

ALASKA STATE LEGISLATURE

LEGISLATIVE BUDGET AND AUDIT COMMITTEE




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MEMORANDUM

TO: Members of the Legislative Budget
and Audit Committee

FROM: Pat Davidson 
Legislative Auditor

DATE: February 17, 2009

RE: Limited Analysis of the Alaska Energy
Authority's Renewable Energy Grant
Recommendation Process

We were asked at the February 4, 2009 Legislative Budget and Audit Committee (LBA) meeting to review the process used by the Alaska Energy Authority (AEA) to evaluate and recommend alternative energy projects for funding under Ch 31 SLA 2008 (HB 152). We were to report back to LBA by February 17, 2009.

Our analysis was focused on three areas:

1. Did the process used by AEA conform to HB 152?
2. Evaluate five projects to determine if AEA conducted its review and evaluation as it presented to the LBA Committee.
3. Was AEA review and evaluation process sufficiently comprehensive and complete?

This is a very limited review and does not constitute an audit. During this limited review, we reviewed grant applications, interviewed state employees at AEA, DNR, RCA and ISER as well as their contractors. Additionally, we contacted other states and federal agencies administering renewable energy grants.

AEA Compliance with HB 152 Requirements

The first area reviewed was a limited assessment as to whether AEA's process complied with the requirements of HB 152. We observed the following:

- AEA worked in consultation with a seven-member advisory committee, established by HB 152, and the Department of Natural Resources.
- AEA developed a methodology for determining the order of projects to receive funding, including separate requirements for grant eligibility¹.
- The regulation adoption process for indentifying criteria to evaluate the benefit and feasibility of projects applying for funding has not been completed.
- AEA's evaluation criterion with the largest number of possible points was the cost of existing energy. This was intended to give the most weight to projects that service any area in which the average cost of energy to each resident of an area exceeds the average cost to each resident of other areas of the state.
- AEA with the support of the advisory committee used regional caps to ensure "*significant weight*" was given to a statewide balance of grant funds.
- AEA's evaluation criterion with the second largest number of possible points was the amount of matching funds. This was intended to give "*significant weight*" to the amount of matching funds an applicant is able to make available. AEA's formula for evaluating the match gave significant weight to the percentage of match compared to the total project costs as well as the nominal dollar value of the match.

Very little of the weight was given to the source of the match. Out of a total of 25 possible points there is only a two point difference between the match coming from another state grant as opposed to local cash or in-kind contribution. Additionally there is only a one point difference between the match coming from a federal or private grant as opposed to local cash or in-kind contribution.

HB 152 also established project eligibility requirements for grants. To address these eligibility issues:

- AEA's request-for-application process included a step requiring that the application be for a new project not in operation on August 20, 2008² or an addition to an existing project made after August 20, 2008.

¹ Grant eligibility includes eligible applicants as well as eligible projects. Eligible applicants include: (1) electric utility holding a certificate of public convenience and necessity under AS 42.05, (2) independent power producer, (3) local government, and (4) other governmental utility, including a tribal council and housing authority.

² August 20, 2008 is the effective date of Section 3 of Ch 31, SLA 2008.

- All projects recommended must be at least one of the following: a hydroelectric facility; a direct use of renewable energy resources; a facility that generates electricity from fuel cells that use hydrogen from renewable energy resources or natural gas; or a facility that generates energy from renewable energy resources.
- AEA's request-for-application process required that transmission projects must link a renewable energy project or natural gas project to the transmission of distribution infrastructure.

Detail Review of Projects

The next area was to review five projects. We selected these projects with intent to obtain a distribution among regions, types of applicants and types of projects. The projects selected for review were:

<u>Project Name</u>	<u>Applicant</u>	<u>Applicant Type</u>	<u>Project Type</u>	<u>Recommended Funding</u>
Kongiganak Wind Farm Construction	Puvumaq Power Co.	Utility	Wind	\$1,700,000
Ambler Solar PV Construction	Alaska Village Electric Cooperative	Utility	Solar	\$550,000
Delta Junction Wood Chip Heating Feasibility Study	Delta/Greely School District	Gov't	Biomass	\$2,704,684
Wrangell Hydro Based Electric Boilers Construction	City and Borough of Wrangell	Gov't	Other	\$2,000,000
Ruby Hydrokinetic Construction	Yukon River Inter-Tribal Watershed Council	IPP	Hydro	\$446,950

Our review included inspecting submitted applications and supporting documentation, AEA's project review scoring documentation including benefit/cost worksheets, and interview of project manager, proposal evaluators, and AEA's contracted economist.

Stage 1 – Application Review

- Each project's application was reviewed for completeness and eligibility

Stage 2 – Project Feasibility

- Each project had an initial review by AEA staff with expertise in the applicable energy technology and a consistency review by two AEA program managers. Additionally, assistance was provided by the Department of Natural Resources (DNR) for technical issues and economists for cost benefit calculations with the exception of the Kongiganak.

According to AEA, Northern Economics is shown as having done the economic review on the Kongiganak wind project. However, when we contacted Northern Economics, they told us that they did not review this project. According to AEA the project was not subjected to an external economic review due to oversight and timing. The economic analysis was performed internally by AEA staff.

Except for the Kongiganak wind project, each project we reviewed followed AEA's methodology, that methodology provides wide latitude for AEA staff to impose its own professional judgment. The following items are where AEA's professional judgment overrode the initial decisions or calculations.

- Wrangell Hydro Based Electric Boiler Construction The economist who developed the benefit/cost (BCE) for this project notes it is assumed the City and Borough of Wrangell will only realize fuel displacements for a period of ten years because an electricity load forecast projects electricity demand to exceed the existing hydro resource³. Although the economist recognized that the city will only realize fuel displacements for ten years, the BCE calculates benefits for 30 years.
- Wrangell Hydro Based Electric Boiler Construction Calculation of the BCE resulting from this project did not include the operating and maintenance costs (O&M) reported in Attachment F - Application Cost Worksheet of the project proposal. AEA staff chose not to use any O&M costs because they would be borne by the city.
- Kongiganak Wind Farm Construction As previously noted, this project was subjected to an external economic analysis. AEA's methodology calls for a certain score to be given based on a range of BCE ratios. On this project, AEA staff used their judgment to give the project a higher score than is supported by the actual BCE ratio.
- Delta Junction Wood Chip Heating Feasibility Study. Similar to the Kongiganak wind farm project, AEA staff used their judgment to give this project a higher score than is supported by the actual BCE ratio.
- Ambler Solar PV Construction This project received 16 of possible 20 points for technical feasibility. However, AEA published a statewide energy plan in January 2009 in which they concluded solar holds little promise to economically reduce Alaska's dependence on fossil energy. Funding of the

³The economist cites a 2007 AK-BC Intertie Feasibility Study as the basis for this opinion.
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Alaska Village Electric Cooperative (AVEC) solar PV-diesel hybrid contradicts this conclusion.

- Ambler Solar PV Construction AEA did not request a business plan for the applicant, AVEC. AEA justified this because of their prior working experience with AVEC.

Stage 3 – Review Scores

For this stage, each project had an initial review by AEA staff with expertise in the applicable energy technology and a consistency review by two AEA program managers.

- Each project's score for the cost of energy metric was calculated according to AEA's methodology.
- Each project's score for the match metric was accurately calculated according to AEA's methodology. Note: at this point AEA did not confirm the reported match.
- Each project's score for the project feasibility metric⁴ was developed as part of Stage 2.
- Each project's score for the readiness metric is based solely on the judgment of the AEA reviewer.
- Each project's score for the benefit metric was calculated as the average from two areas evaluated during Stage 2. These areas were the economic feasibility and the other benefits.
- Each project's score for the sustainability metric was based solely on the judgment of the AEA reviewer. According to AEA staff, they considered the key elements in this metric to be the likelihood of a project functioning in 5 years and the complexity of the technology.
- Each project's score for the local support metric was calculated according to AEA's methodology.

Stage 4 – Funding Recommendation and Statewide Rank

We ascertained whether or not AEA's recommended project-funding directly corresponds to the project's statewide rank.

⁴ AEA's spreadsheet titled Alaska Renewable Energy Fund, Ranking and Proposed Grant Allocation Round 1 dated January 23, 2009 referred to this metric as Tech & Econ Feas. However, it actually includes all elements evaluated during stage 2 which include 1) project management, development, and operation, 2) qualification and experience, 3) technical feasibility, 4) economic feasibility and 5) other benefits

We observed, again, that AEA used its judgment to make funding recommendations regarding projects that are not directly supported by its evaluation process that ended with statewide ranking.

- Ambler Solar PV Construction AEA decided to fund only one solar project in Northwest Arctic region even though 3 solar projects scored high enough in the statewide ranking to be funded. Also, AEA said they were funding this as a demonstration project
- Ruby Hydrokinetic Construction Under AEA's guidelines, partial funding is recommended for viable projects that have construction scheduled for 2010 or later. The Ruby Hydrokinetic project was fully funded by AEA even though it is not expected to begin the construction phase until May 2010.
- Delta Junction Wood Chip Heating Feasibility Study AEA's recommended funding for this project was \$2.7 million. This project is in the Railbelt region and per AEA funding caps should not have been recommended for more than \$2 million. According to AEA, this was an oversight and the applicant will receive only \$2 million.

Overall Observations Based on our Project Review

We understand AEA staff has strong historic and professional knowledge on which to base its professional judgment. However, because some metrics did not have clearly articulated criteria on which to base a conclusion, it is difficult to confirm all applicants were treated consistently. Additionally, since AEA did not consistently provide sufficient support for conclusions based on professional judgment, the historic, professional knowledge upon which these conclusions were based are not passed on to future employees responsible for grant operations.

AEA did not verify that matching funds reported by the applicants existed and were available. According to AEA, this will be done in the grant award process after projects have been approved.

Capital replacement costs were not incorporated into the economic analysis. AEA did not consider it necessary as they are calculating benefits only over the projects initial useful life. However, this assumes that additional funding will be available in the future to prevent the community returning to non-renewable energy sources.

A considerable amount of effort was spent on the cost benefit analysis that ultimately had little effect on the actual ranking of projects. The Stage 2 review, which included the economic feasibility analysis, was not used to create a threshold for eligible projects, it merely provided a score for the project feasibility and benefit metrics during Stage 3. Ten

projects with recommended construction funding of over \$16.6 million have a benefit/cost ratio of less than 1.0.

To provide assurance that the benefits of these capital investments actually flow to the residents, AEA plans to require in the actual grant agreements for IPPs that they obtain an RCA certificate of public convenience and necessity. It is currently unclear whether RCA has the statutory and regulatory authority to conduct such reviews. This issue is addressed further in section three below.

Analysis of AEA's Evaluation Process

The final area of review was to assess the comprehensiveness and completeness of AEA evaluation process.

For this area we:

- Compared criteria used by AEA to criteria used by other government agencies administering similar programs. This included Denali Commission, other State governments⁵, and the federal government⁶. Information was obtained through research and direct inquiry.
- Discussed the AEA process with Institute of Social and Economic Research (ISER) and Northern Economics representatives. Topics of discussion included the cost benefit analyses, the fuel cost assumptions built into the economic benefit analysis, and the quality assurance work performed by ISER.
- Interviewed staff at the Department of Natural Resources.
- Discussed the IPP rate and certificating issues with RCA.
- Considered various generally available economic information and feasibility information related to renewable energy technologies.
- Considered the potential effects of partial and multi-phase funding of projects.

Based on our inquiries there appear to be areas where AEA's evaluation process is not as robust as other agencies. This increases the risk that a project will not be successful.

⁵ The State of Oregon has the Oregon Renewable Energy Feasibility Fund. The State of Minnesota has the Xcel Energy Renewable Development Fund.

⁶ The US Department of Agriculture (USDA) has the Rural Energy for America Program as well as the Rural Development Renewable Energy Grants. The US Department of Energy has the Renewable Energy and Energy Efficiency Deployment in Indian Country Grant.

Technical Feasibility

Requirements from other programs that were not effectively utilized by AEA in the grant evaluation process include:

- A description of how the project's success will be measured, including a description of how the applicant plans to measure its own progress during the project and a description of the anticipated outcomes or impacts of the project.
- Plan for dismantling and disposal of project components.
- Having technical details reviewed by an independent qualified consultant, who must provide an opinion and recommendation.
- Additional scoring metric based on the amount of energy replacement.
- Ensuring inter-operability with existing technologies.

Economic Feasibility

Requirements from other programs that were not effectively utilized by AEA in the grant evaluation process include:

- Require applicant provide a preliminary economic assessment for the proposed project and describe the plan to obtain necessary financing.

(While AEA does ask for the financing plan from the applicant, the imposition of funding caps or decisions to partially fund a project makes AEA's assessment of the total funding plan substantially less effective.)

- During the evaluation process, require applicant to identify sources of matching funds, including any written communication between applicants and matching fund source, and verify the existence of matching funds as identified.

Sustainability

Requirements from other programs that were not effectively utilized by AEA in the grant evaluation process include:

- A plan for how the project will be financially sustained after funding ends.
- A replacement plan for when the capital equipment purchased with the grant has reached the end of its useful life.

- Describe a preliminary training plan for the operation and maintenance of the renewable energy system or the planning activities to be conducted as part of the proposed project to define the training plan.
- Require applicant to describe the availability and sustainability of the renewable energy resource. Consider setting minimum data availability requirements such as: (1) One year's worth of anemometer data for wind projects, (2) Quantitative monthly temperature and flow data traceable to a verifiable data source for geothermal resources, solar system and hydroelectric system.

According to the Denali Commission, the sustainability⁷ of a program is primarily demonstrated through the business plan process. Applicants may be asked to revise the business plan, along with related documents, originally submitted with their grant proposal as their projects progress through the different phases of project development (planning/conceptual design, final design/permitting, and construction).

AEA does not have a written infrastructure sustainability policy and criteria for the project proposals, and it was difficult for AEA to articulate their evaluation of the sustainability of the proposed projects. The process was very subjective.

Fuel Cost Assumptions

ISER used regression analysis to estimate the cost of fuel in the community relative to a standard \$110 per barrel of oil. However, projections that build in estimated year-to-year fluctuations are readily available from sources such as the USDE.

Independent Power Producers

There is uncertainty in the ability of RCA to regulate IPP applicants awarded project grants.

AEA staff stated that one of the stipulations of grants to IPPs was that they petition the RCA for a certificate of public convenience and necessity (CPCN) and to be economically regulated by the Commission. These stipulations will be included in grant agreements. AEA staff believes this requirement provides public protection for excessive rates charged for power by the IPPs. In addition, RCA determines whether a utility is fit, willing, and able to provide services to the public before issuing a CPCN. This would provide an additional review of the IPPs ability operate and maintain the project.

The idea to require regulation of IPPs may be sound policy. However, there are uncertainties as to whether and how RCA may regulate IPPs. A statutory change or new regulations may

⁷ In written policy, the Denali Commission defines sustainability as the ability of a recipient or applicant to demonstrate the capacity, both administratively and financially, to provide for the long-term operation and maintenance of a facility. This demonstration may include such factors as maintenance costs, fuel/heating costs, staffing/personnel costs, insurance as applicable, bonding, cost escalation factors, etc. Further, sustainability includes all costs associated with management, operation and maintenance, renewal and replacement necessary to maintain a given level of service.

be required. We note that RCA regulation proceedings can take up to two years to complete. This type of delay could significantly hamper a project's completion.

The funding for RCA is provided by the regulated utilities. There does not appear to have been any consideration of the impact that the costs associated with the RCA process would have on the IPP or on the cost benefit of the project.

Funding Strategy

Both AEA's evaluation process and the processes of other State and federal entities gave weight to projects that presented a complete financing plan. However, in an effort to meet the intent of HB 152, AEA with support from the advisory committee imposed funding caps on projects. While this does spread the funds to more projects it unbalances the applicant's proposed funding plan.

Summary

This memorandum identifies a variety of areas in which AEA did not follow its established methodology or was not as comprehensive or complete as other agencies are when evaluating alternative energy projects. As result, we believe that there is a higher than necessary risk that the projects will not be successful. During this analysis we define success as the project being on time, on budget and able to produce the expected energy for the projected costs.

However, we also believe that many of these risks can be mitigated with a very aggressive grant management process. Currently, AEA plans to gather additional information and impose additional requirements through the grant process. An aggressive grant management process would include creating and enforcing kill points where the grant is terminated if expected progress or outcomes are not attained.