utility

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	15
2) Matching Resources (Max 20)	18
3) Project Feasibility from Stage 2 (Max 20)	15
4) Project Readiness (Max 10)	8
5) Benefits (Max 15)	10
6) Local Support (Max 5)	3
7) Sustainability (Max 5)	4

Score

Energy Region: Northwest Arctic

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #518 High Penetration Wind-Battery-Diesel Hybrid

Resource: Wind

Proposed Project Phase: Construction

Proposer: Kotzebue Electric Association

AEA Program Manager: Jensen

Applicant Type: Utility

DNR/DMLW Feasibility Comments

AEA Review Comments

Kotzebue Electric Association proposes final design and construction of a 1.8 MW expansion to its current 1.14 MW wind farm. The project would include a Premium Power Transflow 2000 flow battery system with 3.7 MWh of storage and ability to produce of 500 kW of power. This application follows from a similar earlier RE Fund round 1 application that was capped at \$4 million (#85). The \$4 million in round 1 funding remains allocated to the project.

KEA submitted HOMER optimization model with the application. The application did not provide an assessment of alternative integration/storage options or wind data obtained from onsite measurement.

KEA has recently upgraded their power system with new SCADA. This project is attractive because it will upgrade Alaska's first large-scale wind farm to a high-penetration system.

Recommend full funding with the condition that prior to the release of construction funds, the applicant must provide detailed final design, detailed construction budget, and detailed integration plans based on empirical load and wind resource data for AEA's acceptance.

App #519 Atka Hydro Dispatched Excess Electrical Power

Resource: Heat Recovery **Proposed Project Phase:** Construction
Design
Proposer: City of Atka

AEA Program Manager: Ott **Applicant Type:** Utility
Local Government

Project Description

The project consists of installing and operating frequency-based equipment at specified public facilities using a programmable priority system selected by the community. The equipment “captures waste energy off a utility system” and determines (dispatches) and uses the excess electricity generated. The system senses low electrical demand which causes the frequency to rise. Controls located at each building sense the increased frequency and adds loads based on its sequencing priority. As loads are added the frequency drops and the controls take the buildings off-line again based on prioritizing. Independent solid state frequency modulators monitor each load governor and its relays have the ability to react to changes rapidly cutting in and out as required. This efficiency enables the hydro power plant to convert its water up to capacity.

Funding & Cost

Cost of Power:	\$0.77 /kWh
Requested Grant Funds:	\$297,500
Matched Funds Provided:	\$52,500
Total Potential Grant Amount:	\$350,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$80,000

AEA Funding Recommendation: \$80,000

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #519 Atka Hydro Dispatched Excess Electrical Power

Resource: Heat Recovery
Proposer: City of Atka

Proposed Project Phase: Construction
 Design

AEA Program Manager: Ott

Applicant Type: Utility
 Local Government

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

1) Cost of Energy (Max 25)	24
2) Matching Resources (Max 20)	13
3) Project Feasibility from Stage 2 (Max 20)	17
4) Project Readiness (Max 10)	6
5) Benefits (Max 15)	13
6) Local Support (Max 5)	2
7) Sustainability (Max 5)	4

Score

Energy Region: Aleutians

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App #519 Atka Hydro Dispatched Excess Electrical Power

Resource: Heat Recovery

Proposed Project Phase: Construction
Design

Proposer: City of Atka

AEA Program Manager: Ott

Applicant Type: Utility
Local Government

DNR/DMLW Feasibility Comments

AEA Review Comments

The City of Atka proposes to install dispatchable hydro energy units for electrical heating of city and school buildings and potentially the fish processing facility. AEA is currently providing funding to complete construction of a 170 kW run-of-river hydro project at Chuniisax Creek (#58). The project is likely to be completed in 2011. This current proposal is to use excess hydro energy that would otherwise be lost. It is not clear that the City proposes upgrading the electrical system as part of this project, which AEA believes may be necessary .

AEA believes that using excess hydropower for heating in Atka is good idea. However,given the slow progress of the project to date AEA believes it is prudent to limit funding to final design and permitting.

Recommend partial funding of \$80,000 for final design and permitting with the provision that the scope of work includes any necessary upgrades to the distribution system.

App # 520 The Angoon Commercial Demonstration Tidal Power Project

Resource: Ocean/River **Proposed Project Phase:** Construction
Design
Feasibility
Recon
Proposer: Blue Energy Canada, Inc
AEA Program Manager: McMahon, Lockard **Applicant Type:** IPP

Project Description

The Angoon Commercial Demonstration Tidal Power Project will install a Midrange 375KW nominal nameplate capacity free stream tidal power converter made up of triple counter rotating units of 125KW each. The neutrally buoyant steel hulled unit will be anchored in position with pilings at one of two sites identified within intertie distances from the existing diesel power house. The tidal power diesel intertie will form an integrated mini grid where the diesel will provide peaking, emergency, tide slack coverage and the predictable tidal power component will become the new base power supply. Part of the study will determine a phase two installation where the distance between the two installations provides offsetting slacks and then the existing diesel can be designated emergency power only.

Funding & Cost

Cost of Power:	\$0.42/kWh
Requested Grant Funds:	\$4,000,000
Matched Funds Provided:	\$2,000,000
Total Potential Grant Amount:	\$6,000,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$193,200
AEA Funding Recommendation:	\$193,200

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #520 The Angoon Commercial Demonstration Tidal Power Project

Resource: Ocean/River **Proposed Project Phase:** Construction
Design
Feasibility
Recon
Proposer: Blue Energy Canada, Inc

AEA Program Manager: McMahon, Lockard **Applicant Type:** IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

<u>Criterion (Weight)</u>	<u>Score</u>
1) Cost of Energy (Max 25)	13
2) Matching Resources (Max 20)	0
3) Project Feasibility from Stage 2 (Max 20)	8
4) Project Readiness (Max 10)	1
5) Benefits (Max 15)	1
6) Local Support (Max 5)	3
7) Sustainability (Max 5)	3

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

DNR/DGGS Feasibility Comments

App # 520 The Angoon Commercial Demonstration Tidal Power Project

Resource: Ocean/River

Proposed Project Phase: Construction

Proposer: Blue Energy Canada, Inc

Design

Feasibility

Recon

AEA Program Manager: McMahon, Lockard

Applicant Type: IPP

DNR/DMLW Feasibility Comments

Concerned that they have not filed for FERC permit yet. Also ignores the need for land authorizations from the state. There will be questions from commercial fisheries groups about impacts to harvest or fish species.

AEA Review Comments

Applicant proposes recon, feasibility, design and construction of a 375 kW tidal energy project near Angoon. Project would include 3 125 kW vertical axis turbines mounted in a steel frame. Technology would be supplied by Blue Energy and is still in development. The application provides little detail about the technology. AEA notes that another company, Natural Currents Energy Ser, LLC., currently holds a preliminary FERC permit for a tidal energy project in this location. The permit will need to renewed by 2/28/2010.

Local utility Inside Passage Electrical Coop (IPEC) provides a letter of support to the project. Angoon Native Corporation Kootznoowoo Inc has submitted another application that proposes power supply to Angoon--Thayer Lake hydroelectric (#517 and 523).

The reconnaissance phase of the project would develop tidal, bathymetric, and fisheries information that would be useful for siting any tidal energy project. Given the proposed development of the Thayer Lk project, AEA believes it makes sense to limit funding to recon studies to assess resources, impacts, and economics before proceeding to more in-depth development.

Recommend partial funding of \$193,200 for reconnaissance assessment.

App #521 Fuel Cell Feasibility

Resource: Other

Proposed Project Phase: Design
Feasibility

Proposer: City of Houston

AEA Program Manager:

Applicant Type: Local Government

Project Description

Project Type: Heat Recovery from existing sources, Transmission of Renewable Energy.

City of Houston wished to demonstrate the feasibility of using natural gas fired fuel cells to produce lower cost electricity and heat. To accomplish this they will hire an engineering firm to design the siting and transmission requirements, determine KW and BTU requirements and size the system.

They will hire a project manager who will gather data on current electrical and thermal needs and submit that to the engineers, research and fill out all required permits, meet with the school and potential commercial recipients of heat and/or power Coordinate with city staff and fill out all required reports.

Funding & Cost

Cost of Power:	\$0.17 /kWh
Requested Grant Funds:	\$45,000
Matched Funds Provided:	
Total Potential Grant Amount:	\$45,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Railbelt

App # 521 Fuel Cell Feasibility

Resource: Other

Proposed Project Phase: Design
Feasibility

Proposer: City of Houston

AEA Program Manager:

Applicant Type: Local Government

AEA Review Comments

App #522 City of Ouzinkie Wind Generator Project

Resource: Wind **Proposed Project Phase:** Construction
Design
Feasibility
Proposer: City of Ouzinkie Utility Operations
AEA Program Manager: Jensen **Applicant Type:** Utility
Local Government

Project Description

Project Type: Wind and Storage of Renewable.
 We currently generate power with diesel generators and hydro electric. There are periods of time the hydro is not capable of operation due to weather conditions and we wish to maximize our efficient generation of power to our customers benefits. We already have a track record of passing benefits on to the customers that we gain from hydro operations.

Funding & Cost

Cost of Power:	\$0.37/kWh
Requested Grant Funds:	\$650,000
Matched Funds Provided:	\$200,000
Total Potential Grant Amount:	\$850,000
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	

AEA Funding Recommendation:

AEA Recommendation

- Full Funding
- Partial Funding
- Special Provision
- Not Recommended
- Did Not Pass Stage 1

Energy Region:
Kodiak

App #522 City of Ouzinkie Wind Generator Project

Resource: Wind

Proposed Project Phase: Construction
Design
Feasibility

Proposer: City of Ouzinkie Utility Operations

AEA Program Manager: Jensen

Applicant Type: Utility
Local Government

AEA Review Comments

City of Ouzinkie proposes resource assessment, feasibility analysis, final design and permitting, and construction of a wind energy project. The applicant requests that AEA manage the project. Currently Ouzinkie generates over half of its power from a hydro project with limited storage capacity that is used also for the community's water supply.

AEA has the following concerns about this project:

1. The wind resource in the proposed site near the old airport is class 3 at 50 m based on the high-resolution wind map. DOTPF-collected wind data in the community measures a class 1 resource. The proposed site is surrounded by 80 ft trees which will likely obstruct wind flow to a project. For a project of this size wind hub height would be approximately 80 feet.
2. Given limited storage potential and water supply constraints at the hydro project it will be difficult and costly to displace the remaining diesel generation.

Recommend no funding.

App #523 Thayer Lake Hydropower Development (TLHD) Generation

Resource: Hydro **Proposed Project Phase:** Construction
Design
Feasibility
Proposer: Kootznoowoo Inc.

AEA Program Manager: Ott **Applicant Type:** IPP

Project Description

Application combined with #517 - only this one (#523) scored

Project Type: Hydro, including run of river, Transmission of Renewable Energy.
 Thayer Lake Hydropower Development consists of a 1MW + run of the river hydropower project located in the Tongass Forest within the Admiralty Island National Monument based on a proposal that Kootznoowoo submitted in March 2000 which is described more full in the Angoon Hydrologic Project Feasibility Evaluation Report (Project). The development would be located on Thayer Creek approximately 6 miles north of Angoon. Thayer Creek flows out of Thayer Lake (64 square mile reservoir) at a gentle grade through a broad forested valley then steepens for 6,800 feet through a narrow forested canyon and finally flattens again for 2000 feet before flowing into Chatham Strait. The development will tap the energy potential in the steep section of the stream and will avoid any impact on anadromous fish that use the lower portion of the creek. The average flow of Thayer Creek is approximately 370 cfs and can vary from 25 cfs during the coldest periods of the winter to over 2000 cfs during storms in the fall and winter. The generating facility has a head of 250 feet which is approximate because of the wording of the Forest Service Record of Decision (ROD) requiring maintenance of fish habitat. An additional restriction set forth in the ROD which is not considered in the HDR proposal requires the overland transmission line be buried where feasible along the access road to the community of Angoon. The transmission line funding will be submitted in a separate companion application for Round III funds.

Funding & Cost

Cost of Power:	\$0.42/kWh
Requested Grant Funds:	\$8,000,000
Matched Funds Provided:	\$1,679,500
Total Potential Grant Amount:	\$9,679,500
Existing RE Fund Grant Offer:	
AEA Funding Recommendation: (Not Constrained by Available Funding)	\$1,060,500
AEA Funding Recommendation:	\$1,060,500

AEA Recommendation

- Full Funding
- ✗ Partial Funding
- ✗ Special Provision
- Not Recommended
- Did Not Pass Stage 1

App #523 Thayer Lake Hydropower Development (TLHD) Generation

Resource: Hydro

Proposed Project Phase: Construction
Design
Feasibility

Proposer: Kootznoowoo Inc.

AEA Program Manager: Ott

Applicant Type: IPP

Scoring & Location



Overall Rank
(out of 90)



Stage 3 Total Score
(out of 100)

Economic Analysis



Benefit/Cost Ratio
(Applicant)



Benefit/Cost Ratio
(AEA)

Stage 3 Scoring Summary

Criterion (Weight)

- 1) Cost of Energy (Max 25)
- 2) Matching Resources (Max 20)
- 3) Project Feasibility from Stage 2 (Max 20)
- 4) Project Readiness (Max 10)
- 5) Benefits (Max 15)
- 6) Local Support (Max 5)
- 7) Sustainability (Max 5)

Score

- 13
- 0
- 14
- 8
- 12
- 0
- 4

Energy Region: Southeast

Election District:

DNR/DGGS Geohazards Comments

General DGGS statement. Located in the vicinity of the eastern Denali fault and Chatham Strait fault. Dam construction guidelines for high seismic hazard zones should be followed.

DNR/DGGS Feasibility Comments

App # 523 Thayer Lake Hydropower Development (TLHD) Generation

Resource: Hydro

Proposed Project Phase: Construction
Design
Feasibility

Proposer: Kootznoowoo Inc.

AEA Program Manager: Ott

Applicant Type: IPP

DNR/DMLW Feasibility Comments

no comment except it seems that this should be combined with project 517

AEA Review Comments

Kootznoowoo Inc proposes a 1+ MW run-of-river hydroelectric project and 6.7 mi transmission project to supply the community of Angoon. Kootznoowoo has supplied separate applications for each of the projects. AEA is lumping the two project proposals together for the purposes of evaluation.

The application includes a letter of support from local utility Inland Passage Electrical Coop (IPEC). Kootznoowoo has received a grant \$1,110,500 from USDOE for preconstruction activities.

Project appears to be a promising source of renewable energy for the community of Angoon. Special legislation (ANILCA Section 506) has granted Kootznoowoo, Inc. certain rights for development of a hydroelectric facility at Thayer Creek and has simplified the permitting for the project. The project is only six miles from Angoon and closely matches Angoon's energy requirements.

Recommend partial funding of \$1,060,500 for completion of all preconstruction activities, including final design and permitting (culminating in the issuance of the USFS Special Use Authorization for the project) with the provisions that prior to releasing any AEA grant funds: 1) Kootznoowoo and IPEC must provide a written joint report acceptable to AEA that documents the integration of project design and operation with the needs of the existing IPEC system, 2) Kootznoowoo and IPEC must finalize an MOU that defines a viable business arrangement and will include intent to sign a cost-based power sales agreement..