

# Rural Energy Action Council

Findings and *Action* Recommendations for  
**Governor Frank Murkowski**  
April 15, 2005

**Rural Energy Action Council (REAC)**  
Created by Governor Frank H. Murkowski

Headquartered at:  
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Prepared for:

Rural Energy Action Council (REAC)  
Created by Governor Frank H. Murkowski  
February 7, 2005

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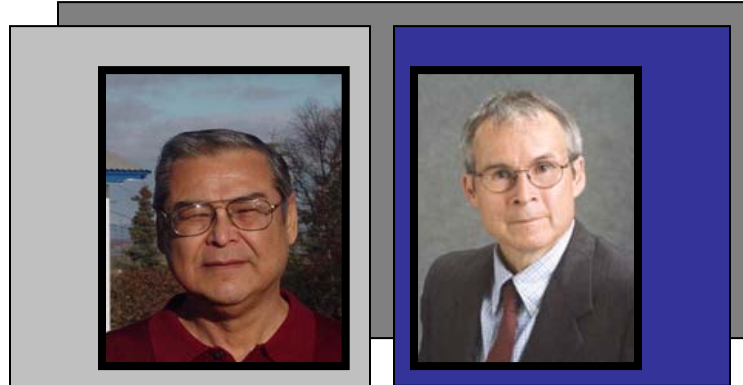
Deputy Director of Rural Energy

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## Message from the Co-Chairs

Nels A. Anderson, Jr.



Commissioner Edgar Blatchford

Dear Governor Murkowski:

It is my pleasure to transmit this report that you commissioned February 7 to look into a number of recommendations that you could use to help bring down the cost of energy in Rural Alaska. The Rural Energy Action Council, made up of eight members from across the state, worked diligently to give you a number of action items that you could use immediately.

We met two times by teleconference and three times face to face to discuss all of the issues you named for study in the press statement that authorized the creation of the Rural Energy Action Council.

On behalf of the Rural Energy Action Council, I would like to thank you for your leadership in bringing the need for low-cost energy to the attention of Alaskans. As you stated in your press statement, your address to the AFN Convention last fall, and in your State of the State address, that low cost energy is a vital part of making sure that economic development occurs in all parts of Alaska.

We looked closely at PCE, conservation measures, alternatives to diesel, the creation of fuel coops, and cost of energy for our schools. We hope that these recommendations will help assist in getting low cost energy delivered to our villages across Alaska.

We kept in mind your goal of producing a number of recommendations that you could use immediately. PCE is one of those items that if funded before the end of the session would have the most dramatic effect on taking the sting out of ever increasing costs of energy for people in the villages of Alaska. We also noted your efforts to get one-time grants to our villages to help them get the money they need for fueling their villages next year.

We also felt it necessary to look at a number of initiatives that would need to begin very quickly so that they can start producing results next year. A case in point, we felt that the various state and federal agencies could start moving their approval process for fuel loans to early in the year. This would allow our villages to have funds available for early spring delivery and perhaps give the villages a tactical advantage in purchasing when the price of heating fuel and diesel is moving down after demand slacks off with warmer weather.

We are hoping that these recommendations can be taken seriously and that many of them will be adopted as part of your administration's strategy to bring down the cost of energy in Rural Alaska.


Co-Chair Blatchford and I would like to thank all of the agencies, AIDEA-AEA personnel, the Denali Commission, RurAL CAP, AVEC, the Department of Commerce, Community and Economic Development and so many others who worked to make this report possible.

Also, you could not have picked a better Rural Energy Action Team to work on this task for you. Each of the members took their jobs very seriously, gave up valuable time from their normal duties, and made very valuable contributions to the mission you gave us. If it were not for these contributions, the report would not be as credible as we think it turned out.

I'm encouraging Governor Murkowski to use all means at his disposal to have a strong public outreach effort to advance these actions. The Rural Energy Action Council will stand strongly behind him.

Finally, thank you Governor for allowing those of us that live in Rural Alaska to advise you on an issue that has long remained in the background for too long. We hope that your leadership on this matter will help all of us focus on the need to come up with practical solutions to bringing low cost energy to villages across the state. It is a great challenge and the opportunities for success are greatly increased by your commitment to making sure that low cost energy is addressed in your administration.

Sincerely,



Nels Anderson, Jr.  
Co-Chair

*Members of REAC:*

*Commissioner Edgar Blatchford, Co-Chair*

*Ernie Baumgartner*

*Andy Baker*

*Mike Barry*

*Bob Martin*

*Gene Peltola*

*Orie Williams*

## Governor Murkowski's Directive

Early in February, the Governor requested a report from the group by April 15, 2005, on short-term proposals to reduce the high cost of energy in rural communities.



The group was to analyze and make recommendations in several areas, including:

- incentives to lower energy delivery costs
- regional supply and distribution centers
- cooperative fuel purchases
- power plant operational efficiencies
- consolidation of energy providers
- a review of Alaska Energy Authority (AEA) programs
- acceleration of renewable energy efforts, and
- energy conservation measures.

REAC was to build on the work done in 2003 by the Alaska Energy Policy Task Force (EPTF) for the 23rd Legislature (see Mission and Goals following page and go to the link <http://www.aidea.org/EnergyTaskForce.htm> for a complete copy of the EPTF Non-Railbelt Report). REAC was also to use other information to devise short-term and practical proposals that reduce the cost of energy in rural Alaska. According to the Governor, "The operative word in this group is 'action'."

The Governor, in his address to the October 2004 Alaska Federation of Natives convention, is quoted:

- To advance solutions to these problems I am announcing today that our Department of Commerce, under Edgar Blatchford's leadership, will work with regional organizations such as RuralCAP, AITC, village organizations, University of Alaska, the state, the federal government, and the Denali Commission to coordinate efforts to lower the cost of energy for our state and focus on making our state and villages energy self-sufficient by 2010.
- Another thing about the high cost of fuel in rural Alaska is that some rural communities were threatened with heating fuel shortages this winter.
- BECAUSE OF THIS PROBLEM WITH THE HIGH COST OF ENERGY IN RURAL ALASKA I AM ANNOUNCING TODAY THAT I WILL PURSUE A NEW ASSISTANCE PROGRAM FOR OUR SMALL VILLAGES IN NEED.
- I am very aware of difficulties in many small rural Alaska villages with limited funding available for local services. The high price of fuel, oil & gasoline has put an almost insurmountable burden on these small communities and their residents.

- We have a bright future ahead in rural Alaska
  - A future that includes a quality education and good jobs for our young people.
  - A future that makes low cost energy available to villages.

The Governor, in his State of the State address in January 2005, included the following comments:

- I also propose \$6.5 million dollars to offset high energy costs in smaller cities, along with 20.7 million dollars to fully fund Power Cost Equalization. This will mark the first year since creation of the endowment that the PCE program has been fully funded. This will lower fuel costs in rural Alaska and create new jobs, thereby strengthening their communities.
- We've had some success in dealing with high energy costs. We acted when the Bush caucus came to us last June with concerns about a number of rural communities having difficulty purchasing winter fuel.
- We developed a plan that helped even the most financially-strapped villages, and more importantly, a plan that will help the villages better manage their own winter fuel programs going forward.
- Tonight, I renew the commitment I made at the Alaska Federation of Natives convention in October to aid rural Alaska in obtaining lower-cost energy to sustain jobs.
- I have asked the Department of Commerce, Community, and Economic Development and the Alaska Energy Authority to establish a work group from rural Alaska to recommend ways to lower its energy costs, building on the significant Rural Energy study\* done by the Alaska Energy Authority in April 2004 and the work done by the Alaska Energy Task Force you created in 2003.
- I thank former Legislator Nels Anderson for his leadership in pushing for lower cost energy and greater employment in rural Alaska. And a thank you tribute to the late Harvey Samuelson—a great Alaskan.

\*Go to <http://www.aidea.org/AEAdocuments/REPV1ExecutiveSummary.pdf> for a complete copy of the Alaska Rural Energy Plan Executive Summary.

## Energy Policy Task Force statements

### A. Mission

*“Electricity is essential to meeting Alaska’s economic, environmental, and educational development goals. The State will conduct its activities affecting energy in such a manner as to:*

- *Promote reliable and secure electric power systems*
- *Promote the lowest cost for consumers*
- *Stimulate the economy*
- *Provide employment opportunities for Alaskans*
- *Improve the quality of life for all Alaskans*
- *Promote workforce development, including training Alaskans, for Alaska’s utility sector.*
- *Enhance the State’s social, cultural, economic and environmental assets*

### B. Goals

*(Listed in no particular order)*

- *Achieve sustainability.*
- *Develop Alaska’s position as a leader in competitively priced and reliably available electricity.*
- *Develop Alaska’s electrical infrastructure while maintaining competitively priced energy.*
- *Ensure security of physical and cyber energy infrastructure.*
- *Promote research, development and demonstration of clean and renewable energy technologies.*
- *Promote conservation and energy efficiency across all of Alaska.*
- *Develop Alaska as a world leader in using and exporting competitively priced and reliably available fossil fuels.*
- *Ensure standardized and consistent permitting and regulatory processes.*
- *Establish Alaska as a national leader in developing energy projects using its natural resources, including its workforce.*
- *Develop viable local solutions to provide cost-effective electric energy for small, geographically remote Alaskan communities.*

## Executive Summary of Actions

REAC believes the following areas offer the best strategies and instruments to achieve short term success in lowering the cost of energy in rural Alaska. For each, more detailed background, findings and recommendations follow.

For the purposes of this report, short-term is defined as within one year, i.e., before April 15, 2006.

1. Fully fund the Power Cost Equalization (PCE) program.
2. Front-load the PCE endowment.
3. Create a bulk fuel operator technical assistance program.
4. Including downstream tanks and pipes into upgrades.
5. Support the creation of regional bulk fuel cooperatives.
6. Enable single and cooperative applicants to receive higher loan limits for the bulk fuel revolving loan program.
7. Improve power plant operational efficiencies and remote capabilities.
8. Increase support for alternative energy systems, such as coal, in-stream, wind and gas projects.
9. Accelerate renewable energy programs and implement energy conservation measures.
10. Continue Low Income Home Energy Assistance Program (LIHEAP) funding and programs.
11. Create a new line-item for energy funding for school districts..

Items of interest that came up during deliberations, but require a longer term, are listed:

- Economic study of impacts of high cost of fuel in rural Alaska on net migration to urban Alaska
- Set up regional energy centers on rural campuses
- Fund feasibility study to examine links with the Railbelt Energy Grid
- Set up a fuel price reporting system for “non-PCE” communities
- Divest the State of rural energy infrastructure
- Transportation and distribution systems.

## **Issue: Power Cost Equalization (PCE) Program Funding and Intent**

**Recommendation #1:** Fully Fund PCE

**Rationale:** Rising fuel costs need to be addressed

**Action:** Advocate for full funding, Gather support

**Funding Required:** Fully fund PCE at \$21.5 Million

**Background:** SLA 1993 reads,

*“(a) the legislature finds that adequate, reliable, electric service at affordable rates is a necessary ingredient of a modern society and a prosperous developing economy. The legislature further finds at the current stage of social and economic development in the state, direct participation by the state is necessary to assist in the development of a regional electric transmission infrastructure and to assist in holding rates in high cost service areas to affordable levels.*

*“The legislature recognizes the high cost of electric power in rural Alaska and intends that funding for Power Cost Equalization from the general fund and from the power cost equalization and the rural electric capitalization fund remain at a minimum of \$17,000,000 annually through the year 2013. The legislature further intends that this long-term commitment to the power cost equalization program will permit and encourage the electric utility industry and its lenders to develop the plans, make the investments, and take other actions that are necessary or prudent to meet the needs of residents in rural Alaska.” (SLA 1993)*

The PCE program pays a portion of approximately 30% of all kWh's sold by the participating utilities. In the past three years, the program has been funded at the \$15.7 million dollar level. With program demand exceeding \$15.7 million each year, pro-rata reductions have been necessary. This program currently does not provide PCE benefits to school facilities and commercial buildings. Governor Frank Murkowski mentioned during his 2005 State of the State address that it would take \$20.7 million to fully fund the PCE program. An additional \$1 million would ensure coverage of the growing number of residential homes and families, along with the increasing fuel expenses across rural Alaska.

See Appendix A to review the PCE Blue Ribbon Committee Executive Summary (1999). See Appendix B for Tabled PCE Recommendations.

## Issue: Power Cost Equalization (PCE) Endowment Fund

**Recommendation #2:** Fully fund the PCE Endowment Fund

**Rationale:** Capitalization ensures long-term sustainability of fund at sufficient levels

**Action:** State of Alaska and the Federal Government contribute to the Fund

**Funding Required:** \$15 million annual deposit for 7 years to the Fund by the State and Federal Government (combined contribution = \$210 Million)

The following table shows that the Fund would need \$210 million of capitalization at earning rate of 5.5% to fund the annual PCE cost of ~\$21.5 million.

### PCE ENDOWMENT FUND CAPITALIZATION ESTIMATE

Status - January 31, 2005

PCE Endowment Fund			
MV at 6/30/04	179,303,474.00		
Earnings through 1/31/05	11,707,227.00		
Withdrawals through 1/31/05	<u>(8,886,316.00)</u>	Remaining withdrawal amount:	
MV at 1/31/05	<u>182,124,384.00</u>	11,369,100	FY 2005 7%
		2,200,000	FY 2004 supp
YTD Earnings Rate (annualized)	11.19%	(8,886,316.00)	
Remaining withdrawals estimated for FY 2005	(4,682,784.00)	4,682,784	
Assuming capitalization of endowment at 7/1/05			
MV at 1/31/05	182,124,384.00		
Estimated Earnings for FY2005 (February - June 2005)	5,175,380.00	assumes an earnings rate of	7%
Remaining withdrawals estimated for FY 2005	<u>(4,682,784.00)</u>		
Estimated MV at 7/1/05	<u>182,616,980.00</u>		
Capitalization	<u>210,000,000.00</u>		
Estimated MV after capitalization	<u><u>392,616,980.00</u></u>		
% of MV	21,593,933.90		5.5%

available for program (not taking into account three year monthly average MV calculation)

## **Issue: Bulk Storage Operations and Maintenance**

**Recommendation #3:** Create a State-funded Bulk Fuel Operator/Owner Technical Assistance Program

**Rationale:** Specialized technical assistance supports sustainability efforts

**Action:** Advocate for full funding of new program

**Funding Required:** Minimum \$300,000

**Background:** Tank farm operators and power plant operators currently receive training at the Alaska Vocational Technical Center (AVTEC). Other vocational and technical training facilities in Alaska that offer alternatives to regionally based training include the Alaska Technical Center (ATC) in Kotzebue, the Ilisagvik College in Barrow, and the Southwest Alaska Vocational Educational Center (SAVEC) in King Salmon.

Training qualified tank farm operators helps reduce Operations and Maintenance (O&M) costs and long term repair and replacement costs by extending the useful life of the facility. Qualified operators also help control local fuel costs by reducing the amount of fuel lost through leaks and spills. At this time, AEA does not have a technical assistance program to help local tank farm owner/operators address maintenance and repair issues that arise at their facilities and provide some ongoing, facility specific training. Yet, AEA currently operates a circuit rider program to provide technical assistance to village electric utilities.

This program would provide technical assistance and support for minor repair and O&M issues, as well as help give advice in following the procedures and practices set out in the business plans.

One existing program is called the Rural Alaska Fuel Services (RAFS), Inc., a private, not-for-profit service company for Alaska's small tank farms. The RAFS mission is "to provide bulk fuel tank farm services in rural Alaska in such a manner as to achieve sustainability and meet all state and federal regulatory requirements." See Appendix C for additional background on RAFS, Inc.

## **Issue: Scope of Bulk Fuel Upgrade Projects**

**Recommendation #4:** Initiate a program to upgrade residential fuel storage, day tanks and piping systems in rural Alaska

**Rationale:** Inadequate and often incompatible downstream facilities defeats purpose of owning code-compliant bulk fuel tank farm facility

**Action:** Advocate for a new program

**Funding Required:** Minimum \$1 Million

**Background:** The Denali Commission funds bulk fuel upgrades, but the program is limited to bulk fuel tank farms and intermediate tanks. Down stream facilities such as day tanks, individual residence fuel storage and piping, etc, are beyond the scope of this program. In many cases, these downstream day tanks and residential fuel systems are inadequate. Some day tanks lack overfill protection, such as high level alarms and automatic shut off switches. Many residential fuel systems are constantly losing fuel because of leaks. Some of these leaky systems are the result of using components that were never intended for that purpose.

In addition to the environmental damage to a community, fuel lost through leaks and spills has a very definite economic impact on the community. Fuel that is lost through leaks and spills must be replaced to meet the community's fuel needs. Therefore, some portion of a community's fuel inventory is purchased twice. Rural communities must get full value for the fuel that is purchased.

Implementing this recommendation would save on mobilization and demobilization costs if upgraded in conjunction with the Denali Commission funded project and allow these down stream upgrades to be accomplished at the lowest possible cost. The upgrades under this new program involve teacher housing and multi-family dwellings where threaded piping is commonly seen. Overfill protection at residential heating oil tanks may include such things as: double wall tanks, filters, flex hose, and improvements with venting, fill connections, gauges and float fill warning system.

## Issue: Bulk Fuel Cooperatives

**Recommendation #5:** Develop bulk fuel cooperatives

**Rationale:** Reduce the cost of fuel delivered and used; bulk fuel purchases provide opportunities for discounted rates

**Action:** Direct DCCED to establish cooperatives

**Funding Required:** Eight cooperatives at \$50,000 each. 8 x \$50,000 = \$400,000 for start-up, support services, technical assistance, etc.

**Background:** A bulk fuel cooperative is a consolidation of a stand-alone or a consortium of substantial fuel buyers in rural Alaska, including such user groups as school districts, village corporations, city governments and tribal governments. A single entity representing two or more sites would need to be organized in participating geographical areas, and would be responsible for the management of bulk fuel purchases on behalf of the cooperative members. Based on previous work done with cooperatives, it is anticipated that eight (8) entities could be developed initially. This would include: Kodiak, Aleutians, Bristol Bay, Bethel area, Lower Yukon, Bering Straits, NANA, and the Yukon Flats area.

Bulk fuel cooperatives may save money by purchasing bulk fuel, a service that the Bureau of Indian Affairs offers through the Alaska Resupply Operation (go to [http://www.access.gpo.gov/nara/cfr/waisidx\\_98/25cfr142\\_98.html](http://www.access.gpo.gov/nara/cfr/waisidx_98/25cfr142_98.html) for more information). An existing facility with excess storage capacity is Adak's 22 million gallon facility, owned by the Aleut Corporation and available for bulk fuel storage.

The Western Alaska's Fuel Buying Group helped several members find a fuel vendor that sells and delivers fuel at a rate much cheaper than what it would have cost the utility by ordering fuel independently. The coop has proven that there are benefits to ordering in bulk and in large quantity, something that is nearly impossible to undertake as one utility or a community of users. A representative of the Nushagak Electric and Telephone Cooperative touted that the Coop has been able to order fuel at as much as one dollar cheaper than other alternatives. However, as more fuel vendors become "street smart" with regard to bulk purchases, financial savings may be harder to get. Having large storage capacity definitely helps a utility in ordering a year's worth of fuel.

Despite the praises of this particular success, there have been many disappointing, but not completely failed attempts at creating cooperatives. Calista Corporation created a subsidiary called the Western Alaska Village Enterprises (WAVE), a distributor of goods for village merchandise stores that expanded into selling fuel at discounted rates under WAVE Fuels. Due to the enormous expenses involved in operating the business, its service downsized from a region-wide area to operating a gas and fuel service station, NorthStar Gas based in Bethel. Should the business stabilize and grow, WAVE plans to expand its business into other regions in the future.

## **Issue: High Cost of Bulk Fuel in Rural Alaska**

**Recommendation #6:** Under Alaska Energy Authority's (AEA) Bulk Fuel Revolving Loan Fund (AS 42.45.250), allow the maximum amount borrowed by cooperatives formed under AS 10.15 to be based on the number of eligible communities that belong to the cooperative, and increase the loan limit above \$300,000.

**Rationale:** Increased bulk fuel storage capacity and rising fuel costs has resulted in communities needing more financial resources to purchase bulk fuel; the formation of cooperatives may allow volume discounts for bulk fuel purchases.

**Action:** Amend AS 42.45.250 (e) to allow the maximum loan amount to cooperatives formed under AS 10.15 to be based on the number of eligible communities belonging to the cooperative. Amend AS 42.45.250 (e) (1) to increase the maximum loan amount above \$300,000.

**Funding Required:** Amending AS 42.45.250 (e) will not have a fiscal impact on the Bulk Fuel Revolving Loan Fund. Amending AS 42.45.250 (e)(1) may have a fiscal impact and require additional capitalization of the Bulk Fuel Revolving Loan Fund, but to determine the fiscal impact will require additional information that is not available at this time.

**Background:** Rising costs of bulk fuel for delivery to rural communities combined with increased bulk fuel storage capacity in some communities, has created a situation where the ability to pay for bulk fuel deliveries is becoming increasingly difficult, especially the decrease in revenues being experienced by rural communities (See Appendix D for Sample of the Price of Fuel and Appendix E for AEA Energy Fuel Survey). One potential method to lower the cost of bulk fuel is the formation of cooperatives that are comprised of multiple communities. Consolidation of bulk fuel purchases and the resulting increase in the volume of fuel purchased may lead to a lower delivered cost.

In addition, the increase in fuel costs, even with a volume discount, coupled with increased storage capacity in some communities has lead to the bulk fuel "invoice" amount being an amount such that the current maximum loan amount under AS 42.45.250 (e)(1) requires the borrower to have a larger down payment when cash resources are more scarce.

AEA's Bulk Fuel Revolving Loan Fund currently provides communities with a population of 2,000 or less the opportunity to finance bulk fuel purchases in accordance with AS 42.45.250 and 3 AAC 106.300 – 106.365. Under AS 42.45.250 (e)(1), a borrower is currently limited to a maximum loan of \$300,000.

The maximum loan amount of \$300,000 to a single borrower precludes a cooperative that may for example be comprised of ten (10) eligible communities, each with a need to purchase \$300,000 in fuel, from obtaining a bulk fuel loan of

sufficient size to cover the cost of the bulk fuel purchase. Increasing the loan maximum amount to \$650,000 for each applicant under the current eligibility criteria will help alleviate some of the financial challenges faced by the applicants. A higher loan amount means communities needing reduced cash resources to consummate a bulk fuel purchase.

With regard to the increased loan amount of \$650,000, AEA expressed reservations as to whether this is the appropriate loan amount and the impact any increased loan amount would have on the Bulk Fuel Revolving Loan Fund without further capitalization of the Fund.

See Appendix F for Financing Bulk Fuel, which provides a list of known existing loan programs for fuel in Alaska.

## Issue: Diesel Powerhouse Efficiency Improvements

**Recommendation #7:** Fund energy efficient generators/automated switchgears

**Rationale:** Reduce powerhouse fuel usage by installing efficient systems

**Action:** Support Denali Commission and advocate for State of Alaska funding to improve rural powerhouses in rural communities

**Funding Required:** \$225Kx50 = \$11.25M; \$100Kx50 = \$5M; \$140Kx20 = \$2.8M

**Background:** There are three components to reducing fuel usage in rural powerhouses & communities (see Appendix G for Comparison of Recently Installed Energy Systems):

1. *Installation of automatic demand level paralleling switchgear with remote monitoring.* This type of switchgear starts and stops different size generators automatically to match the proper size unit with the load demand of the community. In the past, communities would run a generator large enough to handle the peak loads throughout the day, however, community loads drop down to 50% and some times 25% of the rating of the generator, wasting a significant amount of fuel. The automated switchgear brings a smaller, more fuel efficient generator on line and turns off the larger generator for most of the day and night. The switchgear monitors the load 24 hours a day and does not need an operator on duty to switch generators. The new switchgear continuously monitors the fuel efficiency of each generator and the overall powerhouse fuel consumption.

Remote monitoring helps maintain the maximum fuel efficiency and assures that the proper maintenance schedules are followed, extending the overall life of the generators. Cost of the new switchgear for a powerhouse with 3-4 generators rated between 40kW - 500kW is estimated at \$150,000 plus installation at about \$75,000, for a total cost of \$225,000 per site. Estimated saving in fuel: 10%-20% annually.

2. Installation of properly sized generators to meet the load profile of communities. This means installing anywhere from 3 to 4 different size generators in order to be able to run the most efficient unit to match the loads as it changes during the day. Most community loads drop off during the night and pick back up throughout the day and are lower in the summer time as school is out. By installing different size generators, the most fuel efficient generator for the load is selected. This is done using the above mentioned switchgear. Typical cost for new generator equipment is between \$25,000 – \$75,000 depending on the kW rating need, plus installation cost on \$20,000 to \$30,000 per unit.

3. Installation of heat recovery systems where economically feasible. The average cost of installing heat recovery in an AEA designed system is between \$60,000 - \$160,000. Utilization of heat from the powerhouses is limited by the proximity of other facilities that can use the recovered heat. Typically, buildings have to be within 800 feet of the powerhouse. The fuel savings to the communities can run from 5,000 gallon a year up to as high as 25,000 gallons per years.

## **Issue: Alternative Energy**

**Recommendation #8:** Adopt an aggressive position supporting alternatives

**Recommendation #8a:** Support the application for the In-Stream Project at Eagle and urge early and positive action by the Federal government

**Rationale:** Alternative energy projects potentially competitive with diesel generation

**Action:** Implement policy to support development and construction of alternative energy projects by the Administration and in the legislature

**Funding Required:** Utilize existing programs to further these goals

**Recommendation #8b:** Include alternative routes for the natural gas transportation system to facilitate delivery of propane to markets along the highway at one or more “off-take” sites

**Rationale:** Reduce cost of energy to rural consumers; attract an “anchor tenant” to fund major share of infrastructure; fuel 60 megawatts required to transform Donlin Creek Joint Venture

**Action:** Governor or a State agency remains active in the negotiation process

**Funding Required:** Utilize existing state agency resources

**Recommendation #8c:** Institute a large project permit process to convene a multi-agency state and federal team to accelerate coal resource development

**Rationale:** Coordinate all state and federal permits to ensure that the most efficient and effective strategies are identified to expedite the permitting process

**Action:** Create cabinet subcommittee of DNR, DCCED, DEC and the Attorney General office to oversee and streamline the permitting process for energy projects; inform the public of efforts

**Funding Required:** Utilize existing state agency resources

**Recommendation #8d:** Support the Northwest Alaska Energy Plan

**Recommendation #8e:** Support the study of Beluga Coal Field and Integrated Gasification Combined Cycle technology

**Rationale:** Open other resources with cheap coal-fired energy

**Action:** Encourage industry and stakeholders to develop one of Alaska’s largest resources

**Funding Required:** Unknown private resources

**Recommendation #8f:** Establish statewide policy and funding support for deployment of wind-diesel systems

**Recommendation #8g:** Fund large-scale purchase of wind turbine generators, towers, and control systems

**Rationale:** Reduce dependence on diesel fuel; large procurement creates a stable market for system vendors, O&M suppliers, and a critical mass of equipment in the field

**Action:** Funding is required from the State to match other funding sources

**Funding Required:** \$3-5 million initial installation

**Background:** While the overriding energy generation fuel is diesel and will continue to be diesel for the foreseeable future, it is imperative for key executive and legislative leaders to adopt an aggressive position to seek out alternatives that will be competitive in the mid to long term such as gas, coal, wind small hydro, run of the river hydro, biomass, geothermal and perhaps shallow gas.

**Small Natural Gas:** The Alaska Department of Natural Resources (DNR), Division of Geological and Geophysical Survey and Division of Oil and Gas, and the U.S. Department of Energy Arctic Energy Office should be the lead on small natural gas development issues since they deal with fossil resource exploration and development. AEA can provide input to energy markets and costs. There are a number of applicable reports from Arctic Slope NW Arctic Coal Project, including a delivered coal cost assessment.

**Hydro, Geothermal, and Biomass:** These are site-specific resources around which AEA maintains programs. Currently we are trying to make our database on existing and potential hydro more accessible to the public through a geographic web interface. Meanwhile, RCA is working on streamlining permitting for small hydro.

The geothermal program is supporting resource assessment in the Akutan and Chena Hot Springs areas, while the biomass program has just completed a statewide solicitation for developing modern wood combustion systems in rural areas. Statements of interest were received from 15 communities--six appear to be promising.

**Nuclear:** USDOE Arctic Energy Office has been the lead on the Galena project. Currently, the project is in the Nuclear Regulatory Commission process, the most appropriate forum for assessing development issues.

**Coal:** The Alaska's State Geologist estimates there could be as much as five and a half trillion ton of coal in place in our state (See Appendix H: Summary of Coal Resources of Alaska).

Streamlining the permitting process for large coal projects encourages resource development. It is desirable to tie large projects to local power distribution (as an anchor tenant) when power generation capability supports increased energy supply and reduces costs for local use. Cost of affiliated power distribution and consumption should not be a burden to the anchor tenant.

Northwest Alaska has a huge deposit of Northwest Arctic Coal five miles inland from the Chuckchi Sea that is stranded. The Deadfall Syncline coal deposit contains resources adequate to support a mining operation of one million tons per year for 20 years. The Deadfall Syncline coal is some of the best in the world. It is high in Btu/lb (12,770), low in sulfur (0.2%) and low in moisture

(4.6%). A Northwest Alaska Energy Plan should include a coal power plant to generate power and a transmission line to power the Red Dog Mine. Also, the plan should include a road to transport the mined Arctic coal to tidewater for export. This could also open up to other resources in the NW area with cheap coal-fired power energy.

Emma Creek Energy Project by Usibelli Coal Mine Inc. is a proposal for a \$421 million, 200MW power plant at its mine near Healy. Emma Creek coal has 7,200 Btu/lb and sulfur content of 0.2%.

Beluga Coal Field (Beluga) and Integrated Gasification Combined Cycle (IGCC) technology: The main opportunity for DOE Clean Coal funding is IGCC. In Alaska, IGCC would be difficult to justify until it is more proven, considering Alaska's high costs and distances from suppliers. It may, however, be worthwhile doing a Phase II DOE-funded scoping study at Beluga. IGCC may have a lot of benefits at Beluga because of the unique combination of facilities and resources in that location including coal, gas, a fertilizer plant, high voltage transmission lines, gas turbines that will at some point need repowering, nearly depleted oil wells, pipelines, and possibly a coal drying facility. Because an IGCC plant can gasify a wide range of feedstocks and manufacture a wide range of products including electricity, there may be economic development benefits associated with an IGCC plant at Beluga that make the project economic. This combination of resources and facilities all in reasonable proximity and connected by pipeline, may allow IGCC benefits to be optimally exploited.

See Appendix I for more information on Alaska's Coal Resources, a pamphlet designed by the DNR.

**Wind:** Coastal Alaska includes many communities with excellent wind resources for power generation. Where diesel fueled power generation can be displaced by renewable energy sources like wind or small hydro, villages can save funds by using less fuel. Integrating wind energy into existing diesel systems requires higher upfront capital costs than traditional power plants. Careful assessment of local wind resources must precede development to assure cost-effective projects. See Appendix J for background information on Wind-Diesel Hybrid Systems in Alaska.

The Alaska Rural Energy Plan of 2004 recommends roughly a \$30 Million effort over five years towards installing wind-diesel systems in rural communities (see Appendix K: Alaska Rural Energy Plan, Vol. II, Section 3, pages 3-38, 39, 40). This effort consists of three components: Resource Assessment, Final Feasibility/Preliminary Design, and Wind Services Procurement.

## **Issue: Energy Conservation**

**Recommendation #9:** Adopt an aggressive position supporting energy conservation and power generation efficiency

**Recommendation #9a:** Aggressively pursue cost-effective lighting and heating upgrades in schools and other community facilities statewide

**Rationale:** Quick payback (varies by project)

**Action:** Continued funding of Denali Commission's Village End Use Efficiency Program or similar

**Funding Required:** \$3.7 million for 139 communities

**Recommendation #9b:** Replace low efficiency generation units with electronically controlled units and exploit heat recovery alternatives

**Rationale:** Quick payback (varies by project)

**Action:** Install automated switchgear where fuel and labor savings justify cost

**Funding Required:** Varies by location

**Recommendation #9c:** Assess Power Generation and End Use Efficiency Alternatives

**Rationale:** offers support; reports may be used to apply for funding

**Action:** Establish an on-going source of funds to use for audits

**Funding Required:** \$15-25,000 per community x 10 = \$150,000 - \$250,000

**Recommendation #9d:** Fund Energy Star - Energy Smart Program

**Rationale:** Disseminating energy efficiency information saves energy dollars

**Action:** Provide a 3-year grant to RurAL CAP for their program

**Funding Required:** \$80K one-time start-up; \$300K annual grant x 3 years

**Recommendation #9e:** Create low interest loans for energy efficient projects for community buildings, schools, businesses and residences.

**Rationale:** Provides businesses and communities the boost needed; quick payback helps pay off loan.

**Action:** Create a low interest loan fund for energy efficient projects.

**Funding Required:** similar to the Bulk Fuel Revolving loan fund.

**Recommendation #9f:** Fund Alaska Housing Finance Corporation (AHFC) Weatherization program at previous level of \$6.5 Million

**Rationale:** Weatherization ensures safety and health.

**Action:** Fund weatherization at previous level (\$6.5 Million)

**Funding Required:** \$6.5 Million

**Recommendation #9g:** Review Design Engineering for Water & Sewer Construction.

**Rationale:** construction practices for water and sewer exacerbate the energy challenges by improperly designed heat trace that increase cost with no to little beneficial consumer use.

**Action:** Review Design Engineering for Water & Sewer Construction.

**Funding Required:** AEA staff funded through several U. S. Department of Energy programs would be able to provide an engineering review.

**Background:** The 2004 Energy Policy Task Force reported that efforts to use energy resources more efficiently can reduce energy costs and benefit the environment. Energy efficiency is broader than simple energy conservation, or eliminating unnecessary energy use. Efficiency involves achieving necessary goals, while minimizing energy requirements. Efficiency should not compromise comfort, performance, or productivity, but rather meet those requirements through more proficient means.

We recognize that in the short period since the Energy Policy Task Force made their findings and recommendations, the price of oil has surpassed \$50 per barrel during the spring of 2005. This is resulting in an increase to most Rural Alaska villages of 30 to 40% for fuel oil and gas.

In recent weeks, against a backdrop of huge spikes of per barrel costs and OPEC decision to reduce production, the Chairman of one of America's largest oil companies said the least painful way to deal with this is CONSERVATION. Prices are higher, so there's added incentive to be energy efficient.

**Energy Star – Energy Smart:** The activities included in such a figure involves lighting, some level of appliance replacement and also the day-tank issue. See Appendix L for details about the RurAL CAP Energy Star – Energy Smart Program.

## **Issue: Low Income Home Energy Assistance Program (LIHEAP)**

**Recommendation #10:** Publish a guide on financing & buying enough home heating fuel

**Rationale:** Effective and timely use of LIHEAP funding; ordering enough fuel during barge delivery; ensure availability of adequate storage containers for the community and homes

**Action:** AEA & LIHEAP collaborate to identify financing options to upgrade home energy sources/supplies (tanks, generators, water tanks, etc.), create a resource list of fuel distributors

**Funding Required:** \$150,000 - \$250,000

**Background:** The State of Alaska has two major energy assistance programs for Alaskans: PCE with an annual budget of \$15.7 million, and LIHEAP with approximately \$6.0 Million per year through the State Department of Health and Social Services and approximately \$3.0 million through the Regional Non Profit Corporations.

- While the PCE program reimburses Utilities for PCE credit applied to customer bills, the LIHEAP program makes direct payment to the income eligible individuals to assist with their heating bill.
- While the state budget benefits from high oil prices, many individual low-income households struggle to pay for their home heating oil.
- In some communities, insufficient bulk fuel storage prevents the community from acquiring enough fuel to last through the winter. Communities expect LIHEAP to make late summer eligibility determinations, so individual residential tanks can be filled to ensure enough supply for the winter. These requests precede: the LIHEAP federal funding level, beginning of the October 1 federal fiscal year, and the beginning of LIHEAP season. Bush Alaska transportation schedules do not necessarily match program funding patterns.
- Problems with low river levels hamper barge fuel delivery. Certain residents expect LIHEAP to make late summer eligibility determinations. Consumers need ways to increase capacity and get more fuel delivered and stored earlier in the summer during high water levels.
- Communities with credit issues are limited in their ability to get bulk fuel loans, so they want LIHEAP to commit to a specified subsidy amount for the village. As eligibility is household based and the new federal budget is unknown, this is not possible. However, LIHEAP may provide previous year estimates.
- Energy efficiency improvements, such as replacing leaky 55 gallon drum household storage containers, replacing old heaters with high efficiency models, or replacing electric hot water heaters with high efficiency on-demand models can help individuals and the entire community reduce energy demands.

## **Issue: Energy Funding for School Districts**

**Recommendation #11:** Separate energy related expenses from education foundation formula

**Rationale:** Dedicating education funding on classroom activities may improve education measurement scores

**Action:** Advocate for the creation of a new funding method to support energy costs separate from the education foundation formula

**Funding Required:** Unknown

**Background:** There may be a direct link between energy costs and student achievement. “A school district may spend as much as 23% of its total operating fund budget on energy. Budget shares equaling such a large portion of the total operating fund require a separate analysis when creating a cost-of-education index.” (Bradford Tuck, A Review of Alaska School District Cost Study, January 2004)

As Alaskans, predominantly rural areas, experience increase in fuel costs, school districts are allocating more money for energy at the expense of our students across the state who are not doing well in their education measurement scores. More and more of the foundation formula dollars go to energy related expenses, depriving resources for classroom expenses, teacher salary and benefits, and other direct education mission costs. As a result, some districts experience up to 45% turnover rates of its educators. The School Districts need to have a separate budget for heating and lighting of the schools across the state.

Governor Murkowski, in his State of the State Address in 2005, quoted two rural leaders for mentioning that “the high cost energy is a major obstacle to a healthy and robust rural economy. They said many villages pay more than \$5.00 a gallon for gasoline, \$5.00 a gallon for heating fuel, and up to 50 cents a kwh for their electricity. Many rural Alaskans are moving into hub communities because they cannot afford the high cost of heating fuel, gasoline, and electricity. This is to the detriment of keeping village schools open and building rural and village economies.” If high energy expenses may be jeopardizing the very existence of rural schools, then Alaskan need to assess ways to ensure that the doors to school facilities remain open for years to come.

## **Issue: Rural Energy Centers**

**Recommendation #12:** Establish Rural Energy Centers at the University of Alaska (U of A) Rural Campuses or other equally equipped venue within the U of A

**Rationale:** Decentralize research and development efforts relating to energy

**Action:** Collaborate with the University of Alaska to develop plans, etc.

**Funding Required:** Unknown

**Background:** The purpose of the centers is to decentralize all research and development of conservation, oil and gas development initiatives, and alternatives that will reduce use of diesel in regions across the state. Presently, if people need useful energy information, they must access it at urban-based central organizations in Anchorage, Fairbanks or Juneau. Rural schools and the general public needs readily available access to new ideas, new wind energy generators, more efficient use of current diesel generators, conservation, and the use of coal and other alternatives to diesel.

The Governor and his administration would work with the Denali Commission and the University of Alaska to get these energy centers set up by working with the Rural Campuses to find the best way to establish this program.

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## Acronyms

AAC	Alaska Administrative Code
AEA	Alaska Energy Authority
AFN	Alaska Federation of Natives
AHFC	Alaska Housing Finance Corporation
AIDEA	Alaska Industrial Development & Export Authority
AITC	Alaska Inter-Tribal Council
AML	Alaska Municipal League
AML-JIA	Alaska Municipal League – Joint Insurance Arrangements
AS	Alaska Statute
ATC	Alaska Technical Center
AVEC	Alaska Village Electric Cooperative
AVTEC	Alaska Vocational Technical Center
BFRLF	Bulk Fuel Revolving Loan Fund
BFU	Bulk Fuel Upgrade Program
BIA	Bureau of Indian Affairs
Btu	British thermal unit
CRA	Community and Regional Affairs (a legislative committee)
CS	Committee Substitute
DCCED	Department of Commerce, Community & Economic Development
DEC	Department of Environmental Conservation
DOD	Department of Defense
DOE	Department of Energy
DNR	Department of Natural Resources
EPTF	Alaska Energy Policy Task Force
HB	House Bill
HVAC	Heating, Ventilation and Air Conditioning
IGCC	Integrated Gasification Combined Cycle
K	Thousand
kW	Kilowatt
kWH	Kilowatt Hour
LIHEAP	Low Income Home Energy Assistance Program
lp	pound
M	Million
MW	Megawatt
Non-PCE	Communities not participating in the Power Cost Equalization Program
NW	Northwest
O&M	Operations and Maintenance
OPEC	Organization of the Petroleum Exporting Countries
BIA	Bureau of Indian Affairs
PCE	Power Cost Equalization program
R&R	Repair and Replacement
RAFS	Rural Alaska Fuel Services, Incorporated
RCA	Regulatory Commission of Alaska
REAC	Rural Energy Action Council
RPSU	Rural Power System Upgrade Program
RurAL CAP	Rural Alaska Community Action Program, Inc.
SAVEC	Southwest Alaska Vocational Educational Center
SLA	Session Laws of Alaska
USDA	United States Department of Agriculture
USDOE	United States Department of Energy
WAVE	Western Alaska Village Enterprises

## Appendices

- Appendix A: PCE Blue Ribbon Committee Executive Summary**
- Appendix B: Tabled PCE Recommendations**
- Appendix C: Rural Alaska Fuel Services, Inc.**
- Appendix D: Sample of the Price of Fuel**
- Appendix E: AEA Energy Fuel Survey**
- Appendix F: Financing Bulk Fuel**
- Appendix G: Comparison of Recently Installed Energy Systems**
- Appendix H: Summary of Coal Resources of Alaska**
- Appendix I: Alaska's Coal Resources**
- Appendix J: Wind-Diesel Hybrid Systems in Alaska**
- Appendix K: Alaska Rural Energy Plan, Vol. II, Section 3, pages 3-38, 39, 40**
- Appendix L: Energy Star – Energy Smart: RurAL CAP**