



RENEWABLE ENERGY FUND ADVISORY COMMITTEE MEETING

Harrigan Centennial Hall
Sitka, Alaska

Friday, May 8, 2015
2:00 pm – 5:00 pm

Teleconference: 1-888-585-9008, code 683-021-989#
Webinar to view documents: <https://global.gotomeeting.com/join/584227781>

AGENDA

1. Call to Order
2. Roll Call (committee members, staff, public)
3. Agenda Approval
4. Thank you to Hosts, City of Sitka. Blue Lake Dedication Follow-up
5. Approval of Minutes: January 9, 2015 and January 28, 2015
6. Public Comments
7. Overview of Program
 - a. Projects Funded
 - b. REF Annual Timeline and REFAC Responsibilities
8. Financing Options Presentation by AEA and AIDEA
9. Committee Recommendations Regarding Round IX Request for Applications
10. Meeting Dates for Next 12 Months
11. Committee Member Comments
12. Adjournment

Renewable Energy Fund Advisory Committee Meeting
January 28, 2015

Two locations via video conference:
Alaska Energy Authority Board Room
Anchorage, Alaska
Legislative Information Office
Terry Miller Conference Room
129 Sixth Street
Juneau, Alaska
4:01 p.m. to 5:03 p.m.
DRAFT MINUTES

1. Call to Order

The Renewable Energy Fund Advisory Committee (REFAC) convened at 4:01 p.m., with Chair Chris Rose presiding. There was a quorum.

2. Roll Call (committee members, staff, public)

<u>Committee Members Present</u>	<u>Attended of Total 2014-15 Meetings</u>
Chair Chris Rose	5 of 5
Representative Bryce Edgmon	5 of 5
Brad Reeve (phone)	5 of 5
Bradley Evans	3 of 5
Senator Lyman Hoffman	5 of 5
Jodi Mitchell	4 of 5
Kathie Wasserman (phone)	3 of 5
Senator Anna MacKinnon	4 of 5
Representative Charisse Millett	3 of 5

<u>Committee Members Not Present</u>	<u>Attended of Total 2014-15 Meetings</u>
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AEA Staff Present: Josh Craft, Sara Fisher-Goad, Emily Ford, Jennifer Haldane, Yolanda Inga, Cady Lister, David Lockard, Sandra Moller, Devany Plentovich, Sean Skaling, Rich Stromberg, Sam Tappen, and Gene Therriault.

Other Participants Present: Miranda Studstill, Accu-Type Depositions; Unidentified Speaker, AIDEA (phone); Jason Custer, Alaska Power and Telephone; Eric Hanssen, Dan Rice (sp), Suzanne Wolf (sp), Alaska Native Tribal Health Consortium (ANTHC) (phone); Steve Gilbert, Anna Sattler, Alaska Village Electric Cooperative (AVEC); Unidentified Speaker, Bristol Bay School District (phone); Wynne Auld, Gray Stassel Engineering and Energy Action; Bob Baldwin, Kenai River Watershed Foundation (phone); Gary Hennigh, King Cove (phone); Kord Christianson, TDX Power; and Danny Consenstein, USDA Farm Service Agency.

3. Agenda Approval

MOTION: A motion was made by Representative Millett to approve the agenda. Seconded by Representative Edgmon. The agenda was approved.

4. Public Comments

Bob Baldwin, President of the Kenai River Watershed Foundation of Cooper Landing and Moose Pass, informed the Foundation protects and defends the integrity of the Kenai River and its watershed. The Foundation is strongly opposed to the recommended Renewable Energy Fund (REF) grant to Kenai Hydro, LLC, owned solely by Homer Electric Association (HEA), for the Grant Lake hydroelectric proposal near Moose Pass. Mr. Baldwin noted the Grant Lake project is outside the HEA service area and would not supply electricity to utility members. He believes HEA has been totally indifferent to very strong public opposition over the past seven years. The fear is the other three original hydroelectric proposals will be revisited if Grant Lake is constructed. Mr. Baldwin stated Kenai Hydro, LLC has not applied for a Federal Energy Regulatory Commission (FERC) hydroelectric project license after stretching two preliminary permits over a maximum period of six years. The Grant Lake hydroelectric proposal is clearly not consistent with Alaska's current need for fiscal austerity. Mr. Baldwin requested no funding be recommended for the Grant Lake hydroelectric proposal.

Danny Consenstein, State Executive Director for the USDA Farm Service Agency, stated their mission is to support viable farm operations and increased food production in Alaska. Mr. Consenstein urged the Committee to consider opportunities that incorporate greenhouses or combined renewable energy and food production.

5. REF Regional Distribution Following REFAC Recommendations 1/9/15

Mr. Skaling informed staff reviewed the feedback from the January 9th Committee meeting addressing the Stage 4 regional distribution of funds. The recommendations for implementing a new system were provided. The three-step approach includes using a regional population weighted "burden of energy cost" metric to establish regional funding bands, capping all individual projects at \$1.5 million, and capping the regions that exceed the target funding band so their share of the overall fund cannot grow.

Mr. Skaling explained the table identifying by energy region, the REF funding to date, the burden of energy cost per household income, Round 8 funding before the new criteria, and Round 8 funding after the new criteria is applied.

Ms. Mitchell commented the burden of energy cost varies greatly within individual communities in the Southeast region. Angoon, for instance, has a very high burden which is not reflected in the Southeast regional burden number of 10%. She does not agree with this representation. Mr. Skaling explained staff's reasoning is to allow the Southeast communities who have the highest cost burden be the first projects to fill the eligible Southeast regional funds and the lowest cost burden communities in Southeast end up below the recommended \$15 million line. Ms. Fisher-Goad noted the energy burden cost shown in the table is specific to the region and not to the

individual community. She stated staff will add a column showing the cost burden for the individual communities.

Mr. Evans requested explanation as to why there are Railbelt region projects on the new list that were not on the previous recommended list. Mr. Skaling explained the intent is that the wedge for the over-served regions should not grow over 22% and there were not enough Railbelt projects to grow that wedge. Ms. Fisher-Goad informed placing the \$1.5 million cap on the recommended projects, particularly in Southeast, has increased project eligibility and has allowed more projects to be funded while maintaining the regional spread.

Senator MacKinnon expressed her appreciation to staff for reviewing the comments and offering a new system, as directed, to address regional spreading. She expressed concern and disagrees with partially funding feasibility studies and entry level projects. Senator MacKinnon expressed disagreement with the cap of \$1.5 million because she believes this will inadvertently allow projects to begin, without having the full amount of funding necessary to complete the project. She requested the record reflect the methodology used has projects qualify that may not have risen to the top otherwise.

Mr. Rose asked whether staff knows if there are lines of credit available for the projects whose initial grant request was greater than will be received. He expressed concern regarding the possibility of projects abandoning their efforts because they receive less than requested, particularly the project who has been recommended for \$400,000 of a \$4 million request. Mr. Rose noted the cap and partial funding may not be as effective as anticipated.

Ms. Mitchell requested clarification and asked if the \$1.5 million cap was only for this round. Ms. Fisher-Goad stated staff shares the concerns regarding the \$1.5 million cap. The dynamic of funding the projects has changed because the budget decreased from \$20 million to \$15 million. Ms. Fisher-Goad does not believe the \$1.5 million cap is permanent. She advised none of the applicants have been given the opportunity to respond to the proposed funding amounts and provide feedback as to whether or not their grant amount is workable or will allow lines of credit.

Ms. Fisher-Goad requested the Legislature be asked to provide an indication of budget funding for the next round, in order to determine if a similar cap is necessary and to give notice to potential applicants. Ms. Fisher-Goad suggested discussing the option of providing authorization for a Power Project Fund (PPF) loan to those recommended projects who are capped at \$1.5 million or otherwise partially funded. Feasibility projects are eligible for PPF loans.

Representative Edgmon commented this is not an ideal situation because of the limited budget amount of \$15 million and the compressed timeframe to provide this recommendation to the Legislature within the statutory deadline.

Ms. Wasserman asked if there are ever project maintenance costs before project completion. Mr. Skaling agreed there may be maintenance costs before project completion. Ms. Wasserman believes project maintenance issues need to be addressed during this process. Mr. Skaling informed impacts of operations and maintenance are reviewed within the economic metrics for each project.

Representative Edgmon suggested moving forward with the current recommended list.

Chair Rose asked if staff is confident the projects with a cost/ratio of less than one can succeed. Mr. Skaling informed all projects on the recommended list are technically viable. The question is whether or not the projects are economically viable over their estimated 20-year lifespan and this is addressed during the design stage of the project.

Representative Millett expressed her unease regarding the potential effects of projects being stalled because of the \$1.5 million cap. She supports going forward with the recommended list and noted concern this may be setting up communities for some failure.

Ms. Mitchell echoed Senator MacKinnon's concerns and stated her inclination to fund the dollars requested for feasibility at closer to 100% rather than partial funding.

MOTION: A motion was made by Representative Edgmon to accept the recommended list as presented and provide it to the Legislature. Seconded by Representative Millet. The motion passed.

6. Next Meeting Date - May 14, 2015 10:00 a.m. to 2:00 p.m.

The next meeting is tentatively set for May 14, 2015. Representative Edgmon noted previous discussion regarding the next meeting to be held in a Southeast venue. Senator MacKinnon suggested reviewing budgets before determining the location of the next meeting. Chair Rose requested the meeting be held on May 13th if it is in Southeast. Mr. Skaling stated staff will review the meeting options and inform the Committee.

7. Committee Member Comments

Mr. Evans believes many good questions were raised and feels uncomfortable the recommendations were pushed out without having full answers to the questions. The Committee set criteria for staff to review the issues and some of the regional spreading objectives were achieved, yet it created new problems. Mr. Evans noted practically everybody on the Committee had some issue with the recommended list and it would not have been pushed out if this discussion occurred in a boardroom. He expressed feeling awkward about the actions during this meeting.

Mr. Reeve believes more discussion needs to occur on the new criteria, especially regarding caps and additional funding for projects, including bonds or loans.

Ms. Fisher-Goad expressed her appreciation for the Committee comments and noted work will continue with the senators and representatives as the recommended list moves to the legislative arena. Additional discussion will occur regarding partial funding. Ms. Fisher-Goad hopes concerns and questions will be answered in Round 9.

Chair Rose expressed his appreciation to staff for their work.

Ms. Auld requested to ask a clarifying question regarding Senator MacKinnon's comments. Ms. Auld asked if the partially funded grants reduce the scope of work in the grant agreement or if the community accepts and sign a partially funded grant agreement, including the full scope of work. Mr. Skaling answered for staff, noting partially funded grants are for a reduced scope of work. The recommended projects indicated by the double asterisks are partially funded due to the cap and additional money would be needed for those projects to advance.

Senator MacKinnon clarified her concerns regarding a feasibility study receiving partial funding. She believes it is important for feasibility and design work to be fully funded so the projects can continue moving forward. Senator MacKinnon informed she will work staff to ensure the understanding of each project funding before it is advanced.

8. Adjournment

The meeting was adjourned at 5:03 p.m.

Renewable Energy Fund Advisory Committee Meeting
January 9, 2015
Alaska Energy Authority Board Room
Anchorage, Alaska
10:02 a.m. to 2:15 p.m.
DRAFT MINUTES

1. Call to Order

The Renewable Energy Fund Advisory Committee (REFAC) convened at 10:02 a.m., with Chair Chris Rose presiding. There was a quorum.

2. Roll Call (committee members, staff, public)

Committee Members Present

Meetings Attended of Total Meetings

Chair Chris Rose	4 of 4
Representative Bryce Edgmon	4 of 4
Brad Reeve (phone)	4 of 4
Bradley Evans (phone)	2 of 4
Senator Lyman Hoffman	4 of 4
Senator Anna MacKinnon	3 of 4

Committee Members Not Present

Meetings Attended of Total Meetings

Jodi Mitchell	3 of 4
Kathie Wasserman	2 of 4
Representative Charisse Millett	2 of 4

AEA Staff Present: Alan Baldivieso, Shawn Calfa, Josh Craft, Sara Fisher-Goad, Emily Ford, Daniel Hertrich, Yolanda Inga, Cady Lister, David Lockard, Sandra Moller, Devany Plentovich, Sean Skaling, Rich Stromberg (phone), Unidentified Speaker, and Unidentified Speaker.

Other Participants Present: Miranda Studstill, Accu-Type Depositions; Anna Sattler, Alaska Village Electric Cooperative (AVEC); Erin Whitney, Alaska Center for Energy and Power (ACEP); Eric Hanssen, Dan Reitz, ANTHC; Ron Vecera, Chugach Electric; Jason Jussup, City of Kotzebue (phone); Randy Walker, City of Kotzebue (phone); Clay Koplun, Cordova Electric Cooperative (phone); Chelsea Ward-Waller, Denali Daniels & Assoc.; Rachel Gaoidhas (sp), Governor's Office; Doug Johnson, Ocean Renewable Power Company (ORPC); Adam Berg, Representative Edgmon's Office; Jeff Turner, Representative Millett's Office; Pat Walker, Senator Hoffman's Office (phone); Emma Kelly, Stantec; Kord Christianson, TDX Power; and Peter Crimp, Crimp and Associates (phone).

3. Agenda Approval

MOTION: A motion was made by Representative Edgmon to approve the agenda. Seconded by Senator Hoffman. The agenda was approved.

4. Public Comments

Doug Johnson of ORPC expressed his appreciation to the Committee members. He informed the project in Igiugig is an extremely successful operation and has funding for the 2015 season. Mr. Johnson discussed modeling has shown turbine performance improvements of up to 30% can be implemented. This emerging technology industry is in a very precarious position and needs to continue working in the public/private partnership to bring this technology into the marketplace. Mr. Johnson believes it is important to learn more information about how to integrate renewables with the microgrid to help build the economy.

Chair Rose asked if Mr. Johnson has any recommendations how the REF Committee could help. Mr. Johnson stated ORPC is between an emerging technology company and a commercial technology company. The Emerging Energy Technology Fund (EETF) was instrumental to ORPC and funded their programs. Mr. Johnson noted ORPC is not yet eligible for REF funding, which places them in a precarious position until eligibility in 2016.

Erin Whitney informed she oversees ACEP's data collection efforts for EETF and REF projects. She expressed appreciation to AEA for their interactions with ACEP. Ms. Whitney noted a reimbursable services agreement (RSA) was in place at the beginning of the summer to begin infrastructure development for the data collection and management program. She believes there is an intention to fund a second RSA for field deployment of these data collection and management efforts for current REF projects. Ms. Whitney informed ACEP would like to help AEA demonstrate requirements to the Legislature, justifying the programs and showing the value of the projects. She requested an update on that process.

Senator Hoffman asked if there are more than two RSAs. Ms. Whitney stated she does not know the sequence of RSAs.

Kord Christianson of TDX Power informed they operate five utilities around the state. Two of those are wind-diesel and can be operated in the wind-only mode with the diesel off. EETF funding has provided TDX with a flywheel energy storage system, which should increase the wind-only mode by an additional 10% to 15%. Mr. Christianson explained dispatchable loads are necessary to operate 100% diesel-off. He encouraged the Committee to review renewable combined heat and power projects as a key element for the success of high wind penetration systems. Mr. Christianson provided a handout to the Committee showing a snapshot of five years' of operations data.

5. Approval of Meeting Minutes - September 22, 2014

MOTION: A motion was made by Senator Hoffman to approve the meeting minutes from September 22, 2014, Renewable Energy Fund Advisory Committee meeting. Seconded. The minutes were approved.

6. REF Program Update

Mr. Skaling informed all of the information regarding today's meeting is on the AEA website under the REF grant program links. Mr. Skaling provided a detailed PowerPoint presentation entitled Preliminary Status Update. AEA is in the process of compiling the updated information to present during the annual status report to the Legislature for the January 30th delivery date. A map of all the REF projects from Rounds I through VII was shown. The overall program benefit/cost ratio is 2.8. A map of the recommended projects from Round VII (R7) was shown. The bold numbers indicate recommended projects within the \$15 million Governor's budget and the lighter numbers indicate recommended projects outside the \$15 million Governor's budget. There have been 732 applications received through R7 and 277 were funded. Currently, there are 122 grants in place. Approximately \$250 million has been appropriated to date.

Mr. Skaling explained the pie charts depicting R1-7 funding amounts by size, and in terms of energy source, wind, hydro, and biomass were the largest. In terms of phase, construction, feasibility, and design were the largest. In terms of the regions of the state, Southeast is the largest, with the remaining regions represented fairly evenly. The applications received for R1-7 were predominantly wind, hydro, and biomass. For R8, the applications received were predominantly hydro, biomass, wind, and an increasing amount of heat recovery.

Mr. Skaling explained the pie chart on slide 13 depicting all R8 recommended applications by funding size, and in terms of energy source, hydro, biomass, and wind were the largest. In terms of phase, construction and design are the largest. In terms of applications from regions of the state, Southeast is the largest, with the remaining regions represented fairly evenly. In terms of funding size by region, Southeast and Yukon-Koyukuk/Upper Tanana are the two largest, followed by the Lower Yukon-Kuskokwim. Mr. Skaling reported on the slide showing the summary of community assistance provided for each project.

Representative Edgmon commented he attended the Rural Energy Conference in Fairbanks. It was obvious to him REF is playing a large and important role in Alaska, providing savings and tangible benefits to Alaskans. This deserves recognition and legislative discussion to keep the program moving forward, especially in light of the current budget reductions the state is facing.

Chair Rose requested information outlining indirect benefits of the program, including job creation and economic activity. He noted ISER and other organizations are capable of providing that type of analysis.

Senator MacKinnon requested an electronic version of the REF Preliminary Status Report presentation. Mr. Skaling agreed to provide an electronic version to members.

7. REF/PCE Interactions

Mr. Skaling introduced Ms. Lister, AEA's lead economist, who provided a detailed PowerPoint presentation entitled REF/PCE Interactions, Incentives, Illustrations. The PowerPoint is included on the AEA website under the REFAC Meeting 1/9/15 link. Ms. Lister advised this presentation is in response to the mis-perception that the state PCE program is the primary beneficiary of

savings associated with REF projects built in PCE communities. The presentation clarified the impacts of REF projects on PCE. Ms. Lister reviewed the PCE program, summarized the characteristics of eligible communities, discussed what happens when a REF project is introduced, and explained the distribution of REF project savings.

There are currently 188 communities who benefit from approximately \$40 million in annual disbursements. Approximately 28.5% of all kWhs sold are eligible for PCE. This is a weighted average across all PCE communities. Approximately 40% of all kWhs sold are PCE eligible on an unweighted PCE community average. Communities with small populations tend to have a higher percentage of eligible kWhs. Ms. Lister provided PCE definitions. The base rate is the weighted average cost per kWh in Anchorage, Fairbanks, and Juneau. This is calculated annually and currently is \$0.1482. The PCE level is the state subsidy per eligible kWh, which is calculated by the Regulatory Commission of Alaska (RCA) for each community. RCA primarily uses either cost-based or rate-based calculations. The effective rate is the cost per kWh the customers will actually pay for each PCE eligible kWh.

Ms. Lister explained REF projects create price stability, protecting against uncertain and uncontrollable diesel prices in the community. There is a potential for increases in non-fuel costs when a renewable energy project comes online in a community. The PCE level for that community is expected to change and depends on the ratio between PCE eligible and ineligible kWhs. In 2013, there were 26 generating REF-funded energy projects in PCE communities. Of those, 19 were electric and seven were heat. Eighty generating REF projects in PCE communities, 38 electric and 42 heat, are anticipated in five years. The large majority of savings associated with REF projects are being felt by rate payers or by facilities that benefit from heat projects. The REF projects also provided an estimated savings of \$1.7 million to the state PCE program.

Ms. Lister reported statewide energy consumption percentages and noted the Railbelt at 77%, Southeast at 13%, Kodiak at 2%, and the entire remainder of the state at 8%. REF funds are invested heavily in PCE communities in a larger number of small projects, covering 70% of the total project costs. REF investments outside PCE communities are in a fewer number of big projects to serve the much greater energy demands of those communities, covering 31% of total project costs, not including direct appropriations by the state. Of the 37 currently generating REF-funded projects, 26 are in PCE communities and 11 are in non-PCE communities. Most of the savings comes from Anchorage Landfill Gas, Eva Creek, and Pillar Mountain projects.

Representative Edgmon asked how much of the funds stay in Anchorage or other populated areas to cover costs like administration and construction design. Ms. Lister noted the capital investment includes expenditures outside the project communities for services including consultants and engineering firms. The savings shown are place-based community savings, not including the PCE retained savings.

Chair Rose noted the slide stating \$75.6 million of state funds were spent on 37 projects. He asked if Ms. Lister knew how much additional non-state investment were spent on those 37 projects. Ms. Lister stated she has that number, but not with her today and will provide that to the Committee. It is a substantial amount. She believes approximately 50% of the total investment in

non-PCE communities has been private investment and approximately 30% of the total investment in PCE communities has been private investment.

Ms. Lister advised 100% of the savings from heat projects stay in the community. In 2013, the seven operating REF-funded heat projects saved an estimated \$1.3 million in displaced heating fuel costs in addition to creating local jobs. This year, there will be 22 operational REF-funded heat projects, including biomass, heat pumps, and heat recovery.

Senator Hoffman requested Ms. Lister review his question and provide an answer at a later date. He stated customers in communities in the YK Delta report the utilities have included fuel surcharges for years. The customers believe there could be substantial electric savings if the fuel surcharges were added to the base of the operations of the utility. Senator Hoffman requested an analysis of possible community savings if the fuel surcharges were included in the operation of the utility. He asked if the current fuel surcharge system is a result of the utilities not asking the RCA for approval or is a result of RCE not responding in a timely manner. Senator Hoffman believes the intent of the PCE program is not being fully implemented. He asked if this issue can be addressed administratively by the utilities and RCA, or if legislative policy action is necessary.

Ms. Lister stated she will review the issue and work with RCA. Ms. Fisher-Goad informed a series of meetings between AEA and RCA regarding PCE issues is ongoing and she will discuss the calculation structure of the fuel surcharge.

8. Wind to Heat Evaluation

Mr. Skaling commented Ms. Lister has done a great job delving into questions posed to AEA regarding the wind to heat analysis. This model can be used to factor in the specifics in any one community to see what is most cost effective. AEA is also using this model to take overall view of the cost effective curve of renewable energy projects across the state.

Ms. Lister gave an overview of the document provided entitled Cost Effectiveness of Using Excess Wind Power for Residential Heat. The purpose of the analysis is to provide effective guidance to communities. The amount of REF project applications received using excess wind power for residential heat has increased, but is still pretty new in rural Alaska. AEA has convened two meetings with stakeholders, including AVEC, Intelligent Energy Systems (IES, the Institute of Northern Engineering (INE), ACEP, RCA, and members from the Chaninik Wind Group.

Ms. Lister advised this evaluation looks at the project cost effectiveness using three scenarios, including the full cost of the systems, but not including the cost of the turbine or any necessary powerhouse upgrades. There is not widespread agreement regarding the cost of these systems. AEA is using the best information available. This analysis shows the economics of using excess wind for heat in residential units and appears challenging under most circumstances in which utilities or private parties are paying for the capital expenditures. If the project is grant funded, with no community capital cost, the project would absolutely be cost effective because there is no debt service and the rate could be set below the cost of diesel. It is important to have site-specific information for a complete evaluation.

Chair Rose requested additional review of communities with high excess wind and high costs of heating diesel fuel and what it would look like to spread the institutional costs to get economies of scale. Ms. Lister stated she will review that type of scenario, but does not believe small communities would have an ability to largely reduce the capital expenditures. Chair Rose asked if more information and data points would be helpful to this analysis. Ms. Lister noted the low number of data points relates to the fact not many systems have been built.

9. REF Evaluation Process

Mr. Skaling noted the Committee has been provided with the evaluation guidelines and the detailed review process document. This document is also posted on the website. Mr. Skaling requested comments from the Committee and Committee approval of these guidelines. Mr. Skaling explained the stages of review. He informed AEA reviewed 67 applications for REF Round VIII through Stage 1. Thirty-two of the applications did not pass the Stage 2 review for recommendation, and six of those are in the appeal process. Stage 3 is the process of ranking the projects in funding priority. The criteria used in this stage is outlined in statute, regulations and in the RFA. Stage 4 is the process of regional spreading, to determine if a region is underrepresented in the cumulative total since the beginning of the REF. This allows AEA to more evenly distribute funds across the state.

Mr. Skaling noted the document describes responsibilities of each step of the process, the actual scoring criteria and weighting. He advised there have been a few title changes in the document and a few changes to the language have been made, making it more clear and understandable.

Mr. Reeve commented it is helpful to review and update the evaluation process on a regular basis.

Mr. Evans asked if this document outlines proposed changes for the next round or if these proposed changes were used in the current evaluation process. Mr. Skaling noted these guidelines were used for the current year. Mr. Evans asked if the ground rules have changed for the current applicants after they have submitted their application. Mr. Skaling informed the ground rules are established in the RFA, in regulations, and in statute. Mr. Evans asked why the applicants are not being told about the changes. He stated the proposers need to know the rules before they apply. Mr. Skaling said he would like to publish this document at the same time as the RFA. The RFA does have the specific criteria for the proposer, but not in as much detail. Mr. Evans recommended making changes to the evaluation guidelines in advance of the application submittals and then not entertaining any changes to the guidelines during the application process, unless the circumstances are overwhelming. Mr. Skaling agreed and noted that is the plan for next year. He informed this has been the process historically, and believes it makes more sense to change the timing of the process to make any alterations to the guidelines before the application process begins.

Representative Edgmon asked if there is interfacing with the Division of Regional Affairs or local government specialists in this process, specifically regarding training and outreach. Ms. Fisher-Goad noted much communication has occurred with the local government specialists and technical assistance outreach has been provided. She believes AEA's community assistance team has done a very good job, but there is always room to have better communication and more coordination

with other agencies. Representative Edgmon asked if these are general fund positions. Ms. Fisher-Goad answered affirmatively.

Senator Hoffman advised one of the main provisions of the legislation was to try to lower the cost of energy in those areas that have the highest energy costs in the state. He does not believe the intent of this program is working. The chart on page 22 of the presentation indicates the region with the lowest cost of energy, Southeast at .15 cents per kWh, has received the most funds at \$62 million, and the four highest cost regions, Yukon-Koyukuk at .62, Yukon-Kuskokwim at .56, Bristol Bay at .54, and Northwest Arctic at .53 cents per kWh, have received \$20 million each. Senator Hoffman commented he has requested recommendations from AEA over the last five years regarding this same issue. He asked for additional recommendations from AEA to get this program on course to address those areas of the state that have the highest energy costs.

Mr. Skaling advised AEA analyzed this issue last year and believed it was presented at a Committee meeting. He noted the chart on page 22 regarding the Southeast region is misleading. AEA split Southeast into high cost areas and low cost areas. All, but one, of the current recommendations for Southeast are in the high cost areas. The vast majority of the \$62 million has gone to the high cost areas of Southeast.

Senator Hoffman suggested the revised numbers be reflected in the charts for clarity. He noted even if the Southeast energy costs were .50 cents per kWh, Southeast is still at a much higher funding level than the four highest energy cost areas of the state. The funding amounts for the four highest energy cost areas of the state need to be increased. Senator Hoffman recommended including both cost of kWh and heating cost in the calculation of total energy costs.

Mr. Skaling informed AEA reviewed the alternative of separating electric and heat. He noted the calculations are complex and netted similar results. It was determined the electric rates are a very good indicator of the heat rates.

Mr. Evans commented it is possible the areas with the highest cost of energy submitted few or no applications, which would cause a decreased results number. He suggested addressing what it would take to get high quality and volume proposals out of the high energy cost areas so they have a better chance of getting the money that is meant to go to those areas.

Senator MacKinnon expressed appreciation to staff for their work on the proposed methodology. She agrees the applicants should know as much of the evaluation criteria as possible, but it is important to have the advisory opinion at this stage of the process. Senator MacKinnon requested staff discuss how they can mitigate the high cost of energy area projects to fall within the criteria. She stated she was elected from an urban population to represent all Alaska.

Ms. Fisher-Goad advised AEA also works with communities to address basic energy infrastructure, where it is needed, before a renewable energy source is considered. AEA works with communities holistically through the regional energy planning process and with the new affordable energy process effort. This program is very important and has a tremendous amount of impact, but it is one of several things AEA tries to do to address the energy needs in a community.

Senator MacKinnon asked if the Committee will receive an update on the regional energy plans. She requested to know the status of completion for each region. Senator MacKinnon commented it is important to her to know how much diesel and carbon a project is displacing, which will contribute to better air quality throughout the state.

Representative Edgmon requested AEA elaborate on the impediments and limitations of the smaller communities with regards to the REF application process. He asked if the challenge is because the smaller communities do not have the capacity or the technical wherewithal to submit an application. Ms. Fisher-Goad informed this program is targeted to the high cost areas, with the most weight to the high cost areas. The statute also weights the projects significantly for match and significantly for regional spreading. It is a complicated scoring process. AEA follows the intent of the program while selecting solid technical projects statewide. Ms. Fisher-Goad noted there are some local issues with capacity. Ms. Moller's group performs infrastructure development and project management to ensure AEA is more directly involved in the development of certain projects. AEA has to work at the local capacity to ensure the community is ready to accept the responsibilities, such as operations and maintenance, on a system coming into the area. Ms. Fisher-Goad stated AEA will research and review the impediments to receiving good applications and provide that information to legislators to determine what additional help is needed on the local level.

Representative Edgmon appreciated the response. He expressed his concern that some of the current staff infrastructure could be in jeopardy because of budget cuts.

Senator Hoffman requested an analysis of the four communities with the highest electrical costs over \$1.00 and note if those communities have received any assistance from AEA or any REF grants. He believes a common thread for the high cost communities is remote area and a very small population.

Senator MacKinnon suggested Senator Hoffman's original question be placed on the agenda for the next meeting, so it can be discussed and have a higher level of reference. Senator Hoffman noted another factor to review is the amount of the average disposable income in a community being spent on energy. Senator MacKinnon requested more information from Ms. Fisher-Goad regarding what is specifically being done in small communities with state funding. If budget pull-backs occur, Senator MacKinnon wants to ensure those pull-backs do not affect the sole assistance the communities receive. Senator MacKinnon stated her staff will be contacting Ms. Fisher-Goad. She noted AEA and AIDEA are on the agenda early in the session to provide that type of report.

Chair Rose requested a report at the May meeting describing the resources in the different regions. He also requested a list of the completed projects that are actually producing energy, heat or electricity, showing the estimated diesel savings and carbon benefits for each project on a per year basis. Chair Rose requested the amount of leveraged funding received from this state program. Senator MacKinnon believes the Senate Finance Committee would like to know where the state investment makes the largest difference for individual people and cost savings for communities.

Mr. Evans commented he was not suggesting the rules be changed for scoring, rather that the problem was outside the scoring process and separate from this program.

MOTION: A motion was made by Representative Edgmon to adopt the draft methods of proposed evaluation and grant recommendations dated January 9, 2015, included in the Committee packet. Seconded by Senator MacKinnon.

Senator Hoffman commented he is inclined to vote yes, but if he votes no, then maybe some action on this issue will occur. He hopes he will not have these same concerns next year. Senator Hoffman informed the legislation was rewritten and the Senate Finance Committee made a few minor amendments on the floor. This legislation has made drastic change to many people's lives in Alaska and there are many more still struggling.

The motion was approved without objection.

10. Lunch Break: 11:56 a.m. to 12:21 p.m.

11. EETF/REF gap discussion

Mr. Skaling advised this issue has been included on the agenda for discussion purposes and to inform the Committee of the issues surrounding the two programs. The EETF received diversified applications and filled a gap to develop new energy technologies, including renewables. The EETF is intended to fund technologies that are expected to be commercial within about five years. The REF is a competitive program for known, understood, and producing technologies. Hydrokinetic is one of the technologies that fall within the gap between EETF and REF programs. Mr. Skaling asked if the REF should be reaching back to those technologies within the gap to advance projects that could be viable into the future or if the EETF should try to fill the gap and push forward the promising technologies for Alaska.

Chair Rose informed this Committee reviewed this issue a couple of years ago and decided it would make sense for the REF to fund resource assessments for tidal wave and hydrokinetics because the EETF specifically does not fund resource assessments. That was one clear gap that has been resolved. Chair Rose believes the primary issue is determining how to nurture this industry that Alaska has first-mover advantage in, with the competitiveness of these programs and less funding available.

Senator MacKinnon stated she does not see where additional funds would come from and does not want to see a decrease of REF project funds. She expressed understanding of the gap, but the current fiscal situation does not seem to allow for new money becoming available, without reducing or diverting monies from other programs.

Mr. Evans noted it sounds like the technologies within the gap need an angel source of funding and he would have a hard time displacing a project that could actually produce kilowatt hours and diluting the goals and efforts of the existing program to provide angel funding.

Ms. Fisher-Goad stated AEA has seen good companies working on hydrokinetics in the state who are showing significant progress, but AEA does not believe REF is necessarily the right program to continue to advance this technology. Ms. Fisher-Goad noted there is great value in the

hydrokinetic technology and ACEP has done a great job in their work, but it is not fitting very nicely into the REF program. She expressed recognition there is a gap and it is an issue.

Senator MacKinnon asked if ORPC is the entity who falls within the gap. Mr. Skaling agreed ORPC is one of a few companies who have made the request to address this issue. Their request is for \$2 million.

Chair Rose discussed the possibility of getting the Department of Energy or other entities to provide matching funds for the EETF. Alaska has a unique situation to develop this hydrokinetic technology because of the actual need and resource. Representative Edgmon requested a briefing from an EETF committee member to learn more about the program and see if there is a possibility for EETF and REF to work in tandem.

Mr. Reeve believes there needs to be more funding for emerging energy technologies. It is important to have separation between EETF and REF. The REF program needs to implement fully mature technologies to provide the best chance of success.

12. Round VIII Recommendations

12A. Heat and Standard List Review

12B. Regional Spreading

12C. Committee Recommendations to AEA

Mr. Skaling discussed the REF R8 funding recommendations for the heat and standard applications. The three spreadsheets show heat applications only, standard applications only, and heat and standard applications combined. The top darker colored sections for the heat and standard applications lists are recommended in ranked order and fall within the Governor's \$15 million budget. The lightly colored sections in the middle are recommended, but fall outside the budget. The bottom white section of listed projects are not recommended.

For each project, the Committee packet contains a two-page project description, including the recommendations and comments of economists, DNR, and AEA, as well as the Stage 3 scoring. The soft goal set for this year was to have 30% of the total funding toward heating projects. That goal has been exceeded and approximately 50% of the total funding recommended is for heating projects.

Chair Rose disclosed a staff member of Renewable Energy Alaska Project (REAP) provided technical assistance on the Hoonah Indian Association's application. This is a recommended project. REAP has no financial interest in the project.

Mr. Evans asked if the infrastructure being heated is assessed during the evaluation and does that have any scoring consideration. Mr. Skaling informed the infrastructure being heated is evaluated and higher scores are given for energy efficiency measures completed or promised. The engineering estimates do consider production, heat loads, and demand loads, but does not use a standard benchmark. Ms. Plentovich advised the energy efficiency is weighed into the scoring, but a project will not be eliminated if there is need for energy efficiency work.

Chair Rose asked if staff has considered increasing the scoring weight for energy efficiency measures. Mr. Skaling stated the energy efficiency requirements have increased over the last couple of years, mainly giving more points for having performed efficiency measures. Mr. Skaling believes the requirements could still increase and would like to implement those changes slowly. He requested the Committee provide recommendations at the next meeting for next year's request for applications.

Mr. Evans asked if there is an evaluation or ranking of the sustainability of the biomass source. Mr. Skaling advised sustainability of the biomass source is required to be included in the plan.

Mr. Skaling explained the project phases are reconnaissance, feasibility (including conceptual design), final design and permitting, and construction. Some possible different ways to measure regional balance include total dollars per region equally, weighting by population, and weighting by cost of energy. The current method is weighting by cost of energy.

Senator MacKinnon requested the Committee have a high level conversation about whether the focus should be on completing construction projects already in the queue, rather than investing in design projects that may not be funded over the next 24 months due to budget cost cutting.

Chair Rose believes that high level discussion should occur in May and the Committee can determine whether or not to support feasibility studies in the next round.

Mr. Evans suggested the total cost of energy, combined heat and electricity, should be part of the scoring criteria for the next round.

Senator MacKinnon asked if AEA has pursued a federal energy match for REF or EETF programs based on the historic investment. Ms. Fisher-Goad noted the high cost RUS grants have been very effective on funding coming in for powerhouses. The Denali Commission has federal dollars for funding bulk fuel tank farms for the high cost areas. The federal money coming in is not particularly for the REF or EETF programs, but more on the preparation and development of some of the initial work on the projects. Ms. Fisher-Goad believes the Tribal Energy Office has done a very good job in the state to coordinate with some of these projects. She believes AEA could take advantage of additional federal funding opportunities.

Chair Rose asked if average weather temperatures of a region for heating needs are factored as part of the scoring equation. Mr. Skaling noted the cost of fuel is part of the economic evaluation and not the weather temperatures. Chair Rose suggested discussing this issue further in the May meeting.

Chair Rose asked if staff can report on the track record of projects that have been funded in the past that started out with a B/C ratio of less than one. Mr. Skaling stated he cannot provide a specific answer at this meeting.

Ms. Fisher-Goad requested the Committee provide staff with specific direction and recommendations regarding the objective criteria going forward, for example not recommending projects with a B/C of less than one or not recommending feasibility projects. She noted the B/C

ratios for feasibility projects have a low range of accuracy and have previously suggested feasibility projects do not include a B/C ratio or at least get explained with an asterisk. Ms. Fisher-Goad believes the best place for state grant funds are the feasibility and design projects, because loan programs do not typically provide funding for that initial risk. Loan programs provide funding for construction projects where a revenue stream is available to pay off debt.

Senator Hoffman noted two other recommendations for consideration; 1) do not fund projects above the \$1.5 million level, and 2) no region should exceed their equal regional funding percentage.

Senator MacKinnon suggested criteria consideration for the amount of match provided and for a cost ratio above one.

Mr. Evans requested the criteria incorporate efficiency measures to evaluate the production of energy per dollars spent.

Mr. Reeve believes with the reduced funding available, it makes sense to fund the best construction projects and get those functioning to show the Legislature the state's money is being invested wisely.

Representative Edgmon suggested the cost of energy be given more weighting in the scoring process.

Chair Rose suggested identifying a specific match amount, depending on the size of the community and their ability to pay. Chair Rose agreed with Ms. Fisher-Goad that if the REF budget decreases, for example to \$5 million, the best use of the funds would be to provide risk capital to communities, who could then go out for private loans for construction. Chair Rose recommended further discussion on this issue at the May meeting.

Senator MacKinnon asked if Ms. Fisher-Goad has spoken with the Governor's Administration to ensure grant funding for this program is still available, given the deficit the state is facing. Ms. Fisher-Goad stated the REF funds are currently in the operating budget and she has not had any recent conversations with OMB regarding operating budget reductions.

Senator MacKinnon requested staff take the comments made by the Committee and provide objective ways to balance the project recommendations so the Southeast region is not overrepresented. She suggested a specific percentage of the projects be in the risk capital feasibility stage.

Chair Rose suggested the staff create scenarios based on the Committee's recommendations to present to the Legislature that would include, for example, a recommended list with no feasibility projects, a list with no benefit/cost ratios below one, and a list of an increased amount of electric projects. Ms. Fisher-Goad believes that would be a good start to provide the Legislature with additional filters from which to choose, and the easiest scenario to create is the regional spreading. She commented there is a great deal of difference between the costs of electricity and heat in

Angoon and in Ketchikan. The concern is there are Southeast communities with very high energy costs.

Representative Edgmon requested the filters be created by REFAC to provide the best recommendations for this year and maintain the goal of having a more methodic process going forward in light of the budget reduction.

13. Next Meeting Date (May 11-14)

Senator MacKinnon discussed the short-term plan could be staff provide the current recommendation to the Legislature per the statutory deadline. She noted the Governor indicated a revised operating budget will not be released until February 18th. The REFAC could meet again in February, while staff is already in Juneau to testify in front of the Senate Finance Committee, to review the staff-prepared regional spreading suggestions for REFAC endorsement. Senator MacKinnon's staff could confirm the date with AEA and staff would inform REFAC.

Chair Rose agreed to the next meeting in February outlined by Senator MacKinnon. He informed the meeting will have a single agenda item to review staff recommendations on regional spreading.

A subsequent meeting was tentatively scheduled for May 14th, 2015.

14. Committee Member Comments

Mr. Evans expressed appreciation to staff for accommodating his questions.

Senator MacKinnon expressed appreciation to staff for their work in helping the Legislature make better decisions.

Representative expressed appreciation for all of the work during this meeting and difficult process.

Mr. Reeve expressed appreciation to staff for their diligent work. He noted concern regarding the grant budget reduction from \$50 million to \$25 million to \$15 million. It is important to discuss how to provide the greatest benefit possible for the decreasing available funds.

Mr. Skaling expressed appreciation to the Committee for the tough and important discussion on how to improve the program.

Ms. Fisher-Goad stated she looks forward to the continued discussion.

Chair Rose echoed the comments to staff regarding their dedication and hard work.

15. Adjournment

The meeting was adjourned at 2:15 p.m.

Awarded Renewable Energy Fund Projects

Project	Grantee	Phase	Resource	Energy Region	REF Cost	Total Project Cost*	Expected Completion	Status
Little Gerstle Hydro Assessment	Golden Valley Electric Association	Reconnaissance	Hydro	Railbelt	\$60,000	-	-	Inactive
Kisaralik/Chikuminuk Hydro	Association of Village Council Presidents	Reconnaissance	Hydro	Bristol Bay	\$229,952	-	-	Inactive
Carlson Creek Hydroelectric	Alaska Power Company	Reconnaissance	Hydro	Copper River/Chugach	\$8,811	-	-	Inactive
Homer Water System Hydro Assessment	City of Homer	Reconnaissance	Ocean/River	Railbelt	\$31,200	-	-	Inactive
Adak Diesel Hybrid	TDX Adak Generating, LLC	Reconnaissance	Other	Aleutians	\$76,369	-	-	Inactive
Kotzebue Paper and Wood Waste to Energy Project	City of Kotzebue	Feasibility	Biofuels	Northwest Arctic	\$66,578	-	-	Inactive
Kaltag Biomass Hydronic Heating	Yukon-Koyukuk School District	Feasibility	Biomass	Yukon-Koyukuk/Upper Tanana	\$12,710	-	-	Inactive
Cordova Community Biomass	Native Village of Eyak	Feasibility	Biomass	Copper River/Chugach	\$63,999	-	-	Inactive
Pilgrim Hot Springs	University of Alaska Fairbanks	Feasibility	Geothermal	Bering Straits	\$1,330,243	-	-	Inactive
Sitka Renewable Energy Study for Water Treatment Plant	City and Borough of Sitka	Feasibility	Geothermal	Southeast	\$16,699	-	-	Inactive
Tenakee Inlet Geothermal Resource	Inside Passage Electric Cooperative	Feasibility	Geothermal	Southeast	\$568,730	-	-	Inactive
Falls Creek Low-Impact Hydro	Homer Electric Association, Inc.	Feasibility	Hydro	Railbelt	\$50,000	-	-	Inactive
Crescent Lk/Crk Low-Impact Hydro	Homer Electric Association, Inc.	Feasibility	Hydro	Railbelt	\$23,273	-	-	Inactive
Ptarmigan Lk/Crk Low-Impact Hydro	Homer Electric Association, Inc.	Feasibility	Hydro	Railbelt	\$4,684	-	-	Inactive
Whittier Creek Hydroelectric	City of Whittier	Feasibility	Hydro	Railbelt	\$39,471	-	-	Inactive
Burro Creek Hydro	Burro Creek Holdings, LLC	Feasibility	Hydro	Southeast	\$48,000	-	-	Inactive
Ruth Lake Hydro	City of Petersburg	Feasibility	Hydro	Southeast	\$155,702	-	-	Inactive
Nushagak Area Hydropower Project	Nushagak Electric and Telephone Cooperative	Feasibility	Hydro	Bristol Bay	\$1,873,223	-	-	Inactive
Fourth of July Creek Hydroelectric Project	Independence Power, LLC	Feasibility	Hydro	Railbelt	\$136,500	-	-	Inactive
Grant Lake Hydroelectric Facility	Kenai Hydro, LLC	Feasibility	Hydro	Railbelt	\$1,184,000	-	-	Inactive
Hunter Creek Hydroelectric Project	Eklutna, Inc.	Feasibility	Hydro	Railbelt	\$84,000	-	-	Inactive
Eska Creek Hydroelectric Project	Bering Pacific Engineering	Feasibility	Hydro	Railbelt	\$14,408	-	-	Inactive
Jack River Hydroelectric	Native Village of Cantwell	Feasibility	Hydro	Railbelt	\$30,000	-	-	Inactive
Schubee Lake Hydroelectric Project	Alaska Power Company	Feasibility	Hydro	Southeast	\$74,191	-	-	Inactive
Aleutians East Borough	Aleutians East Borough	Feasibility	Other	Aleutians	\$25,000	-	-	Inactive
Wrangell Electric Vehicle Feasibility Study	City and Borough of Wrangell	Feasibility	Other	Southeast	\$25,000	-	-	Inactive
Lime Village Photovoltaic System Retrofit	Lime Village Traditional Council	Feasibility	Solar PV	Lower Yukon-Kuskokwim	\$25,000	-	-	Inactive
Bethel Wind Farm Construction (BNC land)	Village Wind Power LLC	Feasibility	Wind	Lower Yukon-Kuskokwim	\$6,960,000	-	-	Inactive
Nunam Iqua Wind Power Study	City of Nunam Iqua	Feasibility	Wind	Lower Yukon-Kuskokwim	\$34,320	-	-	Inactive
Tok Wind Resource	Village Wind Power LLC	Feasibility	Wind	Yukon-Koyukuk/Upper Tanana	\$130,000	-	-	Inactive
Chignik Lake Area Wind-Hydro	Lake and Peninsula Borough	Feasibility	Wind	Bristol Bay	\$74,851	-	-	Inactive
Tatitlek Wind/Hydro	Tatitlek Village IRA Council	Feasibility	Wind	Copper River/Chugach	\$51,974	-	-	Inactive
Delta Junction Wind	Alaska Wind Power, LLC	Feasibility	Wind	Railbelt	\$65,412	-	-	Inactive
Nushagak Community Wind Power Project	Nushagak Electric and Telephone Cooperative	Feasibility	Wind	Bristol Bay	\$100,000	-	-	Inactive
Marshall Wind	Alaska Village Electric Cooperative	Feasibility	Wind	Lower Yukon-Kuskokwim	\$111,150	-	-	Inactive
Koyuk Wind	Alaska Village Electric Cooperative	Feasibility	Wind	Bering Straits	\$16,142	-	-	Inactive
Kake Biomass	Organized Village of Kake	Feasibility	Biomass	Southeast	\$175,000	-	-	Active
Wainwright Heat Recovery	North Slope Borough	Feasibility	Heat Recovery	North Slope	\$300,000	-	-	Active
Organic Rankine Cycle Field Testing	University of Alaska Fairbanks	Feasibility	Heat Recovery	Railbelt	\$472,787	-	-	Active

Project	Grantee	Phase	Resource	Energy Region	REF Cost	Total Project Cost*	Expected Completion	Status
Cold Bay Heat Recovery	G & K Electric Utility	Feasibility	Heat Recovery	Aleutians	\$30,000	-	-	Active
Takatz Lake Hydroelectric	City and Borough of Sitka	Feasibility	Hydro	Southeast	\$2,000,000	-	-	Active
Connelly Lake Hydroelectric Project	Alaska Power Company	Feasibility	Hydro	Southeast	\$468,000	-	-	Active
Excursion Inlet Hydro Project	Haines Borough	Feasibility	Hydro	Southeast	\$93,593	-	-	Active
Triangle Lake Hydroelectric Project	Metlakatla Indian Community	Feasibility	Hydro	Southeast	\$500,000	-	-	Active
Gunnuk Creek Hydroelectric Feasibility Study	Inside Passage Electric Cooperative	Feasibility	Hydro	Southeast	\$80,000	-	-	Active
Statewide Hydrokinetic	University of Alaska Anchorage	Feasibility	Ocean/River	Railbelt	\$565,439	-	-	Active
Lake Pen Borough Wind Feasibility Study	Lake and Peninsula Borough	Feasibility	Wind	Bristol Bay	\$184,000	-	-	Active
Teller Wind Analysis	Alaska Village Electric Cooperative	Feasibility	Wind	Bristol Bay	\$117,610	-	-	Active
New Stuyahok Wind	Alaska Village Electric Cooperative	Feasibility	Wind	Bristol Bay	\$142,500	-	-	Active
Cold Bay Wind Energy Project	G & K Electric Utility	Feasibility	Wind	Aleutians	\$99,075	-	-	Active
Nelson Lagoon Wind Energy Project	Nelson Lagoon Electric Cooperative	Feasibility	Wind	Aleutians	\$99,075	-	-	Active
New Koliganek Wind Heat Recovery Project	New Koliganek Village Council	Feasibility	Wind	Bristol Bay	\$105,050	-	-	Active
Bethel Renewable Energy Project	TDX Power, Inc.	Feasibility	Wind	Lower Yukon-Kuskokwim	\$213,690	-	-	Active
Napaskiak Wind Power and Heat Recovery Project	City of Napaskiak	Feasibility	Wind	Lower Yukon-Kuskokwim	\$61,225	-	-	Active
Eek Wind Feasibility	Alaska Village Electric Cooperative	Feasibility	Wind	Lower Yukon-Kuskokwim	\$142,500	-	-	Active
Kwethluk Wind	Organized Village of Kwethluk	Feasibility	Wind	Lower Yukon-Kuskokwim	\$145,000	-	-	Active
Scammon Bay Wind	Alaska Village Electric Cooperative	Feasibility	Wind	Lower Yukon-Kuskokwim	\$142,500	-	-	Active
Kaktovik Wind Diesel	North Slope Borough	Feasibility	Wind	North Slope	\$132,000	-	-	Active
Selawik Hybrid Wind Diesel System Turbine Upgrade	Alaska Village Electric Cooperative	Feasibility	Wind	Northwest Arctic	\$85,000	-	-	Active
False Pass Wind Energy Project	City of False Pass Electric Utility	Feasibility	Wind	Aleutians	\$69,075	-	-	Active
Elim Wind	Alaska Village Electric Cooperative	Feasibility	Wind	Bering Straits	\$142,500	-	-	Active
Chefomak Wind	City of Chefomak	Feasibility	Wind	Lower Yukon-Kuskokwim	\$136,750	-	-	Active
Akiachak Wind	Akiachak Native Community/Akiachak Ltd.	Feasibility	Wind	Lower Yukon-Kuskokwim	\$110,000	-	-	Active
Levelock Wind Reconnaissance Study	Lake and Peninsula Borough	Feasibility	Wind	Bristol Bay	\$10,000	-	-	Active
Egegik Wind Feasibility Study	Lake and Peninsula Borough	Feasibility	Wind	Bristol Bay	\$60,000	-	-	Active
Chisana Mountain Wind Feasibility Project	Alaska Power Company	Feasibility	Wind	Southeast	\$119,000	-	-	Active
Chalkyitsik Biomass Central Heating	Chalkyitsik Village Council	Design	Biomass	Yukon-Koyukuk/Upper Tanana	\$32,500	\$41,603	-	Inactive
Venetie District Heating	Venetie Village Council	Design	Biomass	Yukon-Koyukuk/Upper Tanana	\$32,500	\$40,809	-	Inactive
California Creek Hydroelectric	Alaska Green Energy	Design	Hydro	Railbelt	\$27,300	\$30,000	-	Inactive
Neck Lake Hydro	Alaska Power and Telephone	Design	Hydro	Southeast	\$22,475	\$22,475	-	Inactive
Cosmos Hills Hydroelectric	Alaska Village Electric Cooperative	Design	Hydro	Northwest Arctic	\$1,025,000	\$1,075,722	-	Inactive
Old Harbor Hydroelectric	Alaska Village Electric Cooperative	Design	Hydro	Kodiak	\$237,500	\$250,000	-	Inactive
Hooper Bay Wind Farm	City of Hooper Bay	Design	Wind	Lower Yukon-Kuskokwim	\$60,179	\$60,179	-	Inactive
Atmautluak Wind Renewable Energy	Atmautluak Traditional Council	Design	Wind	Lower Yukon-Kuskokwim	\$100,000	\$100,000	-	Inactive
McGrath Biomass	McGrath Light & Power Company	Design	Biomass	Yukon-Koyukuk/Upper Tanana	\$322,000	\$385,000	-	Active
Upper Tanana Biomass CHP Project	Alaska Power and Telephone	Design	Biomass	Yukon-Koyukuk/Upper Tanana	\$400,000	\$460,000	-	Active
Port Graham Biomass Waste Heat Demo Project	Port Graham Village Council	Design	Biomass	Railbelt	\$75,000	\$100,000	-	Active
Akutan Geothermal Development Project	City of Akutan	Design	Geothermal	Aleutians	\$2,695,000	\$3,050,000	-	Active
St. Mary's Heat Recovery System	City of St. Mary's	Design	Heat Recovery	Lower Yukon-Kuskokwim	\$735,200	\$735,200	-	Active

Project	Grantee	Phase	Resource	Energy Region	REF Cost	Total Project Cost*	Expected Completion	Status
Indian Creek Hydro	City of Chignik	Design	Hydro	Bristol Bay	\$207,500	\$207,500	-	Active
AVTEC Hydro Training Facility	Alaska Vocational Technical Center	Design	Hydro	Railbelt	\$67,500	\$67,500	-	Active
Chenega Bay Hydro	Chenega IRA Council	Design	Hydro	Copper River/Chugach	\$252,000	\$290,500	-	Active
Scammon Bay Hydro Design & Engineering	City of Scammon Bay	Design	Hydro	Lower Yukon-Kuskokwim	\$80,723	\$83,516	-	Active
Elfin Cove Hydro	Community of Elfin Cove Utility Commission	Design	Hydro	Southeast	\$347,000	\$395,000	-	Active
Fivemile Creek Hydroelectric Project	Chitina Electric, Inc.	Design	Hydro	Copper River/Chugach	\$277,000	\$777,000	-	Active
Battle Creek Diversion Project	Alaska Energy Authority	Design	Hydro	Railbelt	\$500,000	\$500,000	-	Active
Tazimina Hydroelectric Project Capacity Increase	Iliamna, Newhalen, Nondalton Electrical Coop.	Design	Hydro	Bristol Bay	\$160,000	\$190,000	-	Active
Knutson Creek Hydroelectric Project	Pedro Bay Village Council	Design	Hydro	Bristol Bay	\$290,000	\$292,500	-	Active
Kake-Petersburg Intertie	Kwaan Electric Transmission Intertie Cooperative	Design	Transmission	Southeast	\$2,990,000	\$2,990,000	-	Active
Atqasuk Transmission Line	North Slope Borough	Design	Transmission	North Slope	\$210,000	\$210,000	-	Active
Kivalina Wind-Intertie	Alaska Village Electric Cooperative	Design	Wind	Northwest Arctic	\$183,350	\$193,000	-	Active
Stebbins Wind	Alaska Village Electric Cooperative, Inc.	Design	Wind	Bering Straits	\$342,000	\$360,000	-	Active
Port Heiden Wind Turbine Project	Lake and Peninsula Borough	Design	Wind	Bristol Bay	\$250,000	\$250,000	-	Active
Igiugig Wind Turbine Design	Igiugig Village Council	Design	Wind	Bristol Bay	\$80,000	\$250,000	-	Active
Point Hope Wind Diesel Generation Project	North Slope Borough	Design	Wind	North Slope	\$132,000	\$146,667	-	Active
Wainwright Wind Turbine	North Slope Borough	Design	Wind	North Slope	\$132,000	\$146,667	-	Active
Point Lay Wind Generation	North Slope Borough	Design	Wind	North Slope	\$132,000	\$146,667	-	Active
Mountain Village Wind_City and Tribe	Alaska Village Electric Cooperative, Inc.	Design	Wind	Lower Yukon-Kuskokwim	\$123,500	\$130,000	-	Active
Lake and Peninsula Borough Wood Boilers	Lake and Peninsula Borough	Construction	Biomass	Bristol Bay	\$250,000	\$295,000	Jun-13	Active
Seldovia House Ground Source Heat Pump Project	Cook Inlet Housing Authority	Construction	Heat Pumps	Railbelt	\$318,300	\$362,816	Dec-14	Active
Saint Paul Fuel Economy Upgrade	City of Saint Paul Electric Utility	Construction	Heat Recovery	Aleutians	\$98,149	\$114,834	Dec-14	Active
Kotzebue Electric Heat Recovery	Kotzebue Electric Association	Construction	Heat Recovery	Northwest Arctic	\$915,627	\$1,215,627	Jan-15	Active
Atka Hydro Dispatched Excess Electrical Power	City of Atka	Construction	Heat Recovery	Aleutians	\$115,000	\$135,289	Feb-15	Active
Shaktoolik Surplus Wind Recovery	Alaska Village Electric Cooperative	Construction	Wind	Bering Straits	\$2,465,633	\$2,727,896	Jun-15	Active
Chistochina Central Wood Heating	Cheesh'na Tribal Council	Construction	Biomass	Copper River/Chugach	\$500,000	\$512,000	Jun-15	Active
Akutan Hydroelectric System Repair and Upgrade	City of Akutan	Construction	Hydro	Aleutians	\$1,391,000	\$1,491,000	Jun-15	Active
Saint George Wind Farm	City of St. George	Construction	Wind	Aleutians	\$1,500,000	\$1,500,000	Jun-15	Active
St. Paul Wind Diesel Project	TDX Corporation	Construction	Wind	Aleutians	\$1,900,000	\$2,100,000	Jun-15	Active
Surplus Wind Energy Recovery for Chevak	Alaska Village Electric Cooperative	Construction	Wind	Lower Yukon-Kuskokwim	\$240,260	\$252,905	Jun-15	Active
Surplus Wind Energy for Gambell	Alaska Village Electric Cooperative	Construction	Wind	Yukon-Koyukuk/Upper Tanana	\$240,260	\$252,905	Jun-15	Active
Kvichak River RISEC	Igiugig Village Council	Construction	Ocean/River	Bristol Bay	\$718,175	\$718,175	Sep-15	Active
Mentasta Woody Biomass Space Heating Project	Mentasta Traditional Council	Construction	Biomass	Copper River/Chugach	\$460,000	\$510,000	Sep-15	Active
New Stuyahok Heat Recovery	Southwest Regional School District	Construction	Heat Recovery	Bristol Bay	\$486,000	\$548,000	Sep-15	Active
Upper Kobuk River Biomass	City of Kobuk	Construction	Biomass	Northwest Arctic	\$356,424	\$401,873	Oct-15	Active
Wood Heating in Interior Alaska Communities	Interior Regional Housing Authority	Construction	Biomass	Railbelt	\$1,215,224	\$1,388,995	Dec-15	Active
Tanacross Woody Biomass Space Heating Project	Native Village of Tanacross dba Tanacross Village	Construction	Biomass	Yukon-Koyukuk/Upper Tanana	\$420,000	\$590,000	Dec-15	Active
Allison Lake Hydro	Copper Valley Electric Association, Inc.	Construction	Hydro	Copper River/Chugach	\$5,914,500	\$11,829,000	Dec-15	Active
Stetson Creek Diversion/Cooper Lake Dam Facilities	Chugach Electric Association, Inc.	Construction	Hydro	Railbelt	\$3,453,900	\$6,907,800	Dec-15	Active
Eagle Solar Array Project	Alaska Power Company	Construction	Solar PV	Yukon-Koyukuk/Upper Tanana	\$118,013	\$147,516	Dec-15	Active

Project	Grantee	Phase	Resource	Energy Region	REF Cost	Total Project Cost*	Expected Completion	Status
Buckland, Deering, Noorvik Wind Farm	Northwest Arctic Borough	Construction	Wind	Northwest Arctic	\$8,061,815	\$8,224,315	Dec-15	Active
Huslia Water System & Clinic Wood Boiler Project	Huslia Traditional Council	Construction	Biomass	Yukon-Koyukuk/Upper Tanana	\$50,000	\$52,470	Dec-15	Active
Russian Mission Heat Recovery System	City of Russian Mission	Construction	Heat Recovery	Lower Yukon-Kuskokwim	\$555,000	\$587,000	Dec-15	Active
Savoonga Heat Recovery - Power Plant to Water Plant	City of Savoonga	Construction	Heat Recovery	Bering Straits	\$425,701	\$437,453	Dec-15	Active
Hoonah-IPEC Hydro Project	Inside Passage Electric Cooperative	Construction	Hydro	Southeast	\$6,694,000	\$6,694,000	Dec-15	Active
Chignik Lagoon Hydroelectric	Chignik Lagoon Village Council	Construction	Hydro	Bristol Bay	\$2,352,700	\$2,872,700	Dec-15	Active
St. Mary's/ Pitka's Point Wind	Alaska Village Electric Cooperative	Construction	Wind	Lower Yukon-Kuskokwim	\$275,554	\$309,998	Dec-15	Active
Fort Yukon Central Wood Heating	Gwitchyaa Zhee Utility Company	Construction	Biomass	Yukon-Koyukuk/Upper Tanana	\$2,318,255	\$2,318,255	Jan-16	Active
Kenny Lake School Wood Fired Boiler	Copper River School District	Construction	Biomass	Copper River/Chugach	\$565,485	\$565,485	Jan-16	Active
Ketchikan Gateway Borough Biomass Heating Project	Ketchikan Gateway Borough	Construction	Biomass	Southeast	\$620,000	\$1,957,261	Jan-16	Active
Yakutat Biomass	City and Borough of Yakutat	Construction	Biomass	Southeast	\$103,000	\$335,456	Jan-16	Active
Biomass Heat for Minto Community Buildings	Village of Minto	Construction	Biomass	Yukon-Koyukuk/Upper Tanana	\$274,800	\$274,800	Jan-16	Active
Nunam Iqua Heat Recovery Project	City of Nunam Iqua	Construction	Heat Recovery	Lower Yukon-Kuskokwim	\$450,000	\$450,000	Jan-16	Active
Haines Central Wood Heating Feasibility Study	Haines Borough	Construction	Biomass	Southeast	\$1,237,400	\$1,374,848	Jun-16	Active
Sleetmute Heat Recovery	Sleetmute Traditional Council	Construction	Heat Recovery	Lower Yukon-Kuskokwim	\$126,682	\$133,349	Jun-16	Active
Tatitlek Heat Recovery Project	Tatitlek Village IRA Council	Construction	Heat Recovery	Copper River/Chugach	\$265,000	\$295,800	Jun-16	Active
Shishmaref Heat Recovery Project	City of Shishmaref	Construction	Heat Recovery	Bering Straits	\$310,841	\$327,201	Jun-16	Active
Togiak Waste Heat Recovery Project	City of Togiak	Construction	Heat Recovery	Bristol Bay	\$443,030	\$486,180	Jun-16	Active
Atmautluak Washeteria Heat Recovery Project	Atmautluak Traditional Council	Construction	Heat Recovery	Lower Yukon-Kuskokwim	\$350,000	\$360,500	Jun-16	Active
Stebbins Heat Recovery Project	Alaska Village Electric Cooperative	Construction	Heat Recovery	Bering Straits	\$1,319,088	\$1,341,063	Jun-16	Active
Metlakatla-Ketchikan Intertie	Metlakatla Indian Community	Construction	Transmission	Southeast	\$1,180,000	\$1,180,000	Jun-16	Active
Indian River Hydroelectric Project	City of Tenakee Springs Electric Department	Construction	Hydro	Southeast	\$2,988,000	\$3,008,000	Dec-16	Active
Waterfall Creek Hydroelectric Project	City of King Cove	Construction	Hydro	Aleutians	\$2,600,000	\$3,900,000	Dec-16	Active
Bethel Wind Farm Construction	City of Bethel	Construction	Wind	Lower Yukon-Kuskokwim	\$2,598,320	\$399,777	Dec-16	Active
Pilot Point Wind Power & Heat	City of Pilot Point	Construction	Wind	Bristol Bay	\$1,421,240	\$1,571,240	Dec-16	Active
Heat Recovery for Kwinhagak	Native Village of Kwinhagak	Construction	Heat Recovery	Lower Yukon-Kuskokwim	\$668,350	\$688,400	Dec-16	Active
Heat Recovery for Marshall	City of Marshall	Construction	Heat Recovery	Lower Yukon-Kuskokwim	\$183,200	\$189,200	Dec-16	Active
Heat Recovery for the Noorvik Water Treatment Plant	City of Noorvik	Construction	Heat Recovery	Northwest Arctic	\$985,805	\$1,015,385	Dec-16	Active
Reynolds Creek Hydroelectric Project	Haida Energy, Inc.	Construction	Hydro	Southeast	\$2,000,000	\$2,000,000	Dec-16	Active
Louden Tribal Council Renewable Energy	City of Galena	Construction	Biomass	Yukon-Koyukuk/Upper Tanana	\$3,096,898	\$3,144,200	Jan-17	Active
Sitka Renewable Energy for Centennial Hall & Library	City and Borough of Sitka	Construction	Geothermal	Southeast	\$232,600	\$232,600	Jan-17	Active
Brevig Mission Water System Heat Recovery	City of Brevig Mission	Construction	Heat Recovery	Bering Straits	\$731,400	\$731,400	Jan-17	Active
Chevak Water and Vacuum Plant Heat Recovery	City of Chevak	Construction	Heat Recovery	Lower Yukon-Kuskokwim	\$558,800	\$558,800	Jan-17	Active
Emmonak Heat Recovery System	City of Emmonak	Construction	Heat Recovery	Lower Yukon-Kuskokwim	\$689,300	\$689,300	Jan-17	Active
Craig Biomass Fuel Dryer Project	City of Craig	Construction	Biomass	Southeast	\$350,000	\$600,000	Jun-17	Active
Tuntutuliak Heat Recovery	Native Village of Tuntutuliak	Construction	Heat Recovery	Lower Yukon-Kuskokwim	\$455,600	\$455,600	Jan-18	Active
Thayer Lake Hydropower Project	Kootznoowoo, Inc.	Construction	Hydro	Southeast	\$7,000,000	\$7,000,000	Jan-18	Active
Cook Inlet TidGen Project	Ocean Renewable Power Company	Construction	Ocean/River	Railbelt	\$2,000,000	\$8,392,900	Unknown	Active
Nikolski Wind Integration	Nikolski IRA Council	Construction	Wind	Aleutians	\$409,430	\$450,930	Unknown	Active

* Total project cost includes the grant plus required match for the grant. In many cases this represents the true project cost. For some projects it underrepresents the total project cost.



Power Project Fund

AEA's mission is to reduce the cost of energy in Alaska



PPF Basics

Eligible applicants: regional electric authority, regional or village corporation, independent power producer (IPP), borough or municipal government, village council

Eligible projects: powerhouse and alternative energy facilities and equipment to construction, expansion, acquisition and improvement, transmission or distribution system, heat recovery, supply side efficiency and conservation, bulk fuel storage facility, and reconnaissance or feasibility study

Funds available: ~\$13 million uncommitted funds

Loan amounts: no min or max, current loans range from \$90,000 to \$20 million

Loan terms

- Interest rate: average of municipal bond rate for previous 12 months to zero
- Term: length of loan depends on life of project, not to exceed 50 years

PPF loan application evaluation

Project economic, technical and financial feasibility analysis

Many applicants/loan recipients are not traditionally “bankable”

Assistance is available to help applicants complete the application process when needed

Loan approval

- Loans up to \$2 million approved by AEA loan committee
- Loans over \$2 and up to \$5 million approved by AEA board
- Legislative authorization to apply needed for projects over \$5 million (loan + other state investment)

Federal Incentives

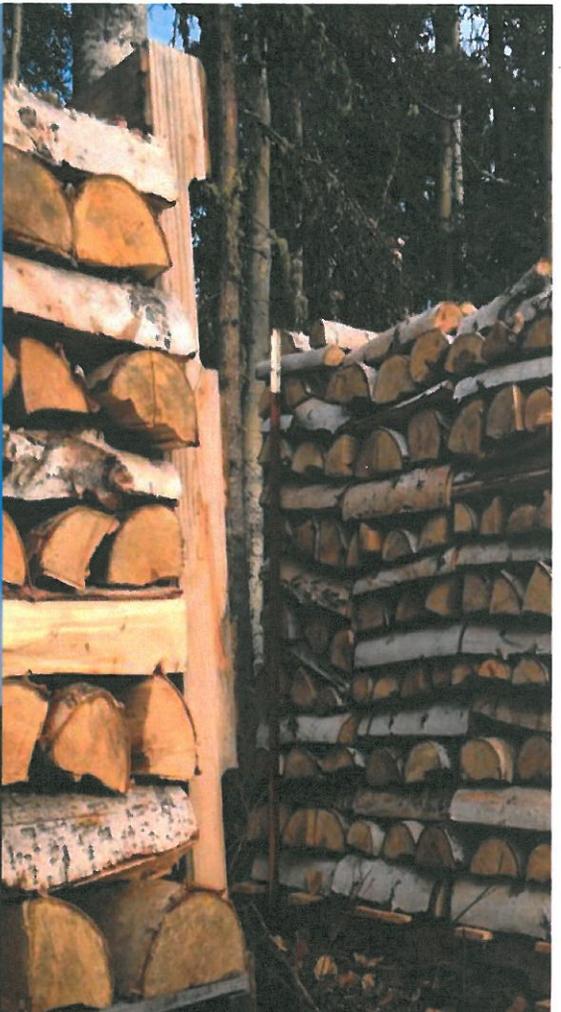
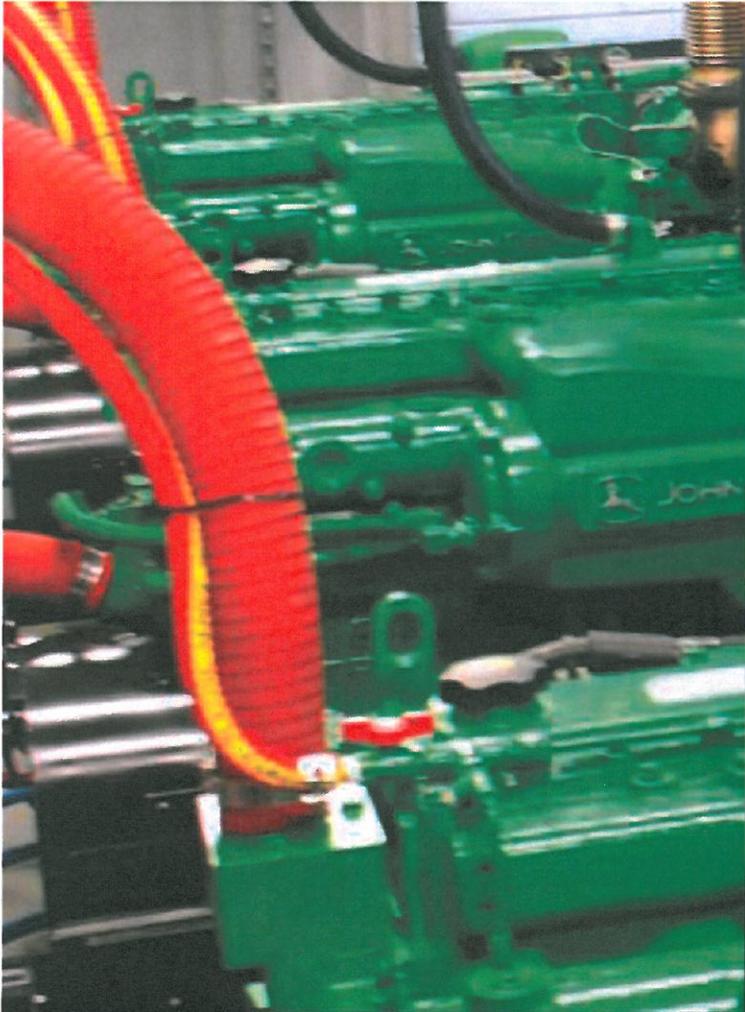
Business Energy Investment Tax Credit

Expiration: systems commissioned by Dec. 2016

- **Solar.** The credit is equal to 30% of expenditures, with no maximum credit.
- **Fuel Cells.** The credit is equal to 30% of expenditures, with no maximum credit.
- **Small Wind Turbines (up to 100 KW).** The credit is equal to 30% of expenditures, with no maximum credit .
- **Geothermal Systems.** The credit is equal to 10% of expenditures, with no maximum credit limit stated.
- **Micro-turbines.** The credit is equal to 10% of expenditures, with no maximum credit limit stated.
- **Combined Heat and Power (CHP).** The credit is equal to 10% of expenditures, with no maximum limit stated.

Modified Accelerated Cost Recovery System

- Rapid depreciation of renewable systems over five years including solar, fuel cells, micro-turbines, direct use geothermal, heat pumps, wind, combined heat and power.



PPF contact: Cady Lister
clister@aidea.org

AIDEA Energy Programs

**Renewable Energy Fund
Advisory Committee**

May 8, 2015



aidea.org

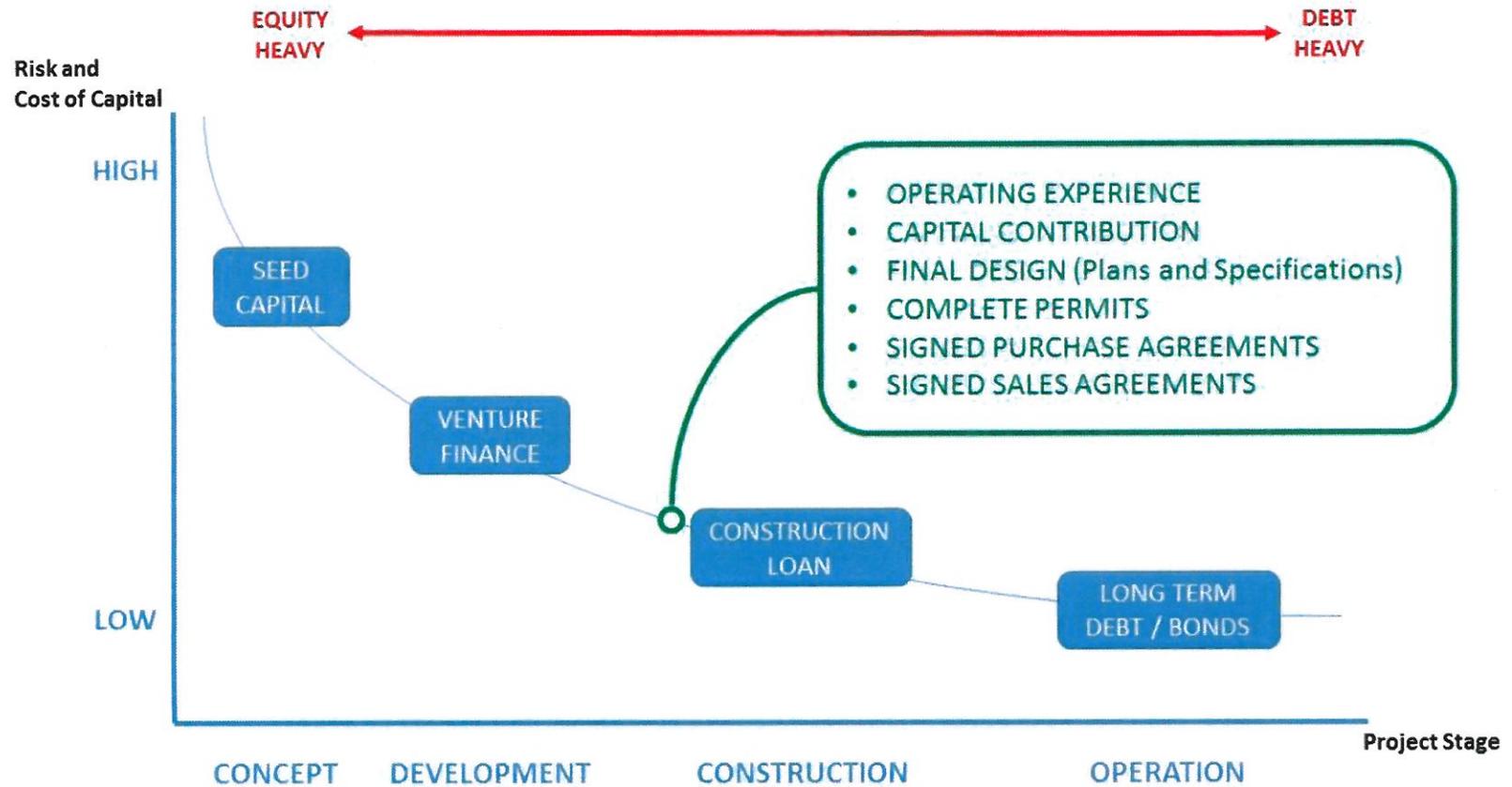
Investing in Alaskans



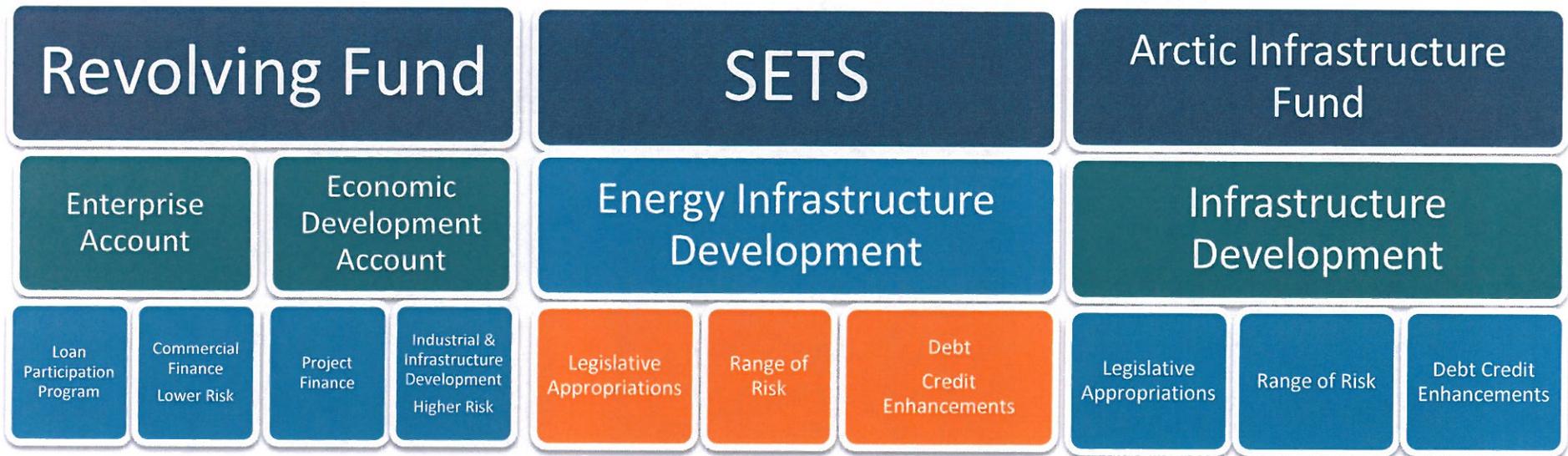
To promote, develop, and advance economic growth and diversification in Alaska by providing various means of financing and investment.

AIDEA fulfills its mission by providing access to affordable, long-term, asset financing

PROJECT FINANCE “CONTINUUM”



Three funds - different risk characteristics and project eligibility criteria



Financing Tools



In addition to creating pathways to finance, AIDEA provides:

DEBT

- Loan Participations
- Direct Loans
- Tax-Exempt Bonds
- Taxable Bonds

EQUITY

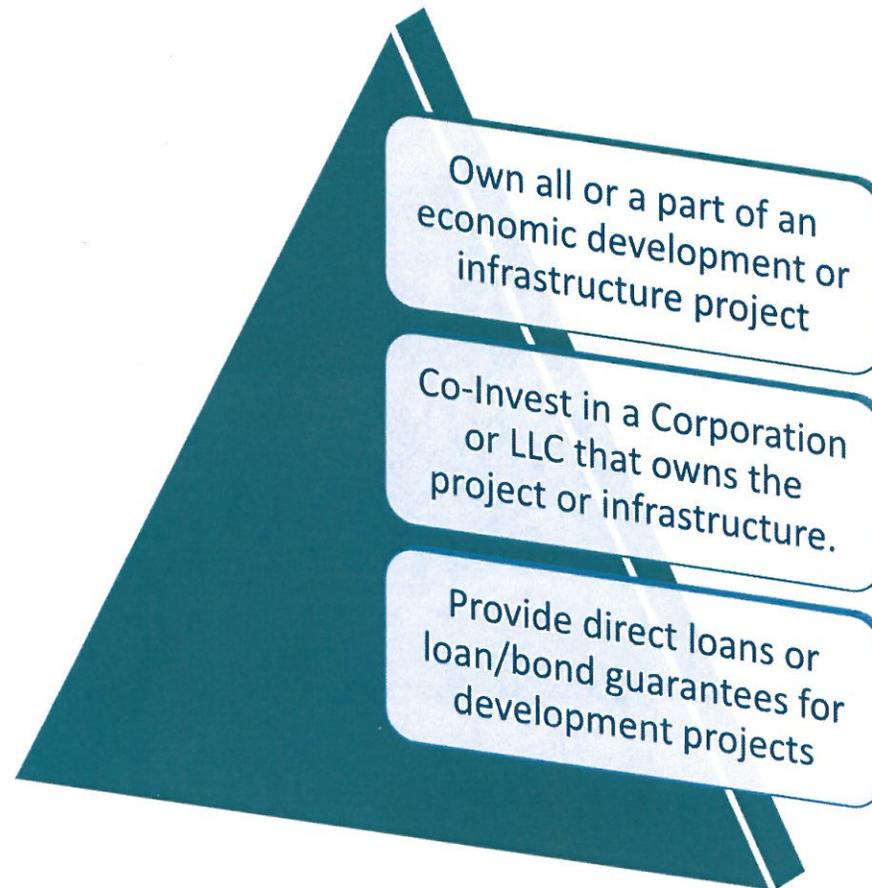
- 100% Ownership
- Partner in LLC or Subsidiary Corporation

CREDIT ENHANCEMENTS

- Loan Guarantees
- Bond Guarantees



Can provide financing for energy projects and infrastructure



Eligible Energy Projects

AS 44.88.900(13) "project" means

(D) a plant or facility demonstrating technological advances of new methods and procedures and prototype commercial applications for the

- exploration
- development
- production
- transportation
- conversion, and
- use of energy resources

(F) a plant or facility, other than a plant or facility described in (D) of this paragraph, for the

- generation
- transmission
- development
- transportation
- conversion, or
- use of energy resources

SETS Program



Sustainable Energy Transmission and Supply Fund

Established and capitalized by the Legislature in 2012.

Currently, SETS has limited funds available.

Provides AIDEA tools for financing Alaska's energy infrastructure needs:

- Direct Loans
- Loan & Bond Guarantees
- Bond Issuances

Financing limits:

- 33% of direct financing, or
- \$20 million in credit enhancements

Loan Participation Program



Long-term commercial financing for energy efficiency & conservation

Participation may be up to 90% of a loan originated by an eligible commercial lender up to \$20 million.

Terms:

- Up to 15 years for personal property
- Up to 25 years for real property;
- 75% loan-to-value;
- fixed or variable interest rate

Alaska Pacific University

- Northrim Bank - \$250,000 (10%)
- AIDEA - \$2,250,000 (90%)
- Estimated annual savings for APU - \$340,000

Conduit Revenue Bond Program



Access to tax-exempt and taxable bonds

- Neither the assets nor credit of AIDEA or the State of Alaska are at risk
- Essential to the underwriting and placement of bonds are:
 - the creditworthiness of the project, and
 - any credit enhancements offered by the applicant
- Significant increase in green bond issuances, globally:
 - Municipal and corporate bonds
 - Renewable energy
 - Energy efficiency (i.e. efficient buildings)
 - Other “green” projects

Other Tools & Programs



Many energy financing tools/programs are not utilized in Alaska

Federal Programs

- New Clean Renewable Energy Bonds (New CREBs)
- Qualified Energy Conservation Bonds (QECBs)
- Exempt Facility Bonds/Revenue Bonds
- EB-5 Program (Employment Based Immigration - 5th Preference)
- New Markets Tax Credits
- USDA - Rural Energy for America Program
- BIA – Energy and Mineral Development grants

Other Programs

- PACE – Property Assessed Clean Energy - 30 states
- State New Markets Tax Credits
- Private Public-Partnerships (P3) are contractual agreements which deliver public sector services/facilities utilizing the private sector

Project-Phase Financing



Allocate resources appropriately

Pre-Development Costs

- Feasibility, Design, Engineering, and Permitting
- Costs are difficult to borrow against
- Best funded using equity by developer, municipal and legislative appropriations, and/or grant funding

Development Costs

- Real estate acquisition, equipment purchases, and construction
- Bankable activities using a variety of commercial and incentive programs described previously, but rely on pre-development items being in place

Caveat

- Some communities are either too small or do not have the economic base to utilize commercial financing of development items. These communities may be reliant on appropriations and grants.

Council of Development Finance Agencies (CDFA) - resource for energy finance programs (www.cdfa.org)

- *Intro Energy Finance Web Course* – May 27-28, 2015

The Clean Energy and Bond Finance Initiative (CE+BFI)

Yale Clean Energy Finance Forum
<http://cleanenergyfinanceforum.com/>



Alaska Industrial Development and Export Authority

813 West Northern Lights Blvd.,
Anchorage, Alaska 99503



(907) 771-3000(888)
300-8534 (Toll Free in Alaska)



www.aidea.org



#AIDEA



AEA Recommendations for Renewable Energy Fund Round IX Request for Applications

For Consideration by the Renewable Energy Fund Advisory Committee, May 8, 2015

AEA expects the RFA will be substantially similar to the Round VIII RFA. The major changes or points for discussion are listed below.

1. Per Project Cap

In recent years, the per-project funding cap has been set in the RFA at \$4 million for low energy cost areas and \$8 million for high energy cost areas. The Round 8 RFA contained these limits, but based on limited funding and REFAC member recommendations, AEA recommended maximum funding per-project of \$1.5 million. AEA recommends lowering the per-project funding cap to the \$2 million and \$4 million limits used in the early years of the Renewable Energy Fund, and not altering that level through the recommendation process.

AEA is seeking REFAC comments on this issue prior to setting the project caps for next year. Below is the wording from Round VIII RFA:

Phase	Grant Limits by Location	
	Low Energy Cost Areas*	High Energy Cost Areas**
Phase I, Reconnaissance	The per-project total of Phase I and II is limited to 20% of anticipated construction cost (Phase IV), not to exceed \$2M.	
Phase II, Feasibility and Conceptual Design		
Phase III, Final Design and Permitting	20% of anticipated construction cost (Phase IV), and counting against the total construction grant limit below.	
Phase IV, Construction and Commissioning	\$4M per project, including final design and permitting (Phase III) costs, above.	\$8M per project, including final design and permitting (Phase III) costs, above.
Exceptions		
Biofuel projects	Biofuel projects where the Applicant does not intend to generate electricity or heat for sale to the public are limited to reconnaissance and feasibility phases only at the limits expressed above. Biofuel is a solid, liquid or gaseous fuel produced from biomass, excluding fossil fuels.	
Geothermal projects	The per-project total of Phase I and II for geothermal projects is limited to 20% of anticipated construction costs (Phase IV), not to exceed \$4M. Any amount above the usual \$2M spent on these two phases combined shall reduce the total Phase III and IV grant limit by the same amount, thereby keeping the same total grant dollar cap as all other projects. This exception recognizes the typically increased cost of the feasibility stage due to test well drilling.	

2. Phase funding target

The target allocation by project phase is currently set at 20% for reconnaissance, feasibility/conceptual design phases and 80% for final design/permitting and construction/commissioning phases. AEA recommends this target be retained. This target is announced in the RFA as adjustable, based on available funding, and the type, number, and quality of projects submitted.

Project Phase	Target Allocation – Percentage of Grant Funds Recommended
I. Reconnaissance Study	20%
II. Feasibility/Conceptual Design or Energy Resource Monitoring	
III. Final Design and Permitting	80%
IV. Construction and Commissioning	

3. Scoring Criteria Weighting to Be Listed in RFA

The Evaluation Guidelines will be combined into the RFA this year. In past years, the evaluation process and criteria have been defined in the RFA, but the weighting of the categories has been left out until after applications are due. This year, AEA proposes to announce the scoring criteria weighting in the RFA. The weighting to be used is the same as has been used since Round V. The benefits to this approach include: greater transparency and proactive action in response to public testimony. The committee should note that by placing the weighting in the RFA, the scoring cannot be changed once the RFA is issued.

Ranking Criteria

1. Cost of Energy (35%)
2. Matching Funds (15%)
3. Economic and Technical Feasibility (20%)
4. Economic and Other Alaska Benefit (15%)
5. Project Readiness (5%)
6. Sustainability (5%)
7. Local Support (5%)
8. Competing projects (Pass/Fail)
9. Compliance with previous grants and progress in previous phases (Pass/Fail)

4. Cost of Energy Scoring in Stage 3

AEA proposes to use the “cost of energy burden” metric rather than the electric rate or cost of fuel (for electric and heat projects, respectively) when scoring communities for the cost of energy in Stage 3 ranking.

Stage 3, which ranks approved projects, includes the heaviest weighting (35%) for the cost of energy in a community. In recent years, the electric rate (or heating fuel cost for heating projects) has been used to

determine the cost of energy score. In round VIII, AEA started calculating and using “cost of energy burden” as a factor to determine regional distribution in Stage 4. The cost of energy burden is an index of the average household expenditure for heat and electric divided by average income. This metric recognizes several factors that make it a better metric to score the true cost of energy in a community. Rather than just scoring based on the cost of a unit of energy, this metric includes a measure of how much energy is used as well, thereby recognizing the different climates across Alaska. Additionally by dividing by average income, the metric also factors in the relative financial burden of energy bills on households in a community.

5. Regional Balance

AEA proposes to use the cost of energy burden metric to establish which regions are overserved and underserved by REF cumulatively across all prior application processes. This metric was first used in Round VIII. The weighted average cost of energy burden is used to calculate the target funding for the region such that the higher the energy cost burden, the higher the REF funding target. Regions are considered overserved if they have received more than double the target amount. Regions are considered underserved if they have received less than 50% of the target amount.

For regions identified as overserved, funding in Round IX shall be limited to an amount such that their percentage of the cumulative REF funding does not grow. In Round VIII, projects for the overserved areas were prioritized solely on the cost of energy burden. In Round IX, the same approach could be taken, or some combination of their technical or ranking score combined with their cost of energy burden could be used (for example, cost of energy burden score, 50%; Stage 3 Score 50%).

Recommended projects from underserved regions that fall outside the funding availability will be considered for inclusion above the funding line as part of the Stage 4 review. AEA will seek REFAC guidance on the application of the regional balance at the January 2016 meeting.

6. Heat Project Goal

Last year, AEA set a target for heat projects at 30% of the total funding recommendation. AEA recommends retaining this goal.

7. Fuel Price Projection

AEA is evaluating a change to the manner by which fuel price projections are calculated for all communities in Alaska. These fuel price projections are used in the AEA economic model to calculate the lifecycle impact of the proposed renewable energy system. AEA hired Alaska Center for Energy and Power’s economists to examine the way the fuel price projections had been conducted in the past and to propose an improved methodology. AEA recently received a presentation on the findings, and will likely opt for the new system, which appears to be a more accurate and precise methodology.



RENEWABLE ENERGY FUND

STATUS REPORT AND
ROUND VIII RECOMMENDATIONS

MAY
2015

INTRODUCTION

Renewable Energy Fund appropriations totaling \$247.5 million have been issued since 2008. This funding has been matched with more than \$152 million from other sources. State funding in the early, lower-cost, higher-risk stages of project development creates opportunity to leverage significant private investment to carry projects through to completion.

The Alaska Renewable Energy Fund (REF) provides benefits to Alaskans by assisting communities across the state to both reduce and stabilize the cost of energy. The program also creates jobs, uses local energy resources, and keeps money in local economies.

Currently operating REF projects have an overall benefit cost ratio of 2.8 which is calculated using total project cost. Investing in stable priced renewable energy is a wise investment that will save Alaska communities millions of dollars for decades to come.

The REF is managed by the Alaska Energy Authority (AEA) and provides public funding for the development of qualifying and competitively selected renewable energy projects in Alaska. The program is designed to produce cost-effective renewable energy for heat and power to benefit Alaskans statewide. As the program matures, the quality of the proposed projects continues to rise as does the knowledge base for designing, constructing, and operating renewable energy in Alaska's diverse climates and terrain.

This 2015 status report has two parts and a separate appendix:

1. A summary analysis of projects funded to date, including the performance and savings associated with projects that are currently generating heat and power. (pg. 3-8)

An appendix of individual project scopes and statuses for funded projects accompanies this report. It is available in searchable PDF form at <http://www.akenergyauthority.org/Programs/Renewable-Energy-Fund/Rounds>

2. A summary of AEA's recommendations to the Legislature for funding in 2015 (Round VIII). (pg. 9-19)

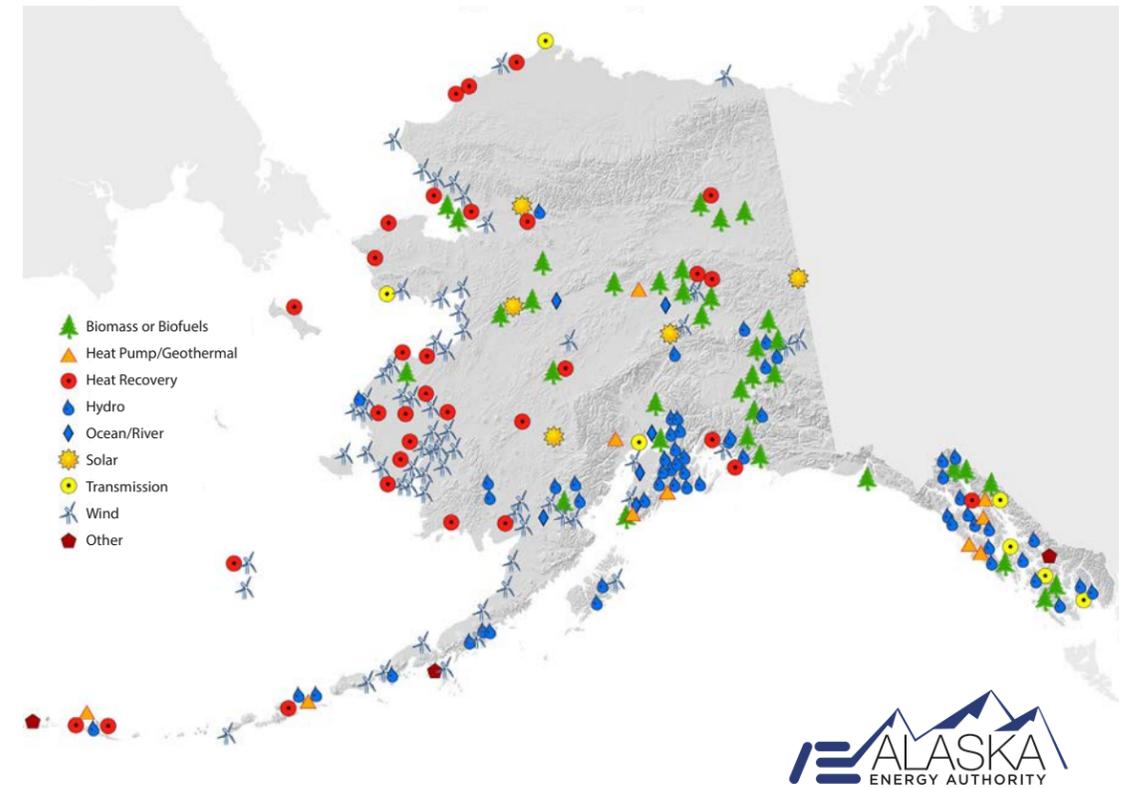
Additional information on this year's recommendations and all current and past grants are available on AEA's website www.akenergyauthority.org and includes:

- Appendix of project statuses (RI - RVII)
- Economic evaluations
- Technical evaluations
- Maps of project location
- Application summaries

This report only includes performance of REF funded projects and so is not a complete view of renewable energy production in Alaska.

Figure 2 below demonstrates the wide geographic distribution of REF projects across all areas of the state. Most funding is provided to high cost-of-energy communities.

RENEWABLE ENERGY FUND PROJECTS ROUNDS I-VII



FUNDED GRANTS BY ENERGY RESOURCE ROUNDS I-VII

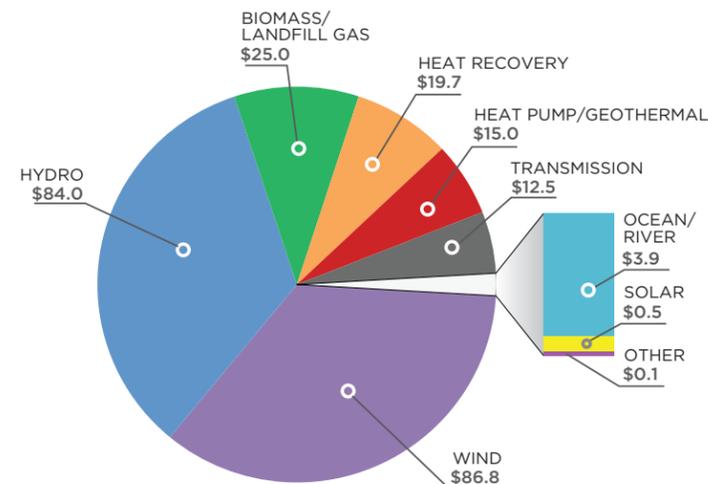


Figure 3 shows funding by energy resource, with wind and hydro grants making up just less than 70 percent of total funding.

FUNDED GRANTS BY ENERGY REGION ROUNDS I-VII

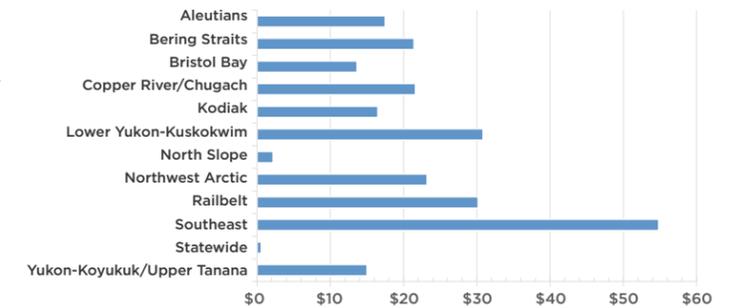
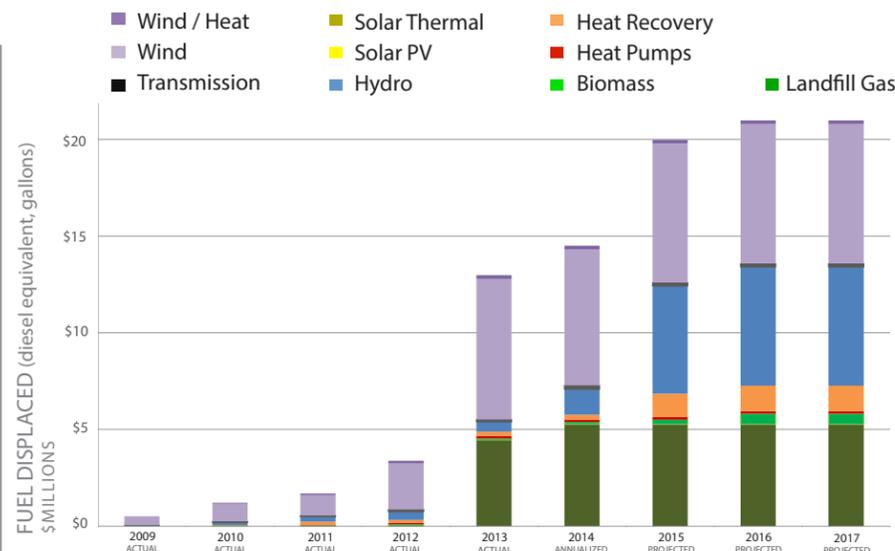


Figure 4 shows cumulative grant funding by AEA energy region totaling to \$247.5 million in rounds I-VII. The three highest recipients to date are Southeast with \$54.8 million, Lower Yukon-Kuskokwim with \$30.8 million, and Railbelt with \$30.2 million.

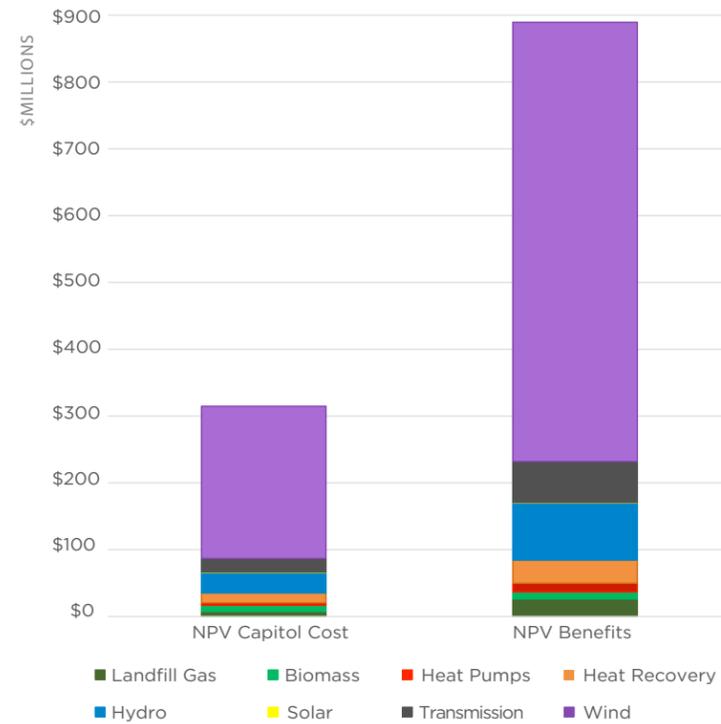
Figure 1 shows continued strong growth in energy generation and fuel displacement. In 2014, REF projects displaced close to 15 million diesel equivalent gallons. 2015 will mark another jump in renewable generation as two significant hydro projects are expected to come online; Whitman Lake and Blue Lake expansion. REF generation in 2015 is projected to be 38 percent higher than 2014.



PERFORMANCE & SAVINGS

- Figure 5 shows the net present value (NPV) of those REF projects that have been completed to date. Many of the 44 projects represented received initial funding in the first three rounds of the REF program.
- The net present value of the capital expenditures used to build currently generating projects is \$314.7 million and the net present value of benefits is \$889.5M. These projects have an overall benefit cost ratio of 2.8.
- For every \$1 dollar invested, these projects have an estimated return of \$2.80. It is important to note that the REF only invested a portion of total project cost.
- The largest number of generating projects are wind, at 34 percent. This is a smaller share than last year when 40 percent of projects were wind. Hydro projects increased from 8 percent to 14 percent of total generating projects.
- Given the length of time needed to develop hydro projects, compared to wind which can be developed in roughly half the time, we should expect to see generation from hydro projects continue to grow as projects that have been in development for a number of years come online.
- Though still small as a percentage of total NPV of benefits, the number of heat projects has increased substantially to 41 percent of total projects. This large number of heat projects are smaller in cost and benefits on an individual basis but their overall impact is growing. Heat projects include heat recovery, heat pumps and biomass.
- See pages 6 and 7 for information about where these \$889 million of benefits accrue.

REF CURRENTLY OPERATING PROJECTS



NOTES:

1. Total grant amount requested by all applicants.
2. \$26.6 million was appropriated for Round IV, and an additional \$10 million was re-appropriated from Rounds I, II and III for use in Round IV.
3. \$20 million was appropriated for Round VII, and an additional \$2.8 million was re-appropriated from previous rounds for use in Round VII.
4. Represents only amounts recorded in the grant document and does not capture all other funding.

GRANT AND FUNDING SUMMARY

	Round I	Round II	Round III	Round IV	Round V	Round VI	Round VII	Totals
Applications received	115	118	123	108	97	85	86	732
Applications funded	80	30	25	74	19	23	26	277
Grants currently in place	17	7	10	36	17	23	15	125
Amount requested ¹ (\$M)	\$ 453.8	\$ 293.4	\$ 223.5	\$ 123.1	\$ 132.9	\$ 122.6	\$ 93.0	\$ 1,442.3
AEA recommended (\$M)	\$ 100.0	\$ 36.8	\$ 65.8	\$ 36.6	\$ 43.2	\$ 56.8	\$ 59.1	\$ 398.3
Appropriated (\$M)	\$ 100.0	\$ 25.0	\$ 25.0	\$ 26.6 ²	\$ 25.9	\$ 25.0	\$ 20.0 ³	\$ 247.5
Grant match budgeted ⁴ (\$M)	\$ 23.6	\$ 4.5	\$ 11.0	\$ 61.6	\$ 9.0	\$ 5.7	\$ 36.7	\$ 152.1
Cash disbursed (\$M)	\$ 80.2	\$ 20.5	\$ 15.0	\$ 22.3	\$ 15.5	\$ 9.0	\$ 5.4	\$ 167.9

RENEWABLE ENERGY FUND SUCCESS STORY

THORNE BAY SCHOOL BIOMASS: growing educational opportunities, food, and sustainable economic opportunity in the Southeast Island School District.

REF AWARD | \$478,179
TOTAL PROJECT COST | \$580,179



In Southeast Island School District's Thorne Bay School greenhouse, students are learning the science of growing food, healthy eating, and how to run a successful business. In 2013, the school self-funded and built a hydroponic greenhouse that captures excess heat generated by the school's cordwood boiler.

The boiler was purchased using a Renewable Energy Fund grant made possible through AEA and the efforts of the Alaska Wood Energy Development Task Group's (AWEDTG's) pre-feasibility and feasibility study process.

The AWEDTG is a coalition of federal, state, and non-profit organizations working together to increase the utilization of wood for energy and biofuels production in Alaska. The group is funded half by AEA and half by the U.S. Forest Service and in 2014 received a competitive USDA "State Wood Energy Teams" grant. The AWEDTG's pre-feasibility/feasibility process helps communities explore the potential of heating with high-efficiency, low-emission, wood-fired systems. The group provides

outreach and technical assistance to underserved areas and accepts statements of interest (SOI) for prefeasibility studies. This prefeasibility work can lead to a feasibility assessment, which can then be used in REF grant applications. The group has completed more than 125 prefeasibility studies resulting in over 20 operating wood heating systems, including Thorne Bay School.

At the Thorne Bay School, the biomass boiler is doing more than just displacing diesel. The boiler and greenhouse have been incorporated into the curriculum: science, horticulture, math and business are all taught hands-on. The school's greenhouse grows fresh vegetables for the school cafeteria, improving the quality of school lunch. Excess food is sold to the community as a part of the student-led business and families can deliver wood to the boilers to help fund sports and other extracurricular activities.



Thorne Bay students grow food for their school and community in a greenhouse heated by the REF funded biomass project.



Thorne Bay parents and students raise money for school activities by splitting and stacking wood for the biomass project.

Thorne Bay School is generating cheaper, more sustainable heat while championing a model of hands-on learning and local economic development that can be replicated around the region. This REF success story is an example of the great things that can be accomplished through collaboration and creativity.

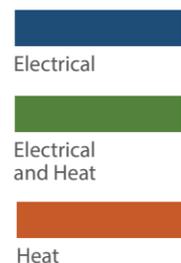
AWEDTG TASK GROUP: Alaska Energy Authority | Alaska Village Initiatives | Denali Commission | National Renewable Energy Lab | AK DNR Division of Forestry | AK DCCED Division of Economic Development | USDOC Economic Development Administration | USDA FS AK Region & PNW Research Station | The Nature Conservancy | Tanana Chiefs Conference | USDA Farm Service Agency, Alaska | USDA Natural Resources Conservation Service | USDA Rural Development, Alaska | USDI Bureau of Indian Affairs, Alaska | USDI Bureau of Land Management, Alaska | Southeast Conference | UAF Cooperative Extension Service

PERFORMANCE OF RENEWABLE ENERGY FUND

PROJECTS IN OPERATION DURING THE PERIOD 2009- 2014

Performance of Renewable Energy Fund projects in operation during the period 2009- 2014						2013				2014				Cumulative Total (2009-2014)			
Technology Type	Fuel Displaced	Grantee	Project Name	Start date	Energy Production		Fuel Displaced		Energy Production		Fuel Displaced		Energy Production		Fuel Displaced		
					Electrical (MWh)	Thermal (MMBtu)	Diesel (Gal x 1000)	Value (\$ x 1000)	Electrical (MWh)	Thermal (MMBtu)	Diesel (Gal x 1000)	Value (\$ x 1000)	Electrical (MWh)	Thermal (MMBtu)	Diesel (Gal x 1000)	Value (\$ x 1000)	
1	Heat Recovery	Diesel	City of Unalaska	Unalaska Heat Recovery	09/14					80	-	6	\$ 21	80	-	6	\$ 21
2	Hydro	Diesel	Gustavus Electric Company	Falls Creek	07/09	1,913	-	147	\$ 612	1,871	-	144	\$ 557	10,337	-	760	\$ 2,832
3	Hydro	Diesel	Cordova Electric Cooperative	Humpback Creek Rehab	07/11	3,509	-	270	\$ 964	2,814	-	217	\$ 762	11,396	-	871	\$ 3,187
4	Hydro	Diesel	City of Atka	Chuniixsax Creek Hydroelectric	12/12	389	-	30	\$ 162	287	-	22	\$ 121	676	-	52	\$ 284
5	Hydro	Diesel	Kodiak Electric Assoc.	Terror Lake Unit 3 Hydroelectric Project	01/14	-	-	-	-	12,406	-	827	\$ 3,680	12,406	-	827	\$ 3,680
6	Hydro	Diesel	City of Ketchikan	Whitman Lake	10/14	-	-	-	-	2,487	-	191	\$ 809	2,487	-	191	\$ 809
7	Hydro	Diesel	City and Borough of Sitka	Blue Lake Expansion	11/14	-	-	-	-	9	-	1	\$ 3	9	-	1	\$ 3
8	Landfill Gas	Natural Gas	Municipality of Anchorage	Anchorage Landfill Gas Electricity	08/12	46,714	-	4,451	\$ 4,050	56,167	-	5,352	\$ 2,416	102,881	-	9,803	\$ 6,466
9	Solar PV	Diesel	AK Village Electric Co-op	Kaltag Solar Construction	10/12	9	-	1	\$ 2	9	-	1	\$ 2	18	-	1	\$ 5
10	Transmission	Diesel	Nome Joint Utility System	Nome Banner Wind Transmission	10/10	1,173	-	72	\$ 234	986	-	61	\$ 206	5,498	-	326	\$ 1,032
11	Transmission	Diesel	Alaska Power and Telephone	North Prince of Wales Intertie	09/11	989	-	60	\$ 216	931	-	70	\$ 253	3,171	-	206	\$ 754
12	Transmission	Diesel	AK Electric Light & Power	Snettisham Transmission	01/14	-	-	-	-	1,247	-	96	\$ 150	1,247	-	96	\$ 150
13	Wind	Diesel	AK Village Electric Co-op	Toksook Wind Farm	08/09	122	-	9	\$ 34	42	-	3	\$ 12	991	-	69	\$ 258
14	Wind	Diesel	AK Village Electric Co-op	Quinhagak Wind Farm	11/10	539	-	41	\$ 162	415	-	32	\$ 130	1,935	-	145	\$ 574
15	Wind	Diesel	AK Village Electric Co-op	Mekoryuk Wind Farm	11/10	198	-	14	\$ 53	173	-	12	\$ 47	761	-	51	\$ 191
16	Wind	Naphtha	Alaska Environmental Power	Delta Area Wind Turbines	09/10	1,563	-	101	\$ 266	2,251	-	145	\$ 392	7,033	-	436	\$ 1,105
17	Wind	Diesel	Kodiak Electric Assoc.	Pillar Mountain Wind Project	09/10	25,438	-	1,791	\$ 6,134	23,039	-	1,622	\$ 5,066	95,577	-	6,725	\$ 22,665
18	Wind	Diesel	AK Village Electric Co-op	Emmonak/Alakanuk Wind	09/11	506	-	36	\$ 139	485	-	34	\$ 136	1,560	-	111	\$ 435
19	Wind	Diesel	AK Village Electric Co-op	Shaktoolik Wind Construction	04/12	223	-	17	\$ 67	312	-	24	\$ 97	651	-	50	\$ 200
20	Wind	Diesel	Kotzebue Electric Association	Kotz Wind-Battery-Diesel	05/12	2,686	-	183	\$ 649	3,374	-	229	\$ 811	8,237	-	560	\$ 2,009
21	Wind	Naphtha	Golden Valley Electric Assoc.	Eva Creek	10/12	71,619	-	5,044	\$ 13,302	71,770	-	5,054	\$ 13,074	156,480	-	11,020	\$ 28,349
22	Wind	Diesel	Nome Joint Utility System	Banner Peak Wind Farm Expansion	08/13	612	-	37	\$ 122	1,283	-	78	\$ 266	1,895	-	116	\$ 388
ELECTRIC PROJECTS SUBTOTAL						158,200	-	12,304	\$ 27,168	182,436	-	14,222	\$ 29,010	425,324	-	32,422	\$ 75,394
23	Biomass	Diesel	Alaska Gateway School District	Tok Wood Heating	10/10	-	3,950	38	\$ 103	269	6,106	59	\$ 146	269	19,286	180	\$ 540
24	Hydro	Diesel	City of Pelican	Pelican Hydro Upgrade	03/13	709	-	51	\$ 230	1,004	431	76	\$ 339	1,713	431	127	\$ 569
25	Wind/Heat	Diesel	Unalakleet Valley Electric Co	Unalakleet Wind Farm	12/09	955	316	72	\$ 276	1,090	236	83	\$ 322	4,670	552	334	\$ 1,195
26	Wind/Heat	Diesel	Puvuruaq Power Company	Kong Wind-Diesel Smart Grid	12/10	314	626	30	\$ 140	322	551	30	\$ 111	908	1,177	80	\$ 327
27	Wind/Heat	Diesel	Aleutian Wind Energy	Sand Point Wind	08/11	772	19	57	\$ 263	1,105	394	81	\$ 371	2,864	413	210	\$ 965
28	Wind/Heat	Diesel	Kwigillingok Power Company	Kwig Wind-Diesel Smart Grid	02/12	113	138	10	\$ 46	180	168	14	\$ 58	293	306	24	\$ 102
29	Wind/Heat	Diesel	Tuntutuliak Comm Svcs Assoc	Tunt Wind-Diesel Smart Grid	01/13	193	312	15	\$ 67	158	256	12	\$ 47	351	568	27	\$ 115
ELECTRIC & HEAT PROJECTS SUBTOTAL						3,056	5,361	272	\$ 1,125	4,127	8,142	354	\$ 1,395	11,068	22,733	982	\$ 3,813
30	Biomass	Diesel	Gulkana Village Council	Gulkana Central Wood Heating	10/10	-	1,040	10	\$ 28	-	920	9	\$ 25	-	3,800	35	\$ 117
31	Biomass	Diesel	Native Village of Eyak	Cordova Wood Processing Plant	12/11	-	720	5	\$ 14	-	540	4	\$ 10	-	4,080	34	\$ 120
32	Biomass	Diesel	Chilkoot Indian Association	Haines Central Wood Heating	10/11	-	231	2	\$ 6	-	337	3	\$ 5	-	780	8	\$ 17
33	Biomass	Diesel	Delta/Greely School District	Delta Junction Wood Chip Heating	09/11	-	3,048	29	\$ 94	-	2,963	29	\$ 97	-	9,988	96	\$ 297
34	Biomass	Diesel	Southeast Island School District	Thorne Bay School Biomass	01/13	-	-	-	\$ -	-	1,633	15	\$ 36	-	1,633	15	\$ 36
35	Biomass	Residual Fuel Oil	City of Tanana	City-Tribe Biomass Conservation	01/14	-	-	-	\$ -	-	1,972	17	\$ 40	-	1,972	17	\$ 40
36	Heat Pumps	Diesel	City and Borough of Juneau	Aquatic Cntr Ground Source Heat Pump	04/11	-	4,382	37	\$ 104	-	4,222	36	\$ 95	-	10,344	88	\$ 252
37	Heat Pumps	Diesel	City and Borough of Juneau	Airport Ground Source Heat Pump	05/11	-	6,400	46	\$ 159	-	6,400	46	\$ 153	-	23,317	174	\$ 602
38	Heat Pumps	Diesel	City of Seward	Sealife Center Seawater Heatpump	11/11	-	5,521	53	\$ 143	-	4,809	46	\$ 126	-	10,330	99	\$ 268
39	Heat Recovery	Naphtha	Golden Valley Electric Assoc.	North Pole Heat Recovery	11/09	-	3,235	59	\$ 164	-	2,706	50	\$ 193	-	13,622	250	\$ 690
40	Heat Recovery	Diesel	McGrath Light & Power	McGrath Heat Recovery	05/10	-	2,500	24	\$ 178	-	2,427	23	\$ 176	-	11,602	108	\$ 653
41	Heat Recovery	Diesel	City and Borough of Wrangell	Wrangell Hydro Electric Boilers	02/11	-	7,329	76	\$ 130	-	8,162	84	\$ 145	-	30,090	305	\$ 640
42	Heat Recovery	Diesel	Inside Passage Electric Co-op	Hoonah Heat Recovery Project	08/12	-	5,837	56	\$ 230	-	4,869	47	\$ 210	-	10,706	103	\$ 440
43	Heat Recovery	Diesel	North Slope Borough	Point Lay Heat Recovery	08/13	-	-	-	\$ -	-	2,153	20	\$ 98	-	2,153	20	\$ 98
44	Heat Recovery	Diesel	City of Ambler	Ambler Heat Recovery	10/13	-	90	1	\$ 10	-	426	4	\$ 48	-	516	5	\$ 59
45	Solar Thermal	Propane	Golden Valley Electric Assoc.	McKinley Village Solar Thermal	06/10	-	108	1	\$ 7	-	108	1	\$ 10	-	541	6	\$ 33
HEAT PROJECTS SUBTOTAL						-	40,441	400	\$ 1,266	-	44,647	433	\$ 1,466	-	135,474	1,361	\$ 4,361
GRAND TOTAL						161,256	45,802	12,976	\$ 29,559	186,563	52,789	15,009	\$ 31,871	436,391	158,207	34,765	\$ 83,568

PRODUCTION CATEGORIES



PERFORMANCE TABLE NOTES:

1. Due to an exceptional hydro generation year, the Cordova Heat Recovery project did not produce energy in 2014. It remains operational and ready for use.
2. Savings are equal to the value of the displaced fossil fuel minus the cost of the renewable energy fuel, where appropriate (e.g. the cost of wood for a biomass project). For projects with no renewable fuel costs (e.g. wind, hydro), savings are equal to the value of the fossil fuel displaced. These savings estimates do not account for changes in operation and maintenance costs or other costs or benefits.
3. The energy production data provided for years 2012 and after is net renewable energy produced by Renewable

Energy Fund projects.

4. Savings for the Anchorage Landfill project are the cost of the electricity that would have otherwise been purchased. The project grantee, Solid Waste Services (SWS), sells the landfill gas to Doyon Utilities, LLC.

5. Data for wind turbines in Toksook Bay represent only the portion covered by the REF grant in years 2012 and after. The REF program funded only one of the four wind turbines installed.

6. Tok Wood Heating produces energy used for space heating and electricity production. The REF program funded the space heating system. The electrical system was funded separately by the Alaska Legislature.

7. The Juneau Airport ground source heat pump project does not have metering that can provide exact heat displacement. The values reported are estimates based on information provided by the grantee.

8. Actual reported values for Terror Lake Hydro Unit 3 were not available, the figures reported are estimates.

9. Actual reported values for Snettisham Transmission Line Avalanche Mitigation were not available, the figures reported are estimates.

10. Totals may not equal sum of individual figures as displayed due to independent rounding.

11. Alaska Energy Data Gateway, developed by the Institute of Social and Economic Research, University of Alaska Anchorage, is supported by the U.S. Department of Energy (DOE), Office of Science, Basic Energy Sciences (BES), under EPSCoR Award # DE-SC0004903 (database and web application development), and by Alaska Energy Authority (Renewable Energy Fund data management and reporting). Database and web hosting is provided by Arctic Region Supercomputing Center, University of Alaska Fairbanks.

RENEWABLE ENERGY FUND SUCCESS STORY

UNALAKLEET WIND FARM

REF AWARD | \$4,000,000
 MATCHING FUNDS | \$201,492
 TOTAL PROJECT COST | \$6,000,000



During Round I of the Renewable Energy Fund, Unalakleet Valley Electric Cooperative (UVEC) requested funding for construction of a wind farm to offset expensive and highly variable diesel costs, which fuel their isolated community power system. The project was selected for funding and the system was designed, built and commissioned in November 2011, dovetailing with a power plant upgrade.

Unalakleet's wind system includes six Northern Power Systems 100 kW wind turbines, the most common wind turbine used in Alaska, placed in a windy spot 3 miles from the community. In 2013 the six wind turbines contributed approximately 40 percent of the total electricity produced and saved the community \$276,000 in fuel expenses (72,000 gallons). In 2014, it appears the savings will grow due to continued system operational

improvements. Savings for the first three quarters of 2014 were \$213,000, and typically increase during the fourth quarter's windier conditions and colder, denser air. Some wind energy is used to heat the school, baler building and water plant at times when wind energy production exceeds the community's demand for electricity.

The project has hit some technical challenges along the way, but with the cooperation of the community, AEA's technical experts on wind/diesel system integration, and the wind turbine manufacturer, the system has been integrated with the diesel system and its performance maximized over the years, including recent integration improvements in 2014. The community has maintained the equipment well and operates the system for maximum performance.



A salmon drying rack waits for next year's catch on Unalakleet's coast as the sun sets on Norton Sound.



UVEC crews raise a met tower just east of the Unalakleet Wind Farm - Nov 2014.



Unalakleet wind turbines in winter.

ROUND VIII RECOMMENDED APPLICATIONS

AEA recommended 40 out of 67 applications reviewed for Round VIII funding. These 40 projects requested \$43.8 million in funding. Following AEA's technical and economic reviews and scoring, AEA recommends funding of \$28.3 million for these 40 projects. To meet the Governor's budget target of \$15 million, and following consultation with the Renewable Energy Fund Advisory Committee (REFAC) on regional distribution, AEA recommends 34 top-tier projects that are listed in the following pages. Some of the projects are capped at \$1.5 million and one project in an over-served region is partially funded within the top tier.

REVIEW PROCESS

The recommendation process involves three stages of review and scoring and a fourth stage where regional distribution is applied. The first three stages evaluate and score eligibility, technical and economic feasibility, and ranking based on criteria established in statute. The technical and economic evaluation is a thorough vetting process conducted by AEA technical reviewers, economists, and by the Department of Natural Resources. Following the third stage of evaluation, AEA presents a ranked list of recommended projects, a list of not recommended projects, and a regional distribution recommendation to REFAC to ensure that there is regional equity in the cumulative rounds I through VIII funding.

ADVISORY COMMITTEE/REGIONAL SPREADING

During the January 9, 2015 REFAC meeting, the committee advised AEA to consider a new approach to the regional distribution of REF project funding. Below is the three-step approach developed by AEA to respond to the committee's guidance.

1. Use a regional population weighted "burden of energy cost" metric to establish regional funding bands. The burden of energy cost for a household is calculated based on regionally appropriate household consumption and local

costs for residential electric and heating fuel and household income. Burden of energy cost = (HH cost of electric + heat energy) / HH income. Using this methodology, Yukon-Koyukuk/Upper Tanana is identified as "underserved" based on the amount of funding received to date from the REF.

2. Cap all individual projects at \$1.5 million (10 percent of Governor's budget).
3. Regions that exceed the target funding band by more than 2X will be capped so their share of the overall fund cannot grow beyond current levels. This rule affects the Southeast region in this round. Southeast projects in the top funding tier are limited to recommended projects in communities with the highest burden of energy cost. Once the region's funding equals 22.15 percent (RI through RVIII percentage share of funds) of recommended funding, the remaining projects will be identified as recommended projects, but in a group below the top tier of \$15 million of Round VIII projects.

AEA'S RECOMMENDATIONS

The REFAC re-convened on January 28, 2015 to review the outcome of the recommendations made at the January 9 meeting. The committee recommended the list provided and the new regional distribution methodology. AEA has accepted the committee's recommendations and presents the legislature with the following tables of recommended projects for a funding determination. Pages 10 and 11 identify all projects that are recommended for funding by AEA in ranked order. The first \$15 million of projects that fit within the Governor's budget are colored a darker shade of blue (standard electric projects) and orange (heat projects). The lighter shades represent recommended projects outside the current \$15 million Governor's budget.

RECOMMENDED FULL RANK LIST

REF Recommended Projects Round VIII																
Count	Energy Region	ID	Project Name	Applicant	Energy Source	B/C	Tech / Econ Score	State-wide Rank	Project Cost Through Construction	Applicant Grant Requested	Applicant Match Offered++	Recommended Phase(s)	AEA Recomnd	Recommend Funding	Cumulative Funding	
1	Southeast	1113	Angoon Low-Income Housing Pellet District Heat	Tlingit Haida Regional Housing Authority	Biomass	1.79	75.8	1	\$292,184	\$240,592	\$266,592	Design/Const	Full SP	\$240,592	\$240,592	
2	Southeast	1147	Southeast Island School District Wood Boilers	Southeast Island School District	Biomass	2.33	89.3	2	\$872,635	\$832,635	\$124,708	Construction	Full	\$832,635	\$1,073,227	
3	Southeast	1161	Hoonah Biomass District Heating Loop	Hoonah Indian Association	Biomass	1.67	78.0	4	\$0	\$45,000	\$30,000	Feasibility	Full	\$45,000	\$1,118,227	
4	Lower Yukon-Kuskokwim	1118	Bethel Heat Recovery Assessment & Conceptual Design	Alaska Village Electric Cooperative, Inc.	HeatRecovery	3.63	71.2	5	\$9,000,000	\$645,613	\$33,980	Feasibility	Partial	\$325,000	\$1,443,227	
5	Aleutians	1163	Sand Point Excess Wind Utilization	TDX Power, Sand Point Generating	HeatWind	2.94	75.7	6	\$383,900	\$307,120	\$76,780	Design/Const	Full	\$307,120	\$1,750,347	
6	Copper River/Chugach	1111	Crater Lake Power and Water Project	Cordova Electric Cooperative, Inc.	Hydro, Storage	2.3	71.7	8	\$10,000,000	\$500,000	\$350,000	Feas, Design	Full SP	\$500,000	\$2,250,347	
7	Southeast	1131	Hydaburg Schools Wood Fired Boiler Project	Hydaburg City School District	Biomass	1.95	86.5	9	\$660,977	\$620,977	\$40,000	Design/Const	Full	\$620,977	\$2,871,324	
8	Kodiak	1116	Old Harbor Hydro – Geotechnical Study & Design	Alaska Village Electric Cooperative, Inc.	Hydro	1.36	61.0	10	\$9,200,000	\$1,092,500	\$20,000	Design	Partial	\$400,000	\$3,271,324	
9	Aleutians	1162	Adak Hydro Feasibility Phase II	TDX Power, Inc.	Hydro	1.52	61.5	11	\$1,400,000	\$85,000	\$0	Feasibility	Full SP	\$390,000	\$3,661,324	
10	Southeast	1135	Lepquinum Center Ground Source Heat Pump	Metlakatla Indian Community	HeatPump	1.8	77.0	12	\$3,479,490	\$3,445,040	\$34,450	Design/Const	Full**	\$1,481,527	\$5,142,851	
11	Northwest Arctic	1133	Kotzebue Paper & Wood Waste to Energy	City of Kotzebue	Biomass	1.14	64.3	14	\$2,692,700	\$2,495,189	\$250,000	Design	Partial	\$200,000	\$5,342,851	
12	Northwest Arctic	1125	Ambler Washeteria & City Office Biomass	City of Ambler	Biomass	1.12	47.7	15	\$433,379	\$379,583	\$13,796	Design	Full SP	\$379,583	\$5,722,434	
13	Lower Yukon-Kuskokwim	1143	Scammon Bay Community Facilities Heat Recovery	City of Scammon Bay	HeatRecovery	1.26	62.7	16	\$763,898	\$756,335	\$7,563	Design	Partial	\$60,000	\$5,782,434	
14	Lower Yukon-Kuskokwim	1117	Goodnews Bay Wind	Alaska Village Electric Cooperative, Inc.	Wind	1.17	59.3	18	\$1,634,500	\$123,500	\$6,500	Feasibility	Full	\$123,500	\$5,905,934	
15	Southeast	1114	Klawock Low-Income Housing Pellet	Tlingit Haida Regional Housing Authority	Biomass	1.09	59.0	19	\$102,275	\$102,275	\$314,381	Design/Const	Full SP	\$102,275	\$6,008,209	
16	Lower Yukon-Kuskokwim	1115	St. Mary's-Pitka's Point Wind	Alaska Village Electric Cooperative, Inc.	Wind	1	56.0	20	\$4,886,000	\$4,348,540	\$537,460	Construction	Full SP/Cap*	\$1,500,000	\$7,508,209	
17	Bristol Bay	1166	Chignik Hydro Design & Permitting	City of Chignik	Hydro	1.03	63.0	22	\$6,610,000	\$1,305,000	\$70,000	Design	Full SP	\$1,305,000	\$8,813,209	
18	Yukon-Koyukuk/Upper Tanana	1126	Huslia Water System & Clinic Biomass Boiler	City of Huslia	Biomass	0.67	40.7	23	\$503,990	\$499,000	\$89,990	Design	Partial	\$58,000	\$8,871,209	
19	Yukon-Koyukuk/Upper Tanana	1120	Yerrick Creek Hydropower Project	Upper Tanana Energy, LLC (UTE)	Hydro	1.21	47.0	25	\$24,000,000	\$8,000,000	\$16,000,000	Construction	Full SP/Cap*	\$1,500,000	\$10,371,209	
20	Copper River/Chugach	1110	Wood Boiler for the Native Village of Tazlina	Native Village of Tazlina	Biomass	1.06	68.7	26	\$324,807	\$270,807	\$54,000	Design/Const	Full	\$270,807	\$10,642,016	
21	Bering Straits	1122	Koyuk Water System Heat Recovery	City of Koyuk	HeatRecovery	0.7	49.3	27	\$729,600	\$729,600	\$92,296	Design	Partial	\$50,000	\$10,692,016	
22	North Slope	1137	Atkasuk Transmission Line Design & Permitting	North Slope Borough	Transmission	2.19	79.2	28	\$26,272,407	\$2,017,818	\$201,782	Design	Full/Cap*	\$1,500,000	\$12,192,016	
23	Lower Yukon-Kuskokwim	1148	Scammon Bay Hydroelectric Project	City of Scammon Bay	Hydro	1.71	40.8	29	\$4,283,056	\$305,000	\$3,050	Recon	Partial	\$90,000	\$12,282,016	
24	Bering Straits	1132	Wales Water System Heat Recovery	City of Wales	HeatRecovery	0.58	49.3	30	\$706,701	\$699,163	\$7,538	Design	Partial	\$50,000	\$12,332,016	
25	Lower Yukon-Kuskokwim	1154	Eek Water System Heat Recovery	City of Eek	HeatRecovery	0.59	48.0	31	\$299,754	\$296,786	\$107,968	Design	Partial	\$50,000	\$12,382,016	
26	Yukon-Koyukuk/Upper Tanana	1124	Grayling Water System Heat Recovery	City of Grayling	HeatRecovery	0.75	50.0	32	\$458,716	\$454,277	\$26,439	Design	Partial	\$50,000	\$12,432,016	
27	Northwest Arctic	1119	Shungnak Wind-Diesel Design	Native Village of Shungnak	Wind	0.69	40.0	33	\$6,000,000	\$525,000	\$27,036	Feasibility	Partial	\$95,000	\$12,527,016	
28	Aleutians	1158	Waterfall Creek Hydroelectric Construction Project	City of King Cove	Hydro	1.25	40.0	34	\$5,461,000	\$1,800,000	\$1,061,000	Construction	Full SP/Cap*	\$1,500,000	\$14,027,016	
29	Yukon-Koyukuk/Upper Tanana	1105	Clearwater Creek Hydropower Project	Alaska Power Company	Hydro	1.23	42.8	35	\$15,922,000	\$413,600	\$103,400	Feasibility	Partial	\$40,000	\$14,067,016	
30	Northwest Arctic	1112	100 Kilowatt Solar Array for Kotzebue	Kotzebue Electric Association Inc.	Solar	1.3	42.0	36	\$449,178	\$384,730	\$64,448	Feasibility	Partial	\$20,000	\$14,087,016	
31	Kodiak	1138	Ouzinkie Hydroelectric Power Project	City of Ouzinkie	Hydro	0.62	42.8	37	\$5,541,549	\$2,516,385	\$8,840	Feasibility	Partial	\$88,400	\$14,175,416	
32	Railbelt	1146	Grant Lake Hydroelectric Project	Kenai Hydro LLC	Hydro	1.28	45.7	38	\$59,067,808	\$4,000,000	\$36,000	Design	Partial SP	\$358,000	\$14,533,416	
33	Railbelt	1145	IRHA Facility Biomass Feasibility Study	Interior Regional Housing Authority	Biomass	0.97	56.0	39	\$50,000	\$50,000	\$19,338	Feasibility	Full	\$50,000	\$14,583,416	
34	North Slope	1136	Kaktovik Wind Diesel Design	North Slope Borough	Wind	1.02	48.8	40	\$4,565,200	\$440,000	\$44,000	Design	Full SP	\$416,584	\$15,000,000	
Sub Total, Recommended Projects within \$15 million budget									\$207,047,704	\$40,727,065	\$20,123,335			\$15,000,000		
34	North Slope	1136	Kaktovik Wind Diesel Design	North Slope Borough	Wind	1.02	48.8	40	\$4,565,200	\$440,000	\$44,000	Design	Full SP	\$23,416	\$15,023,416	
<i>The remainder of the list of recommended projects (below) are those that were not recommended for funding within the \$15 million budget as a result of REFAC recommendations regarding Stage 4 regional distribution.</i>																
10	Southeast	1135	Lepquinum Center Ground Source Heat Pump	Metlakatla Indian Community	HeatPump	1.8	77.0	12	\$3,479,490	\$3,445,040	\$34,450	Design/Const	Full**	\$18,473	\$15,041,889	
35	Southeast	1109	Craig High School Wood Heat Conversion	Craig City School District	Biomass	1.98	82.5	3	\$679,950	\$493,100	\$186,850	Design/Const	Full**	\$493,100	\$15,534,989	
36	Southeast	1108	Neck Lake Hydropower Project	Alaska Power Company	Hydro	0.94	63.5	13	\$3,011,475	\$391,200	\$97,800	Feas, Design	Full**	\$391,200	\$15,926,189	
37	Southeast	1103	Sitka: Wastewater Treatment Plant Effluent Heat Pump	City & Borough of Sitka Public Works Dept.	HeatPump	1.41	83.5	7	\$740,000	\$627,000	\$168,278	Design/Const	Full**	\$627,000	\$16,553,189	
38	Southeast	1142	Gateway Borough Rec & Schools Central Heating	Ketchikan Gateway Borough	Biomass	1.97	89.3	17	\$2,200,000	\$220,000	\$0	Feas, Design	Full**	\$220,000	\$16,773,189	
39	Southeast	1104	SEAPA Wind Resource Assessment	The Southeast Alaska Power Agency	Wind	1.79	81.8	21	\$170,583	\$88,742	\$81,842	Recon, Feas	Full**	\$88,742	\$16,861,931	
40	Southeast	1140	Ketchikan High School Biomass Boiler	Ketchikan Gateway Borough	Biomass	1.46	83.2	24	\$1,408,908	\$1,288,018	\$0	Construction	Full**	\$1,288,018	\$18,149,949	
Total, All Recommended Projects									\$215,258,620	\$43,835,125	\$20,658,105			\$18,149,949 †		

Please see notes for all tables on pages 14 & 15.
Individual project summaries are available on AEA's website (see page 2).

RECOMMENDED HEAT AND STANDARD

REF Recommended Projects Round VIII															
Count	Energy Region	ID	Project Name	Applicant	Energy Source	B/C	Tech / Econ Score	State-wide Rank	Project Cost Through Construction	Applicant Grant Requested	Applicant Match Offered++	Recommended Phase(s)	AEA Recomnd	Recommend Funding	Cumulative Funding
1	Copper River/Chugach	1111	Crater Lake Power and Water Project	Cordova Electric Cooperative, Inc.	Hydro, Storage	2.3	71.7	8	\$10,000,000	\$500,000	\$350,000	Feas, Design	Full SP	\$500,000	\$500,000
2	Kodiak	1116	Old Harbor Hydro – Geotechnical Study & Design	Alaska Village Electric Cooperative, Inc.	Hydro	1.36	61.0	10	\$9,200,000	\$1,092,500	\$20,000	Design	Partial	\$400,000	\$900,000
3	Aleutians	1162	Adak Hydro Feasibility Phase II	TDX Power, Inc.	Hydro	1.52	61.5	11	\$1,400,000	\$85,000	\$0	Feasibility	Full SP	\$390,000	\$1,290,000
4	Lower Yukon-Kuskokwim	1117	Goodnews Bay Wind	Alaska Village Electric Cooperative, Inc.	Wind	1.17	59.3	18	\$1,634,500	\$123,500	\$6,500	Feasibility	Full	\$123,500	\$1,413,500
5	Lower Yukon-Kuskokwim	1115	St. Mary’s-Pitka’s Point Wind	Alaska Village Electric Cooperative, Inc.	Wind	1	56.0	20	\$4,886,000	\$4,348,540	\$537,460	Construction	Full SP/Cap*	\$1,500,000	\$2,913,500
6	Bristol Bay	1166	Chignik Hydro Design & Permitting	City of Chignik	Hydro	1.03	63.0	22	\$6,610,000	\$1,305,000	\$70,000	Design	Full SP	\$1,305,000	\$4,218,500
7	Yukon-Koyukuk/Upper Tanana	1120	Yerrick Creek Hydropower Project	Upper Tanana Energy, LLC (UTE)	Hydro	1.21	47.0	25	\$24,000,000	\$8,000,000	\$16,000,000	Construction	Full SP/Cap*	\$1,500,000	\$5,718,500
8	North Slope	1137	Atkasuk Transmission Line Design & Permitting	North Slope Borough	Transmission	2.19	79.2	28	\$26,272,407	\$2,017,818	\$201,782	Design	Full/Capped*	\$1,500,000	\$7,218,500
9	Lower Yukon-Kuskokwim	1148	Scammon Bay Hydroelectric Project	City of Scammon Bay	Hydro	1.71	40.8	29	\$4,283,056	\$305,000	\$3,050	Recon	Partial	\$90,000	\$7,308,500
10	Northwest Arctic	1119	Shungnak Wind-Diesel Design	Native Village of Shungnak	Wind	0.69	40.0	33	\$6,000,000	\$525,000	\$27,036	Feasibility	Partial	\$95,000	\$7,403,500
11	Aleutians	1158	Waterfall Creek Hydroelectric Construction Project	City of King Cove	Hydro	1.25	40.0	34	\$5,461,000	\$1,800,000	\$1,061,000	Construction	Full SP/Cap*	\$1,500,000	\$8,903,500
12	Yukon-Koyukuk/Upper Tanana	1105	Clearwater Creek Hydropower Project	Alaska Power Company	Hydro	1.23	42.8	35	\$15,922,000	\$413,600	\$103,400	Feasibility	Partial	\$40,000	\$8,943,500
13	Northwest Arctic	1112	100 Kilowatt Solar Array for Kotzebue	Kotzebue Electric Association Inc.	Solar	1.3	42.0	36	\$449,178	\$384,730	\$64,448	Feasibility	Partial	\$20,000	\$8,963,500
14	Kodiak	1138	Ouzinkie Hydroelectric Power Project	City of Ouzinkie	Hydro	0.62	42.8	37	\$5,541,549	\$2,516,385	\$8,840	Feasibility	Partial	\$88,400	\$9,051,900
15	Railbelt	1146	Grant Lake Hydroelectric Project	Kenai Hydro LLC	Hydro	1.28	45.7	38	\$59,067,808	\$4,000,000	\$36,000	Design	Partial SP	\$358,000	\$9,409,900
16	North Slope	1136	Kaktovik Wind Diesel Design	North Slope Borough	Wind	1.02	48.8	40	\$4,565,200	\$440,000	\$44,000	Design	Full SP	\$416,584	\$9,826,484
Sub Total, Recommended Standard Projects within \$15 million budget									\$185,292,698	\$27,857,073	\$18,533,516			\$9,826,484	
16	North Slope	1136	Kaktovik Wind Diesel Design	North Slope Borough	Wind	1.02	48.8	40	\$4,565,200	\$440,000	\$44,000	Design	Full SP	\$23,416	\$9,849,900
<i>The remainder of the list of recommended projects (below) are those that were not recommended for funding within the \$15 million budget as a result of REFAC recommendations regarding Stage 4 regional distribution.</i>															
17	Southeast	1108	Neck Lake Hydropower Project	Alaska Power Company	Hydro	0.94	63.5	13	\$3,011,475	\$391,200	\$97,800	Feas, Design	Full**	\$391,200	\$10,241,100
18	Southeast	1104	SEAPA Wind Resource Assessment	The Southeast Alaska Power Agency	Wind	1.79	81.8	21	\$170,583	\$88,742	\$81,842	Recon, Feas	Full**	\$88,742	\$10,329,842
Total, All Recommended Standard Projects									\$188,474,756	\$28,337,015	\$18,713,158			\$10,329,842 †	
1	Southeast	1113	Angoon Low-Income Housing Pellet District Heat	Tlingit Haida Regional Housing Authority	Biomass	1.79	75.8	1	\$292,184	\$240,592	\$266,592	Design/Const	Full SP	\$240,592	\$240,592
2	Southeast	1147	Southeast Island School District Wood Boilers	Southeast Island School District	Biomass	2.33	89.3	2	\$872,635	\$832,635	\$124,708	Construction	Full	\$832,635	\$1,073,227
3	Southeast	1161	Hoonah Biomass District Heating Loop	Hoonah Indian Association	Biomass	1.67	78.0	4	\$0	\$45,000	\$30,000	Feasibility	Full	\$45,000	\$1,118,227
4	Lower Yukon-Kuskokwim	1118	Bethel Heat Recovery Assessment & Conceptual Design	Alaska Village Electric Cooperative, Inc.	HeatRecovery	3.63	71.2	5	\$9,000,000	\$645,613	\$33,980	Feasibility	Partial	\$325,000	\$1,443,227
5	Aleutians	1163	Sand Point Excess Wind Utilization	TDX Power, Sand Point Generating	HeatWind	2.94	75.7	6	\$383,900	\$307,120	\$76,780	Design/Const	Full	\$307,120	\$1,750,347
6	Southeast	1131	Hydaburg Schools Wood Fired Boiler Project	Hydaburg City School District	Biomass	1.95	86.5	9	\$660,977	\$620,977	\$40,000	Design/Const	Full	\$620,977	\$2,371,324
7	Southeast	1135	Lepquinum Center Ground Source Heat Pump	Metlakatla Indian Community	HeatPump	1.8	77.0	12	\$3,479,490	\$3,445,040	\$34,450	Design/Const	Full**	\$1,481,527	\$3,852,851
8	Northwest Arctic	1133	Kotzebue Paper & Wood Waste to Energy	City of Kotzebue	Biomass	1.14	64.3	14	\$2,692,700	\$2,495,189	\$250,000	Design	Partial	\$200,000	\$4,052,851
9	Northwest Arctic	1125	Ambler Washeteria & City Office Biomass	City of Ambler	Biomass	1.12	47.7	15	\$433,379	\$379,583	\$13,796	Design	Full SP	\$379,583	\$4,432,434
10	Lower Yukon-Kuskokwim	1143	Scammon Bay Community Facilities Heat Recovery	City of Scammon Bay	HeatRecovery	1.26	62.7	16	\$763,898	\$756,335	\$7,563	Design	Partial	\$60,000	\$4,492,434
11	Southeast	1114	Klawock Low-Income Housing Pellet	Tlingit Haida Regional Housing Authority	Biomass	1.09	59.0	19	\$102,275	\$102,275	\$314,381	Design/Const	Full SP	\$102,275	\$4,594,709
12	Yukon-Koyukuk/Upper Tanana	1126	Huslia Water System & Clinic Biomass Boiler	City of Huslia	Biomass	0.67	40.7	23	\$503,990	\$499,000	\$89,990	Design	Partial	\$58,000	\$4,652,709
13	Copper River/Chugach	1110	Wood Boiler for the Native Village of Tazlina	Native Village of Tazlina	Biomass	1.06	68.7	26	\$324,807	\$270,807	\$54,000	Design/Const	Full	\$270,807	\$4,923,516
14	Bering Straits	1122	Koyuk Water System Heat Recovery	City of Koyuk	HeatRecovery	0.7	49.3	27	\$729,600	\$729,600	\$92,296	Design	Partial	\$50,000	\$4,973,516
15	Bering Straits	1132	Wales Water System Heat Recovery	City of Wales	HeatRecovery	0.58	49.3	30	\$706,701	\$699,163	\$7,538	Design	Partial	\$50,000	\$5,023,516
16	Lower Yukon-Kuskokwim	1154	Eek Water System Heat Recovery	City of Eek	HeatRecovery	0.59	48.0	31	\$299,754	\$296,786	\$107,968	Design	Partial	\$50,000	\$5,073,516
17	Yukon-Koyukuk/Upper Tanana	1124	Grayling Water System Heat Recovery	City of Grayling	HeatRecovery	0.75	50.0	32	\$458,716	\$454,277	\$26,439	Design	Partial	\$50,000	\$5,123,516
18	Railbelt	1145	IRHA Facility Biomass Feasibility Study	Interior Regional Housing Authority	Biomass	0.97	56.0	39	\$50,000	\$50,000	\$19,338	Feasibility	Full	\$50,000	\$5,173,516
Sub Total, Recommended Heat Projects within \$15 million budget									\$21,755,006	\$12,869,992	\$1,589,819			\$5,173,516	
<i>The remainder of the list of recommended projects (below) are those that were not recommended for funding within the \$15 million budget as a result of REFAC recommendations regarding Stage 4 regional distribution.</i>															
7	Southeast	1135	Lepquinum Center Ground Source Heat Pump	Metlakatla Indian Community	HeatPump	1.8	77.0	12	\$3,479,490	\$3,445,040	\$34,450	Design/Const	Full**	\$18,473	\$5,191,989
19	Southeast	1109	Craig High School Wood Heat Conversion	Craig City School District	Biomass	1.98	82.5	3	\$679,950	\$493,100	\$186,850	Design/Const	Full**	\$493,100	\$5,685,089
20	Southeast	1103	Sitka: Wastewater Treatment Plant Effluent Heat Pump	City & Borough of Sitka Public Works Dept.	HeatPump	1.41	83.5	7	\$740,000	\$627,000	\$168,278	Design/Const	Full**	\$627,000	\$6,312,089
21	Southeast	1142	Gateway Borough Rec & Schools Central Heating	Ketchikan Gateway Borough	Biomass	1.97	89.3	17	\$2,200,000	\$220,000	\$0	Feas, Design	Full**	\$220,000	\$6,532,089
22	Southeast	1140	Ketchikan High School Biomass Boiler	Ketchikan Gateway Borough	Biomass	1.46	83.2	24	\$1,408,908	\$1,288,018	\$0	Construction	Full**	\$1,288,018	\$7,820,107
Total, All Recommended Heat Projects									\$26,783,864	\$15,498,110	\$1,944,947			\$7,820,107 †	

Please see notes for all tables on pages 14 & 15.
Individual project summaries are available on AEA's website (see page 2).

APPLICATIONS NOT RECOMMENDED FOR FUNDING

REF Round VIII - Applications Not Recommended for Funding											
Count	Energy Region	ID	Project Name	Applicant	Energy Source	B/C	Project Cost				AEA Recommendation
							Project Cost Through Construction	Applicant Grant Requested	Applicant Match Offered ††	Phase(s) Requested	
1	Bristol Bay	1101	Manokotak Renewable Energy Feasibility	Manokotak Power Company	Wind	0.87	\$2,100,000	\$185,000	\$15,000	Recon, Feas	Did Not Pass Stage 2
2	Lower Yukon-Kuskokwim	1139	Chefornak Wind Heat System	City of Chefornak/Naterkaq Light Plant	Wind	0.71	\$4,526,458	\$382,400	\$7,500	Design	Did Not Pass Stage 2
3	Southeast	1159	Elfin Cove Hydroelectric Permitting	Elfin Cove Utility Commission	Hydro	0.99	\$3,380,000	\$102,300	\$56,900	Design	Did Not Pass Stage 2
4	Southeast	1160	Indian River Hydroelectric Construction	Tenakee Springs Electric Dept	Hydro	0.96	\$4,526,280	\$977,000	\$280	Construction	Did Not Pass Stage 2
5	Railbelt	1164	Port Graham Community Building Biomass	Port Graham Village Council	Biomass	0.36	\$420,765	\$341,465	\$79,300	Construction	Did Not Pass Stage 2
6	Kodiak	1102	Upper Hidden Basin Diversion	Kodiak Electric Association, Inc. (KEA)	Hydro	5.57	\$50,000,000	\$1,250,000	\$1,250,000	Design	Not Recommended
7	Southeast	1106	Mahoney Lake Hydropower Project	City of Saxman	Hydro	1.28	\$45,320,707	\$800,000	\$100,000	Design	Not Recommended
8	Southeast	1107	Swan Lake Reservoir Expansion Project	Southeast Alaska Power Agency	Hydro	3.21	\$13,391,869	\$2,797,935	\$6,695,934	Construction	Not Recommended
9	Copper River/Chugach	1123	Fivemile Creek Hydroelectric Project	Chitina Electric Inc. (CEI)	Hydro	0.95	\$7,770,000	\$7,620,000	\$500,000	Design, Constr	Not Recommended
10	Aleutians	1127	Hydrokinetic Feasibility Study: False Pass	City of False Pass	Hydrokinetic	0.09	\$6,870,575	\$428,646	\$62,500	Feasibility	Not Recommended
11	Bristol Bay	1128	Igiugig RivGen® Power System Project	Igiugig Village Council	Hydrokinetic	0.34	\$2,458,622	\$2,016,509	\$296,500	Design, Constr	Not Recommended
12	Yukon-Koyukuk/Upper Tanana	1129	Nikolai Community Biomass Heating System	City of Nikolai	Biomass	0.71	\$705,893	\$698,904	\$6,989	Design, Constr	Not Recommended
13	Yukon-Koyukuk/Upper Tanana	1130	Holy Cross Heat Recovery for Water System	City of Holy Cross	HeatRecovery	0.50	\$439,453	\$390,449	\$74,009	Design, Constr	Not Recommended
14	Lower Yukon-Kuskokwim	1134	Kwigillingok Wind/Heat Elec. Thermal Storage	Kwig Power Company	HeatWind	0.18	\$284,562	\$279,562	\$5,000	Design, Constr	Not Recommended
15	Northwest Artic	1141	Selawik Water System Heat Recovery	City of Selawik	HeatRecovery	0.46	\$200,718	\$198,731	\$105,773	Design, Constr	Not Recommended
16	Southeast	1144	Kake Senior Housing Solar PV	Tlingit Haida Regional Housing Authority	Solar	0.42	\$60,000	\$56,000	\$4,000	Construction	Not Recommended
17	Railbelt	1149	Southcentral Small Hydro Assessments	Chugach Electric Association, Inc.	Hydro	1.66	-	\$75,000	\$75,000	Recon	Not Recommended
18	Aleutians	1150	Adak Community Energy Baseline Study	Adak Generating, LLC., (TDX)	Other	N/A	-	\$85,000	\$17,000	Recon	Not Recommended
19	Aleutians	1151	St. Paul Community Energy Baseline Study	TDX Power, Inc.	Other	N/A	-	\$202,696	\$50,673	Recon	Not Recommended
20	Bristol Bay	1152	Lake and Peninsula Borough Wood Boilers	Lake and Peninsula Borough	Biomass	1.06	\$309,450	\$247,560	\$61,890	Design, Constr	Not Recommended
21	Bering Straits	1153	Unalakleet Wind-Diesel Optimization	Unalakleet Valley Electric Coop	Wind	0.77	-	\$295,775	\$29,650	Recon, Feas	Not Recommended
22	Northwest Artic	1155	City of Noorvik Solar-PV	City of Noorvik	Solar	0.69	\$165,000	\$165,000	\$1,000	Design, Constr	Not Recommended
23	Northwest Artic	1156	NW AK Wind Assessment & Intertie Study	NW Alaska Tribal Energy Org.	Wind, Trans	0.40	\$25,000,000	\$230,000	\$0	Feasibility	Not Recommended
24	North Slope	1157	Deadhorse Waste Heat to Energy Plant	TDX Power, North Slope Generating	HeatRecovery	0.00	\$13,717,479	\$4,000,000	\$10,497,695	All	Not Recommended
25	Copper River/Chugach	1165	Chenega Bay Hydroelectric Construction	Native Village of Chenega	Hydro	0.82	\$1,750,000	\$1,750,000	\$0	Design, Constr	Not Recommended
26	Lower Yukon-Kuskokwim	1121	Biomass for Akiachak Native Comm. Electric	Akiachak Native Comm Electric	Biomass	N/A	\$3,100,000	\$3,000,000	\$100,000	All	Did Not Pass Stage 1
27	Railbelt	1167	Community Solar Project	Homer Electric Association	Solar	N/A	\$427,600	\$342,600	\$85,000	Construction	Did Not Pass Stage 1
Total, Not Recommended Projects							\$186,925,431	\$28,918,532	\$20,177,593		

NOTES FOR TABLES PAGES 10-15

† Total recommended funding for all projects before stage 4 regional distribution sums to \$28,281,857.

†† The applicant match column includes energy efficiency improvements that are offered as part of the applicant's match, but do not contribute to the Project Cost Through Construction column.

* Funding for these projects was reduced according to the \$1.5 million cap on all individual projects. See Stage 4 reductions.

** Funding for these projects was reduced according to the maximum regional allocation. See Stage 4 reductions.

B/C = AEA calculation of Benefit/Cost Ratio over the life of the project based upon available information.

Some not recommended projects' B/C ratios may not be listed due to incomplete information provided or other reasons.

Total Stage 2 Score column is the technical and economic evaluation score on a scale of 0 to 100. A minimum score of 40 is required to pass stage 2.

Project Cost Through Construction, Applicant Grant Requested, and Applicant Match Offered are based upon the project scopes recommended by AEA.

Match offered is applicant's offered cash and in-kind match, including supporting energy efficiency work and wood harvest value where applicable.

SP = Special Provisions

If REF VIII funding is limited to \$15M, #1136, Kaktovik Wind Diesel Design would be partially funded. To fully fund, \$15,023,416 must be appropriated.

Special Provisions

1113: AEA must review and accept the final engineering design and the final business/operational plan.

1114: AEA must review and accept the final engineering design and the final business/operational plan.

1115: 95 percent design must be accepted by the Authority prior to allocation of construction funds.

1120: Design must be finalized and approved by AEA prior to issuing a grant for the construction phase.

1125: Construction funding will not be released until the final design and business/operating plan is approved.

1136: 65 percent design, including all necessary permits, must be accepted by AEA prior to the release of funds for final design work.

1146: In order to receive design funding, Kenai Hydro will be required to complete the feasibility and concept design report, and meet other provisions listed in AEA's review comments.

1158: Prior to the issuance of a R VIII grant or expenditure of any existing project grant funds, applicant must demonstrate site control, become current on financial and progress reports, amend existing grants to reflect proposed milestone and deliverables, and provide detailed project management plan.

1162: Additional funding be used to expand the scope of the feasibility study.

1166: Must receive a detailed design budget and a list of the proposed consultants prior to grant execution.

Stage 4 Reductions

1103: Reduced recommendation from \$627,000 to \$0 based upon maximum regional allocation.

1104: Reduced recommendation from \$88,742 to \$0 based upon maximum regional allocation.

1108: Reduced recommendation from \$391,200 to \$0 based upon maximum regional allocation.

1109: Reduced recommendation from \$493,100 to \$0 based upon maximum regional allocation.

1115: Reduced recommendation by \$2,848,540 to maximum grant amount of \$1,500,000.

1120: Reduced recommendation by \$6,500,000 to maximum grant amount of \$1,500,000.

1135: Reduced recommendation of \$3,445,040 by \$1,963,513 based upon maximum regional allocation. Funding recommended outside the Governor's \$15 million budget is limited to \$18,473 due to maximum grant amount of \$1,500,000.

1137: Reduced recommendation by \$517,818 to maximum grant amount of \$1,500,000.

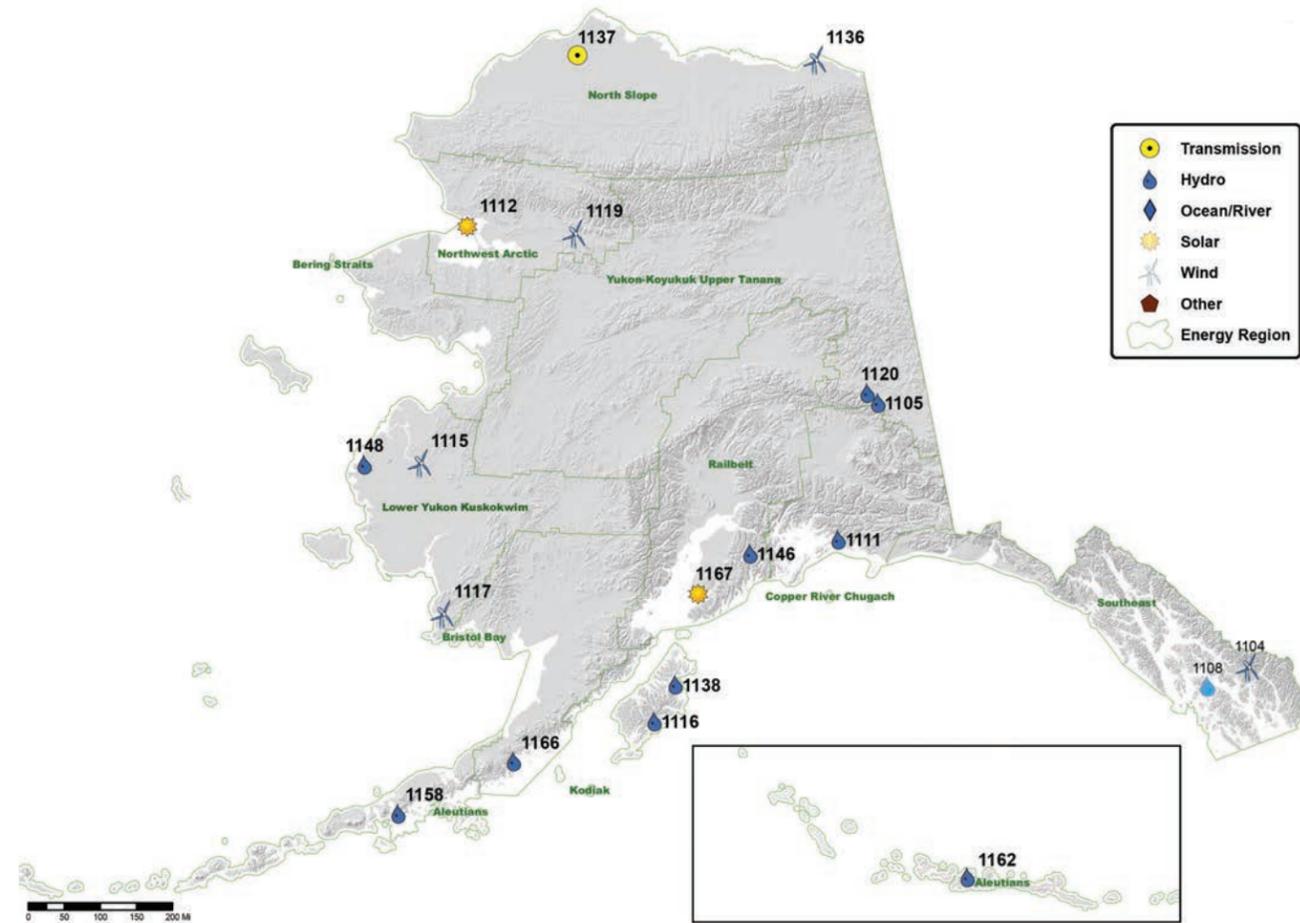
1140: Reduced recommendation from \$1,288,018 to \$0 based upon maximum regional allocation.

1142: Reduced recommendation from \$220,000 to \$0 based upon maximum regional allocation.

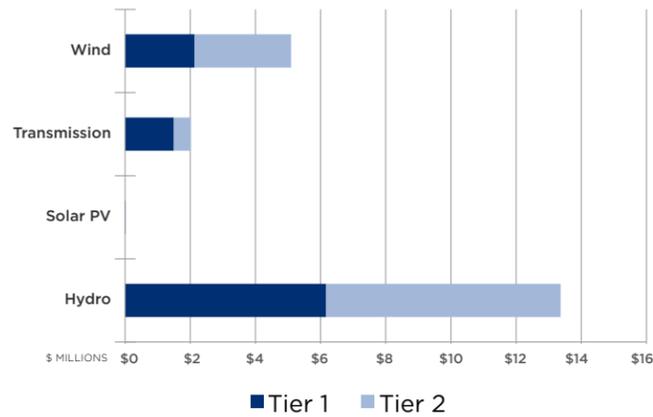
1158: Reduced recommendation by \$300,000 to max grant amount of \$1,500,000.

MAP NOTES: Recommended projects that fit within the Governor's budget are shown with large/bold labels.
 Projects that are recommended but do not fit within the proposed budget are shown with small/un-bolded labels

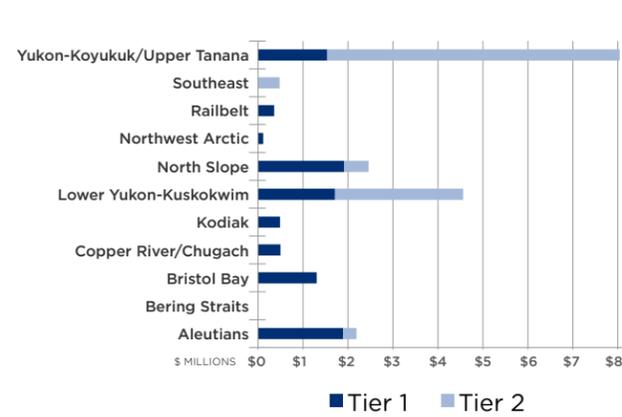
RENEWABLE ENERGY FUND
 ROUND VIII | RECOMMENDED STANDARD PROJECTS



STANDARD PROJECTS
 BY RESOURCE

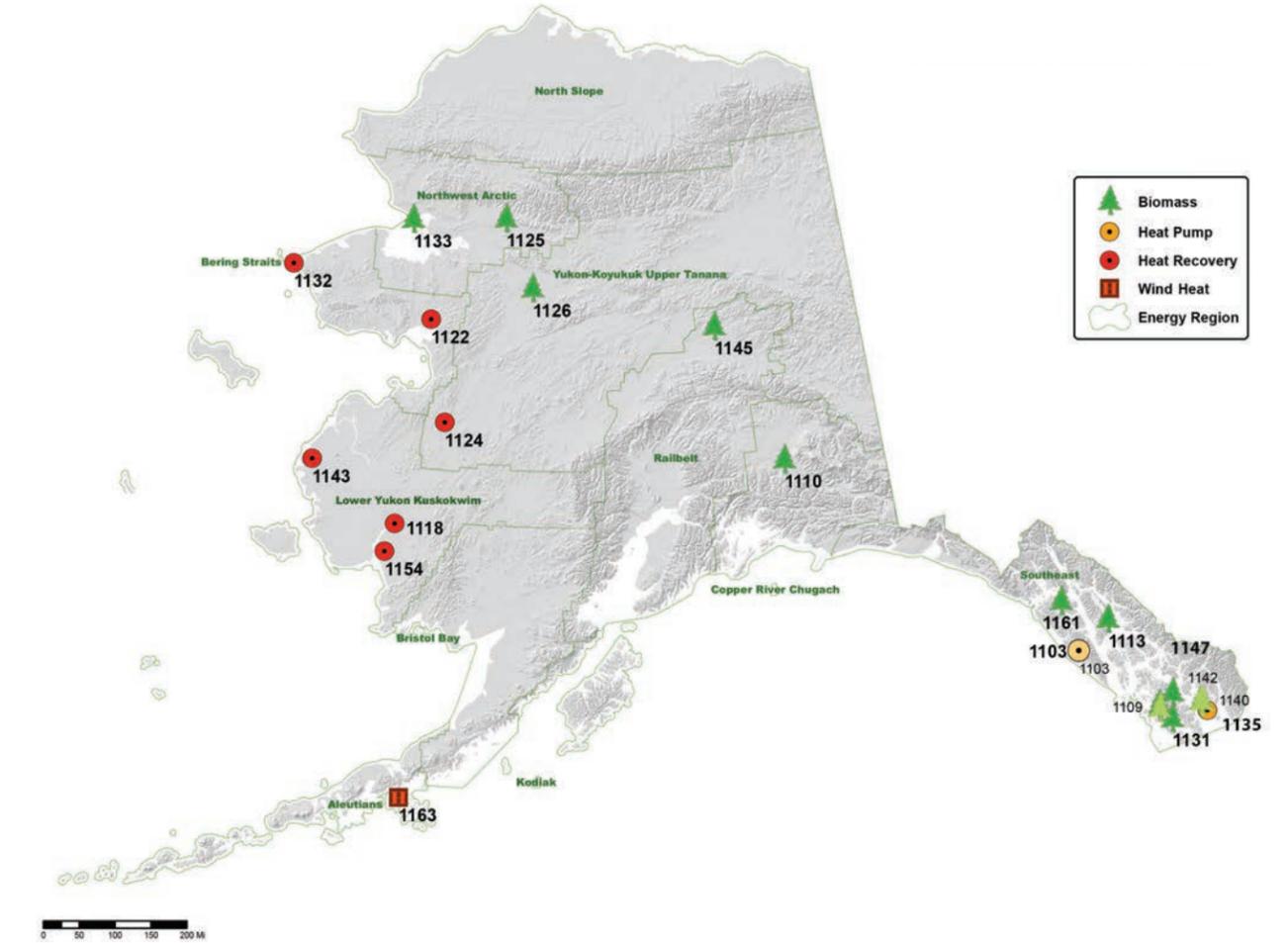


STANDARD PROJECTS
 BY REGION

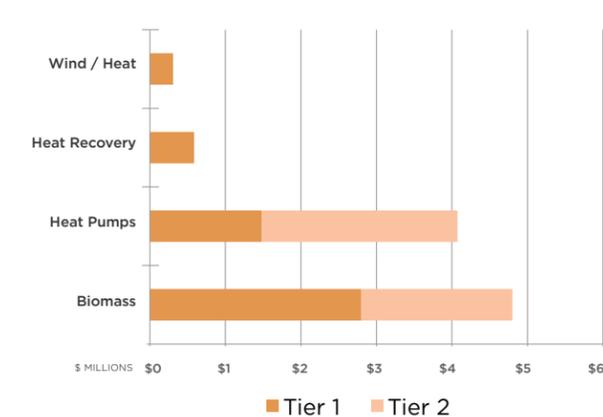


The two bar charts show RVIII recommended funding by energy resource and by region for standard projects. The darker shade (Tier 1) indicates recommended funding within the Governor's \$15 million budget. The lighter shade (Tier 2) indicates recommended funding that falls below the target budget.

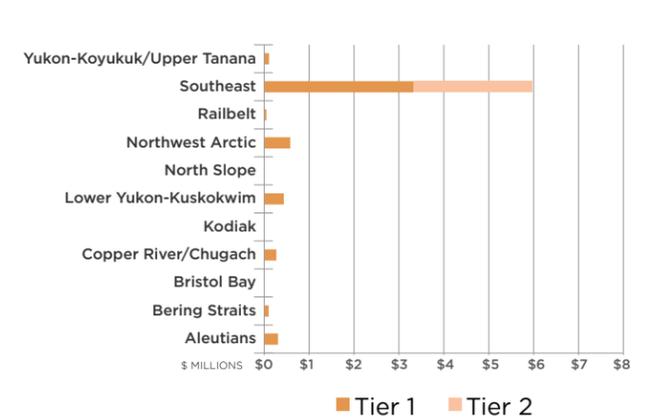
RENEWABLE ENERGY FUND
 ROUND VIII | RECOMMENDED HEAT PROJECTS



HEAT PROJECTS
 BY RESOURCE



HEAT PROJECTS
 BY REGION



The two bar charts show RVIII recommended funding by energy resource and by region for heat projects. The darker shade (Tier 1) indicates recommended funding within the Governor's \$15 million budget. The lighter shade (Tier 2) indicates recommended funding that falls below the target budget.

RENEWABLE ENERGY FUND ADVISORY COMMITTEE

The Renewable Energy Fund Advisory Committee (REFAC) is comprised of nine members, five of which are appointed by the governor to staggered three-year terms, with representation from each of the following groups:

- One member from a small Alaska rural electric utility, Brad Reeve
- One member from a large Alaska urban electric utility, Bradley Evans
- One member from an Alaska Native organization, Jodi Mitchell
- One member from businesses or organizations engaged in the renewable energy sector, Chris Rose
- One member from the Denali Commission, Kathleen Wasserman
- Four remaining members come from the legislature:
 - Two members of the House of Representatives, appointed by the Speaker of the House of Representatives, Rep. Bryce Edgmon and Rep. Charisse Millett
 - Two members of the Senate, appointed by the President of the Senate, Sen. Lyman Hoffman and Sen. Anna MacKinnon

In establishing the program, the REFAC worked with AEA in defining eligibility criteria for grants



REFAC members (in bold) and others at a tour of Kodiak's Terror Lake Hydro project during the May 2014 REFAC meeting. Pictured L-R: Rep. Bryce Edgmon, Sean Skaling (AEA), Darren Scott (Kodiak Electric), Sara Fisher-Goad (AEA), Sen. Anna MacKinnon, Sen. Gary Stevens, Brad Reeve (Kotzebue Electric), Kathie Wasserman (AML), Jason Meyer (ACEP), Sen. Lyman Hoffman. Not pictured: Chris Rose (REAP), Jodi Mitchell (IPEC), Rep. Charisse Millett, Bradley Evans (Chugach Electric)

from the Renewable Energy Fund, developing methods for determining the order of projects that may receive grants, and adopting regulations identifying criteria to evaluate the benefit and feasibility of projects seeking legislative support. The REFAC continues to consult with AEA, offering valuable guidance and policy direction regarding the application and evaluation process, and final funding recommendations.

Following is a summary of REFAC involvement with REF Round VIII.

- AEA staff and REFAC members met in May and September, 2014 to discuss issues including the schedule and details of the Round VIII request for applications, progress on funded projects, possible changes to the program evaluation, community assistance efforts and the REF program relationship with regional and community energy planning efforts.
- AEA staff and REFAC members met twice in January, 2015 following AEA evaluation of all applications to review the AEA recommendations for Stage 4 (regional distribution). Based on the feedback provided by the REFAC at this meeting, AEA applied regional distribution rules that increased funding to underserved regions in the state and created greater funding equity across all regions.

DEFINITIONS

RECONNAISSANCE: A preliminary feasibility study designed to ascertain whether a feasibility study is warranted.

FEASIBILITY/CONCEPTUAL DESIGN: Detailed evaluation intended to assess technical, economic, financial, and operational viability and to narrow focus of final design and construction. This category also includes resource assessment and monitoring.

FINAL DESIGN AND PERMITTING: Project configuration and specifications that guide construction. Land use and resource permits and leases required for construction.

CONSTRUCTION: Completion of project construction, commissioning, and beginning of operations. It also includes follow-up operations and maintenance reporting requirements.

DIESEL EQUIVALENT GALLON: Most REF communities are displacing diesel fuel (Diesel #2), however some projects displace natural gas, naphtha, propane or Diesel #1. In those instances the displaced fuel is converted to BTUs and then expressed as diesel equivalent gallons for reporting purposes.

B/C: The B/C, or benefit/cost ratio is the total net present value of savings over the life of a project divided by the net present value of a project's total cost. The assumed project life is 30 years for

solar PV, 50 years for transmission and hydro and 20 years for all others. The B/C is one component of the overall project score; it is possible for a project to score high enough in other areas (e.g. high-cost-energy community) to be recommended with a B/C of less than 1.

B/C ratios are calculated using best available data that is appropriate for the project's development phase. Early phase projects use assumptions based on prior similar experience, while late phase projects use refined project models and are much more certain. AEA attempts to be as realistic as possible when using assumptions for early phase projects, while also attempting to avoid rejecting potentially good early-phase projects due to overly conservative assumptions.

TECHNICAL/ECONOMIC SCORE: This score is based on a project's technical and economic viability. The technical score considers resource availability, maturity of the proposed technology, the technical viability of the proposed project, and the qualifications and experience of the project team. The economic score is based on the projected costs and benefits associated with the project including consideration of the future price of fuel, current and future local demand for energy and the ability of the applicant to finance the project to completion. This score is the Stage 2 score in the evaluation process.

ENERGY COST BURDEN: Household energy cost / household income.

ANSWERS TO COMMONLY ASKED QUESTIONS

WHAT IMPACT DO REF PROJECTS HAVE ON RATES?

It depends, some electrical projects will lower rates immediately and some may stabilize rates and keep them from increasing over time due to inflation and changing fuel costs. Heating projects result in immediate and direct fuel savings to the building owners.

DO POWER COST EQUALIZATION (PCE) COMMUNITIES BENEFIT FROM THE REF?

Yes, in a number of ways:

In PCE communities statewide about 30 percent of total kWhs sold are eligible for the PCE subsidy. That means that any savings from REF projects are passed directly to the other 70 percent of kWhs sold. Schools and privately owned businesses benefit greatly from reduced cost of electricity.

REF projects provide stability in the face of uncertain and often volatile fuel prices.

100 percent of the value created by heat projects stays in the community.

REF projects create local employment opportunities and local energy independence.

WHAT IS THE GOAL OF THE REF?

To achieve the state of Alaska 50 percent renewable by 2025 goal and to reduce and stabilize the cost of energy to Alaskans.

HOW MUCH ARE REF PROJECTS REDUCING GREENHOUSE GAS (GHG) EMISSIONS?

In 2014, an estimated 147,143 metric tons of CO₂.

Since 2009, an estimated 347,575 metric tons of CO₂.

Projected reduction between 2015 and 2017 is 682,360 metric tons of CO₂.

PHOTO CREDIT | Front and Back
Unalakleet Wind Farm and Chuniixsax Creek Hydroelectric



akenergyauthority.org



ALASKA ENERGY AUTHORITY
813 W Northern Lights Blvd
Anchorage, AK 99503
(907) 771-3000
www.akenergyauthority.org