The Southeast Integrated Resource Plan (SEIRP) – next steps for the Alaska Energy Authority (AEA)

AEA can assist the Southeast Region to move forward with a "regional development plan" using the SEIRP recommendations in a number of key areas. AEA is committed to working with regional organizations to advance their development goals and meet anticipated increase in energy demand. Specifically, AEA sees the following opportunities for further agency participation and guidance.

1.0 Technical Assistance to Develop Regional Energy Efficiency Programs

AEA energy efficiency/demand side management staff is available to assist in the implementation of a number of the SEIRP recommendations.

Resources:

- **AEA's energy efficiency staff:** is available to attend community/stakeholder meetings and could assist with a local energy fairs, community meetings, and other such gatherings.

- **AEA's statewide public outreach campaign**: In fall 2012, AEA will launch a sustained statewide marketing effort through conventional media outlets to promote energy efficiency and conservation. With the help of a contracted marketing firm, AEA will also develop educational materials that can be repackaged by local entities for delivery to targeted constituencies. The goal of the coordinated messaging is to improve statewide energy efficiency and conservation to achieve the state goal of improving energy efficiency by 15% by 2020.

- **Alaska Energy Awareness Month (AEAM)**: The statewide public outreach campaign will kick off in October 2012 during the third annual Alaska Energy Awareness Month. Outreach will be through paid media statewide. The program goal is to convey the importance of energy efficiency at a local level by hosting local energy fairs, organizing consumer education classes, encouraging energy related competitions in local schools and between local businesses, etc. The Alaska Energy Efficiency Partnership is undertaking this initiative.

- **Alaska Energy Efficiency Partnership**: The "Partnership" is an ad hoc group of over thirty private, public, and non-profit entities working together toward the shared goal of 15% improvement in energy efficiency per capita by 2020. The partnership meets quarterly to exchange information and coordinate projects/programs. The Partnership has an open membership approach.

- www.akenergyefficiency.org: A web page built by AEA on behalf of and with considerable input from the Partnership, this on-line presence is a virtual energy efficiency storefront. The site

contains information relating to energy efficiency and conservation, including energy saving tips for residences and businesses, job opportunities, a rating system for auditors and contractors doing energy efficiency work, and resources for teachers. Additionally, the website includes a calendar where the public can post energy efficiency related events.

- www.akenergyefficiencymap.org: This web page is a visual showcase of energy efficiency successes in Alaska by region, community, program, and building, in the form of an interactive map. AEA also seeks to incorporate data from non-AEA programs to create a more comprehensive, building-by-building inventory of energy efficiency work in Alaska. This will help track progress toward the 2020 state energy efficiency goal.

Current Efforts

Subject to the availability of funds, AEA intends to solicit applications for the following efficiency programs:

- **Village Energy Efficiency Program (VEEP):** The VEEP program will benefit the citizens of small communities by implement efficiency upgrades in their public buildings.

- **Street Lighting Upgrades Program:** This is a new AEA program currently being developed to assist cities in the transition to LED streetlights.

- **Commercial Energy Audit Program:** Building upon the success of the federally funded commercial energy audit program, AEA intends to solicit a third round of applications. This program reimburses the cost of an energy audit up to $7,000 for small commercial buildings under 160,000 square feet.

- Loan programs for commercial building energy efficiency improvements are currently being developed by DCCED and AIDEA.

Tlingit-Haida Regional Housing Authority's Energy Conservation Campaign: THRHA will be undertaking complete home energy use assessments and monitoring, as well as energy conservation education, for 400 low-income and senior households in Angoon, Craig, Douglas, Haines, Hoonah, Hydaburg, Juneau, Kake, Kasaan, Klawock, Klukwan, Petersburg, Saxman, Wrangell, and Yakutat. The Energy Conservation program is being funded primarily with a grant from Tribal DOE along with other NAHASDA funds and a private donation from First Bank. With matching funds from THRHA the total funding available for this energy conservation program is $634,289.

In support of the THRHA effort, AEA will supply $30,000, as a part of the Biggest State to Biggest Saver Phase II project, to cover the cost of a public awareness media campaign. This will help to connect THRHA's regional effort with the greater statewide outreach initiative being led by AEA and the Alaska Energy Efficiency Partnership.

THRHA has agreed to provide data from their energy conservation program to AEA for inclusion on the energy efficiency map (www.akenergyefficiencymap.org). The data will contribute to the comprehensive, statewide data collection and management effort.

As a component of their energy conservation program, THRHA will encourage individual community driven energy fairs throughout southeast Alaska during fall and winter 2012/13. The focus of these events will be tailored to specific community needs along with energy conservation and energy efficiency content. Saxman's energy fair is scheduled for October 12 or 13, one in Kake for some time in October, and one on Prince of Wales for September 28, immediately after the Southeast Conference annual meeting. Other energy fairs will be scheduled to take place before the end of July, 2013.

AEA plans to participate in the community energy fairs to share information and provide technical assistance. AEA will contribute marketing materials and other informational pieces to the energy fairs as they are available.

Renewable Energy Alaska Project Southeast Community Engagement: REAP has received a grant from AEA to implement demand side management, energy efficiency and conservation recommendations contained in the recent Southeast Integrated Resource Plan (SEIRP) and AEA's Needs Assessment report. This project is one of five projects funded by the Biggest State to Biggest Saver award from US DOE. REAP will be testing implementation methodology in three Southeast Alaska communities (Kake, Craig, and Sitka) in a manner that could be repeated on a statewide scale if the effort proves to be successful.

Among other activities, REAP will conduct stakeholder meetings with leaders in all three communities. REAP will also link and coordinate their localized outreach effort with the broader, statewide initiative (Alaska Energy Awareness Month) in October. Work on this effort began in July 2012 and will continue through fall 2013. REAP intends to collect data to identify the energy savings that result from these pilot outreaches in Kake, Craig, and Sitka to demonstrate the outreach methodology.

Ketchikan Public Utilities RFP: Recently Ketchikan's electricity utility put out a request for proposals for a contractor to "Identify and develop cost-effective energy efficiency initiatives and other measures to reduce the City's total annual electric energy consumption."

2.0 Standardizing development of new hydro power resources

One of the key findings of the SEIRP is that there are numerous hydro power resources, with widely different energy potential capabilities, spread throughout Southeast Alaska. These resources range from high perched lakes that store water energy, to steep gradient streams that present run-of-the-river hydroelectric potential.

Lack of Resource Information and Standards

The SEIRP found that the quality and extent of technical and engineering knowledge on the known hydro power sites (resources) was in many cases insufficient to develop a prioritized list of which projects should be developed next. The SEIRP reasoned that developing these renewable resources into economically viable power generation projects would be an expensive proposition and the available technical information is not firm enough to make project funding recommendations.

The SEIRP thus proposed a structured reconnaissance program to bring the knowledge base for the most likely hydro projects to a comparable level over a 3 year period. This data base would be used in a regional decision making process to identify the next series of hydro projects that should be considered. The SEIRP authors also suggested that AEA set standards for conducting the early development work.

Uniqueness of Hydro power resources

Each hydro resource has unique characteristics of when and how much water energy can be converted to electricity. These vary widely between storage hydro projects (projects that impound water or draw water from an existing lake) and run of the river projects (that depend on stream water flows for power generation). Storage hydro projects have the ability to generate electrical energy and capacity during winter months, but carry a much higher price tag.

The Importance of Load Forecasting

The load forecasting done in the SEIRP provided for three long-term load projections for each of the eight subregions. The "reference" or "business as usual" case demonstrates a gradually increasing need for hydro energy, which includes an emerging trend of winter time load growth caused by residents converting to electric heat. Two other future load projections are provided. One considers an aggressive implementation of energy efficiency and demand side management, where near term electrical loads are projected to go down for a time, and the other an accelerated load growth scenario termed an "economic development" scenario. With this range of energy futures for the regions, a moderate view can be taken that the future will entail development of new hydro power resources, and as such the plan suggests the need for the region to continue to identify and develop the best hydro power projects. AEA concurs with this need to continue to develop Southeast hydro power resources.

AEA suggested approach:

In support of the SEIRP recommendations, AEA suggests that new reconnaissance studies be undertaken in collaboration with Southeast Alaska hydro proponents, according to agreed upon project data standards. This work would be subject to available funds and would advance as outlined below.

Reconnaissance: AEA would gather earlier, publicly available, reconnaissance work that has been done on hydro power resources, and would fund data gathering on an array of projects to develop reconnaissance level information. This data is will then be used by regional hydro developers when they consider the power needs in nearby communities and potential industrial loads.

Developers could use this data for specific projects or, as recommended in the SEIRP, the accrued data sets could be used to update the integrated plan for each of the sub regions, if a region decides to update the SEIRP. The derived standards and reconnaissance information are expected to be useful under either of these development scenarios.

Standards for Project Data: AEA proposes to collaborate with Southeast stakeholders to develop uniform standards for defining energy production capabilities, expected project cost, and possible environmental/fisheries issues that could affect timely completion of any specific proposed hydo project. This approach would set standards for Reconnaissance and Economic Feasibility phases of project development, so that projects can be compared by cost, potential for energy production, capacity, and timing. The goal of this effort is to assist the region's hydro developers to refine project data to a point where hard decisions can be made regarding which projects should be licensed, designed, constructed and interconnected with existing electric utility systems.

AEA suggests that a State standard for data quality, granularity and criteria for project concept design and cost estimating be established through collaboration with Southeast Alaska hydro developers, including independent power producers, power utilities and community governments.

AEA expects that projects selected for additional reconnaissance studies would be those that have a reasonable chance of being developed in the near future. AEA would review and consider the "screened hydro project" list included in the SEIRP as a part of this decision making process. This work is envisioned to include stream gauging, and necessary field work to firmly establish the viability of each resource. In particular, the work would focus on expected permitting and licensing issues, and clearly identify the best engineering approach to develop each potential hydro resource. This will include the relative abilities of the resource to be developed as a storage hydro project.

For some of the prospective Southeast hydro power projects, developers have already expended funds to investigate the resource and establish development costs; however, this information may not be publicly available. In these instances, the AEA sponsored work would be accomplished as a stand-alone, complementary work effort that would be publicly available. The general intent would be to assist the hydro power development community at large, as well as individual developments in-process.

Relationship to funding under the Renewable Energy Grant Program (REGP): The two prongs of this suggested plan should be configured to integrate with the popular competitive REGP that is ongoing and administered by AEA. The collaborative development of these standards will incorporate input from existing REGP recipients that can then be applied to new REGP projects in the future. Second, AEA could, through collaboration with Southeast stakeholders, develop reconnaissance level data on resources which have not seen interest from REGP applicants, but which appear to hold energy potential.

The structured Reconnaissance and Standards for Data efforts will serve to develop a "condition survey" of available hydro resources that will greatly assist regional integrated planning. Both look to be important tools to expand the region's hydro power future.

3.0 The Southeast Intertie Initiative

The SEIRP authors performed an exhaustive economics analysis of an intertie transmission line backbone for the region. The expected cost of the transmission system totaled over $1B and prospective amounts of power to be transferred averaged out at only 10 megawatts in the most heavily-used segments of the backbone. The SEIRP authors did not recommend moving forward with this initiative.

There was extensive public comment on the SEIRP findings, and many urged the transmission backbone be pursued as a regional economic development project. To support this position, reference was made to the strong mining sector of Southeast Alaska and mining potential in British Columbia – both of which require inexpensive power as a foundation of project viability. As a result, AEA reached out to the mining community to assess whether any of the potential mining projects are at a mature development stage where power needs are known and reasonably firm. These efforts identified mining projects in formative stages of development in Alaska and Canada. Clearly, ongoing communications within the region on these developing projects are needed so power projects can be advanced in coordination with mine development.

AEA also required the SEIRP authors to carefully consider the possibility of building an intertie from Lake Tyee, in the Southeast Alaska Power Agency generation and transmission system, to the Forrest Kerr project, 60 miles away in British Columbia. The authors could not identify a utility need for the interconnection, nor an industrial development that could make beneficial use of such an intertie. As a consequence, they did not recommend moving forward with the Canadian interconnection.

After review and consideration of the extensive public comment on the SEIRP and outreach to the mining community, AEA has elected to pursue a proactive approach that brings potential purchasers of power together with potential power project developers. This action is proposed as a sensible precursor to development of a regional transmission backbone project. As an important part of this new initiative, AEA has joined members of the Governor's Office in meetings with Government and power interests from the Yukon Territory.

AEA plans to actively pursue the process of developing a realistic business case for a regional economic develop project that involves the Southeast Alaska business sector, communities, and our Canadian neighbors.

4.0 Addressing the Space Heating Issue

The SEIRP authors have recognized how the recent abrupt rise in heating oil costs has affected the Southeast Alaska economy. First, they noted the rising heating costs are causing economic distress in all Southeast communities. Second, a "crossover" economic phenomenon was described as occurring in communities with low cost hydro power. Here, consumers are converting (crossing over) from oil heat to less expensive electric heat.

While cross over can bring economic relief to the individual consumer, wide spread switching to electric heat is predicted to consume available hydro power capacity, and cause very high winter peaks that may deplete the winter hydro water energy reserves (storage). This ultimately could cause costs of energy to rise for all, through an increase in the use of diesel fired power generation.

To address this two-pronged situation, the SEIRP suggests the region consider other energy sources than heating fuel. Of the alternatives evaluated, the use of heat pumps and employment of biomass energy in lieu of heating oil were considered the most promising.

AEA agrees that there are heating energy issues in southeast Alaska that should be addressed in coordination with development of new sources of electricity, and movement toward energy efficiency and demand side management. AEA suggests a balanced approach of:

1) providing factual information of alternative heating energy and fuel supplies at the regional level, and

2) assisting with specific public and commercial building heating conversion projects, by providing assistance at both a technology and a product application level.

5.0 General Technical Assistance and Project Development

AEA also provides assistance to communities that are contemplating the submittal of applications for various project development and assistance grants. This agency assistance can be particularly important when communities are applying for renewable energy project development funding. This is an expanded role for AEA and the effort is now staffed with two new positions. AEA's approach is to assist communities as they attempt to participate in existing state programs such as the Rural Power Systems, Bulk Fuel Upgrades and Village End-use Efficiency programs. The intent is to work with communities to advance ideas to a "project ready" status. This process will help ensure that leaders have identified the most appropriate energy projects for their community and that the projects can be successfully implemented. For example, in order to successfully incorporate a renewable energy source into a community system, the primary infrastructure, such as the powerhouse, must have been sufficiently maintained and already be in good working order. Ensuring that the existing energy infrastructure is on solid footing will enhance the ability to pass the positive benefits of a renewable energy source on to local energy users.