



COLD CLIMATE HOUSING RESEARCH CENTER

CCHRC

Interim Report to
Alaska Energy Authority

Alaska Energy Efficiency Policy and Programs Recommendations: Review & Update

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Abstract

About 60% of the recommendations in the 2008 report *Alaska Energy Efficiency Policy and Programs Recommendations* (CCHRC 2008) have been implemented by the Alaska Legislature and state agencies. On March 2, 2011, a working group comprised of over 40 stakeholders and experts in end-use energy efficiency (EE) programs met in Anchorage to review the 2008 report to consider what is working, what remains to be done, and what additional policies and programs should be implemented. Of the many recommendations generated and considered by the working group, five were given the highest priority in this order:

1. Establish a statewide energy code or standard;
2. Sustainably fund the Weatherization and Home Energy Rebate (HER) programs;
3. Fund statewide energy efficiency educational outreach, workforce training, and development of public school and university courses;
4. Empower the Regulatory Commission of Alaska (RCA) to work through utilities to develop programs for end users in the more efficient use of electrical energy; and
5. Legislate *efficiency* as a priority in the development of energy solutions (part of the funding for supply systems should support demand reduction efforts first).

This review and update of the 2008 report describes these recommendations and lists the other recommendations and observations developed by the working group. This interim report was produced at this time so draft information from it could be available prior to the end of the 2011 legislative session. The full scope of this CCHRC project also includes more recommendations related to end-use electrical efficiency and the development of recommendations related to end-use energy efficiency in transportation systems and industrial plants and processes. The final report will be available in December, 2011.

Disclaimer: The research conducted or products tested used the methodologies described in this report. CCHRC cautions that different results might be obtained using different test methodologies. CCHRC suggests caution in drawing inferences regarding the research or products beyond the circumstances described in this report.

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Background and Scope

In June 2008, The Cold Climate Housing Research Center (CCHRC) completed *Alaska Energy Efficiency Policy and Programs Recommendations* (CCHRC 2008), a report commissioned by the Alaska Energy Authority (AEA) and the Alaska Housing Finance Corporation (AHFC) and written by Cady Lister, Brian Rogers, and Charles Ermer of Information Insights. This report, published at the last major peak in oil prices, is widely viewed as having been influential in the development of energy efficiency policy by the Alaska Legislature and the development of energy efficiency programs by state agencies. As many of the recommendations in the 2008 report have been adopted (approximately 60%), it is necessary now to review and update those recommendations and to consider additional policies, programs, or enhancements to continue the progress on energy efficiency in Alaska. With oil prices again topping \$100 per barrel this report provides a timely update and expansion to the 2008 report. This review and update is funded by AEA with a grant from the US Department of Energy (US DOE) and federal American Recovery and Reinvestment Act (ARRA) dollars received via AHFC.

Interim Scope

This interim report presents a review of the 2008 report and legislative and agency actions taken since it was published. This report covers: (a) what has been implemented since it was published, (b) what remains to be done, (c) what is working and needs more support, and (d) what else should be done. It includes more emphasis on end-use electrical energy efficiency and rural issues than the original report, which focused mainly on issues regarding space heating in residential, commercial, and public buildings in the railbelt. The recommendations herein were developed at a one-day workshop held in Anchorage on March 2, 2011; the workshop was comprised of more than 40 stakeholders and energy experts from across Alaska.

Final Scope

The final report for this project will also include recommendations regarding end-use energy efficiency in transportation and industry. We expect to work on this project over the remainder of the year and to issue the final report in December, in time for the next legislative session.

Recommendations from the 2008 Report

The work reported by CCHRC (2008), *Alaska Energy Efficiency Policy and Programs Recommendations*, comprised the following elements:

- Literature review: Alaska energy programs (current and past)
- Key informant interviews: Alaska energy programs (expert perspectives)
- Literature review: best practices (US, Canada, other northern counties – Rocky Mountain Institute)
- Energy efficiency work session (January 16, 2008, about 30 professionals)
- Data collection and cleaning
- Interim recommendations for adoption during the 2008 legislative session

- Extensive feedback from 20+ energy and policy professionals
- Final recommendations

With the assistance of the Rocky Mountain Institute, best practices were reviewed and summarized in the following policy areas:

- State mandates
- Finance and incentives
- Utility regulations
- Education

Twenty-three recommendations were developed and presented in nine categories:

- State Leadership
- Funding Energy Efficiency
- Public Education and Outreach
- Baseline Data
- Existing Residential Buildings
- New Residential Construction
- Existing Commercial Buildings
- New Commercial Construction
- Public Buildings

These categories are presented in the next section and evaluated as to how well the recommendations within them have been implemented.

Score Card: How are we doing and what remains to be done?

The following table presents a summary of an informal review of how well the recommendations within each category have been implemented by the state. This review considers actions taken by the legislature in 2008 and 2010, and some agency actions to-date in 2011. This table is presented in more detail in *Appendix I*. According to this evaluation, about 59% of the recommendations have been implemented by the legislature and state agencies.

Table One: Summary of how much of the 2008 Report has been implemented

2008 Recommendations	2008	2010	% Done
<u>I. State Leadership</u>		l, i	60
<u>II. Funding Energy Efficiency</u>	\$	F, i	60
<u>III. Public Education and Outreach</u>		i	30
<u>IV. Baseline Data</u>		i	80
<u>V. Existing Residential Buildings</u>	\$	i	80
<u>VI. New Residential Buildings</u>		i	30
<u>VII. Existing Commercial Buildings</u>		F	80
<u>VIII. New Commercial Buildings</u>		f	20
<u>IX. Public Buildings</u>		F, f	90
<u>AVERAGE</u>			59

Table Key

l = intent, specific

i = intent, general

\$ = appropriation

F = funding program

f = funding available through another program

Notes for Table One:

- I. Most of the credit under *State Leadership* is due to the vision established by the legislature in House Bill 306 in 2010.

- II. Energy efficiency funding was dramatically kicked-off by Senate Bills 287 and 330 in 2008 and continued in Senate Bill 220 in 2010. However, in spite of the large amount of funding appropriated so far, there is an important need to sustain this funding for about a decade if we are to reach a large fraction of the homes in Alaska.
- III. Public education and outreach were assigned to AEA in SB 220, but no funding was dedicated to this task. AEA has done an outstanding job organizing and leading the ad-hoc Energy Efficiency and Conservation Working Group (EECWG) which is leveraging state and federal funds to develop a statewide outreach program.
- IV. Baseline data has been collected by the AHFC ARIS program, the RuralCap Energy Wise program, a 1989 ISER Study, DOT on State Buildings, AEA on commercial buildings, AHFC REAL on public buildings, as well as the US Census and Energy Information Agencies. AEA is funding *WHPacific* to collect all of this information into an End-Use Energy Data Base for Alaska; *WHPacific* will also collect some missing data types using computer assisted telephone surveys.
- V. AHFC has rebate and weatherization programs for existing building EE improvements.
- VI. AHFC has cash and mortgage rate reduction incentives for *Five-Star-Plus* new building construction.
- VII. DCED has program for EE improvements in commercial buildings including those of nonprofits. ABSN & AEA run the Village End Use Efficiency Measures (VEUEM) program, which are upgrades performed in rural Alaskan community buildings. AEA had a one-time commercial building audit program.
- VIII. AHFC is developing a commercial version of AkWarm that will help design more efficient new buildings.
- IX. AHFC has a revolving loan fund for energy retrofits of public building (state, municipal, schools, and UA) and has published an energy efficiency standard for these retrofits. ADOT/PF has mandate to retrofit 25% of all public (state) facilities over 10,000 SF.

Working Group Results

The Cold Climate Housing Research Center hosted a meeting of energy efficiency and conservation stakeholders from around the state on March 2, 2011 at the Alaska Housing Finance Corporation. See *Appendix II* for a list of attendees and a complete summary of the meeting. The purpose of the meeting was to develop recommendations for the legislature regarding energy efficiency and conservation programs and policies in Alaska. This all day meeting included information sharing through morning presentations, small group work developing recommendations, prioritization of recommendations, and strategies associated with implementing the top five recommendations.

Top Five Priority Recommendations from the Working Group

Participants broke into small work groups and developed recommendations for energy efficiency and conservation in Alaska. The whole group then prioritized these recommendations; the top five recommendations from that prioritization are presented below.

1. Statewide energy code or standard
 - Use lenders as enforcement; require all mortgage loans within AK to comply with an energy code or standard. The buyers and sellers then pay these costs.
2. Fund Weatherization and the Home Energy Rebate program
 - Create a sustainable source of funding for these programs, such as an energy endowment. CCHRC estimates that these programs alone could generate an annual energy savings of 26 trillion BTUs and homeowner savings of \$375 million per year if every home in Alaska received services from one of these programs.
 - Mandate consumer education to get rebate.
 - Require further contractor training for energy efficiency work.
 - Identify barriers to using these programs and any new commercial loan program, if it is funded.
 - Play up the success of these two programs to build support for other initiatives.
 - Review the HER program model and outcomes for rural Alaska and adjust if necessary to ensure that all regions can benefit proportionally from the program. Include rural stakeholders in the discussion.
3. Education (public outreach, workforce training, K-University curricula)
 - Gather Alaska specific information in order to develop a dollar value for efficiency—both supply and demand side. Placing a dollar value on efficiency is critical to raising its stature; be specific about geography and building type. Further, translate the dollar value of EE into economic impact.
 - Use competitions and leverage the competitiveness of people.

- Use the Energy Efficiency and Conservation Working Group (EECWG) website as a one-stop-shop for energy efficiency. Continue to outsource to a third party the maintenance of the website, www.akenergyefficiency.org.
- Use information that will be generated through the US DOE grants AEA and AHFC are currently engaged in, particularly the needs assessment, energy use survey, benchmarking, and audits.
- Ask for state funds to match phase II US DOE projects
- Dedicate a percentage of HER/Weatherization funds to education – both public outreach and workforce training.
- Break down “education” into three categories:
 - Public Outreach/Awareness building
 - Professional/technical training
 - Encouraging conservation behavior
- Need sustained funding source for developing and promulgating best practices.
- Put more energy consumption information in context and on utility bills.
- Need good advertising, with explicit EE talking points, that sticks out above the noise, gets attention and is sustained.
- Don’t “reinvent the wheel” –look to best practices from other places and modify for Alaska as necessary.

4. RCA & Decoupling

- Use the RCA process and only go to the legislature if appropriate.
- There is an *I-docket* (a formal RCA information gathering process) open now; use this as a venue to advocate for decoupling.
- Analyze different decoupling mechanisms in upcoming CCHRC report to balance utility profitability with ratepayer incentives to reduce consumption.

5. Legislate efficiency as a priority (& other mandates)

- Statutorily require that efficiency be the first choice in meeting energy demand, particularly when considering new power projects.
- Adopt action around the existing EE state vision.
- Direct RCA to deal with EE in more tangible way.
- Create a green schools caucus in legislature.
- Tie funding of generation systems to integration of energy efficiency into IRP.
- Require Alaska Renewable Energy Grant Fund projects to address energy efficiency.

Consolidated Policy Recommendations

The many recommendations from the workshop have been consolidated and presented in six categories below.

State Leadership

- Implement a statewide energy code for all building types that reflects regional climatic differences and other challenges.
- Empower RCA to develop end-use energy efficiency programs, including funding mechanisms.
- Require an integrated approach to the development of energy systems that (a) treats both electricity and space heating, and (b) prioritizes the EE resource - always considering opportunities to reduce the supply needed by reducing demand first, before developing more capacity.

Education, Training, and Outreach

- Encourage and support schools and universities to develop, maintain, and enhance curricula and programs that provide education, research, and training to advance our understanding of energy efficiency and conservation as a resource.
- Encourage and support workforce training entities in the development of a highly qualified workforce to deliver energy efficiency and conservation services.
- Encourage and support state agencies and non-governmental organizations to develop sustained public outreach programs to achieve higher levels of participation in efforts to reduce energy demand through efficiency and conservation. The *EECWG* now lead by AEA is a good example.
- Establish a *Green Schools Caucus* in the legislature.

Residential Buildings

- Continue to fund the HER and Weatherization programs.
- Set the bar higher in best-practices programs such as the AHFC Five-Star-Plus rebates and mortgage rate reductions to make advances toward zero-net-energy-use homes.
- Develop, with RCA, programs to encourage the use of more energy efficient lights, appliances, and other devices that use electrical energy.
- Develop, with RCA, programs that eliminate the “throughput incentive” by decoupling the amount of energy sold from utility profits.
- Develop a home energy-use labeling system to assist homebuyers in finding the best value and to help transform the market place by making transactions more transparent.

Commercial Buildings

- Establish an energy-use index and labeling system to encourage owners to reduce the amount of energy (both electrical and thermal) consumed by their buildings.

- Expand and fund the commercial audit pilot program to include loans and consider rebates as well.
- Encourage the use of combined heat and power units and other waste heat recovery wherever feasible.

Public Buildings

- Continue to fund the Village Energy Efficiency Programs.
- Every public building should get an energy audit and commissioning of its energy systems.

Community and Regional Planning

- AEA should expand its community and regional planning efforts to assist communities with the development of solid energy planning initiatives and fund energy efficiency and renewable energy projects that make good technical and economic sense.
- CCHRC should continue its *Sustainable Northern Communities* program to assist communities across the state in finding energy-efficient and culturally appropriate solutions to housing and related infrastructure.

Discussion

The unifying theme in these recommendations is that energy efficiency measures can add up to a very significant energy resource (ACEEE (2009), McKinsey & Co.(2009)). We can implement these programs with very short lead times compared to the design, permitting, and construction of major power plants. Energy efficiency is not “doing without” or having to wear extra sweaters in a cold house; rather it is spending energy wisely so as to get the same output with less input; the same heat with less fuel (Grunwald (2008)).

Efficiency relies on advancing technologies which are becoming more plentiful, rather than fossil fuels which are being depleted. Saving energy through efficiency usually costs less than buying it from conventional sources; and using less fossil fuel means less pollution and CO₂ emissions. Lastly, since the price and availability of fossil fuels are dictated by events in foreign countries over which we have little control, by using less fossil fuel we are less vulnerable to the impacts from wild price swings like we have witnessed over the past few decades.

The money that we spend on efficiency improvements goes to local businesses for labor and supplies. The money that we save stays in our local economy and gets spent on other needs such as food, education, and recreation. This is an investment that continues to pay dividends for a very long time (Institute for 21st Century Energy (2010)).

Overall Recommendation One: Establish a statewide energy code or standard.

At the present time about 40% of new residential construction in Alaska is financed by AHFC and is therefore subject to the Alaska *Building Energy Efficiency Standard* (BEES). Many municipalities, including Ketchikan, Juneau, Kenai, Anchorage, and the City of Fairbanks have building codes that include an energy standard (most have adopted some form of the International Building Code, the International Residential Code, and/or the International Energy Conservation Code, updated and published every three years by the International Code Council). The AHFC energy standard (BEES) is based on the 2009 International Energy Conservation Code (IECC).

Therefore, well over half of the new residential construction in Alaska is likely subject to some form of the IECC as modified by the authority having jurisdiction. However, many regions of the state are not subject to any minimum energy standard and new homes in those areas are still being built that are not very energy efficient. This is not good for the homeowner or the state of Alaska.

While the purchase price of a home may be somewhat lower if it is not built to an appropriate energy standard (e.g., a certain level of insulation and air-tightness, and a certain quality of windows, doors, and heating and ventilation systems), the total monthly expense to the

homeowner for an energy efficient home often will be less when the mortgage and energy bills are added together.

Substandard housing can lead to expense for the state in a variety of ways: For example, (1) when fuel prices rise many low and middle income residents cannot afford to pay their fuel bills and meet other necessary expenses such as for food and medicine, so they apply to the Alaska Affordable Heating Program for help; (2) because substandard homes continue to waste energy and cost more than they should to heat, the owners may apply to the Weatherization or Home Energy Rebate programs for assistance in upgrading them to a standard that should have been met when they were built; and (3) when fuel prices are very high the Governor and the Legislature are called upon to provide direct assistance to all of the citizens in the state.

If a statewide energy code or standard were in place, homes financed by all lenders would be built to a minimum level of energy efficiency and would cost both the homeowner and the state less in the long-run. Furthermore, if the state were to support optional “reach or stretch” codes, there might be more examples of even more energy efficient homes in the market place and the transition to an overall better quality of homes could be accelerated.

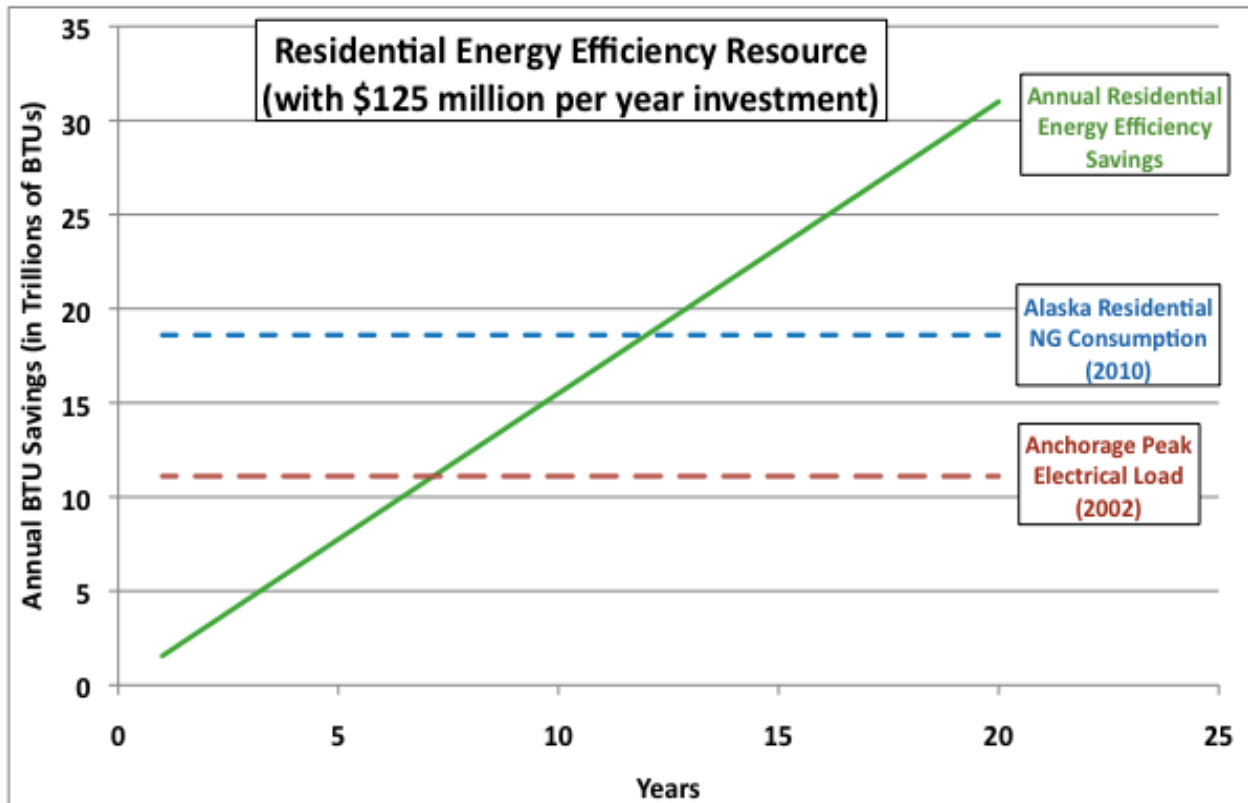
Overall Recommendation Two: Sustainably fund the Weatherization and Home Energy Rebate programs.

When SB 330 and the supplemental capital bill passed in FY 2009 and \$360 million was appropriated for the *Weatherization* and *Home Energy Rebate* programs it seemed like an enormous amount of funding. And it was; but, with a maximum of \$30,000 per home in rural Alaska and \$11,000 per home in urban Alaska for weatherization and an average expenditure of about \$6,800 for the rebate program, we can “only” address a total of about 34,000 homes or about 12% of the 280,000 households in Alaska.

These programs are proving quite effective and are saving an average of 33% of home heating costs for participants. After a little less than three years all of these funds have been encumbered, so we can estimate a useful expense rate of about \$125 million per year. One mechanism for sustainable funding is an endowment: A fund of \$4.5 billion returning 3% per year would generate \$135 million each year—enough to fully fund the *Weatherization* and *Home Energy Rebate* programs continuously until the programs are no longer useful, at least about 15 years. And, at that time the principal would still be available for some other use!

\$4.5 billion is a large sum of money; the amount of funds that one usually associates with large power plants. However, over 5-15 years the amount of energy saved as a result of this investment is equivalent to or greater than that produced by one or two large power plants. The potential savings are so large that we should think of energy efficiency as an energy resource.

Consider the graph below, which shows the amount of energy that could be saved if we continued to fund the weatherization and rebate programs at an annual rate of \$125 million. After 7 years we would save about 11 trillion BTUs, an amount that is equivalent to the electrical power used annually in the greater Anchorage area. After 12 years we could save about 18 trillion BTUs per year, an amount equivalent to the energy content of all of the natural gas used for residential heating in Alaska in 2010. It is clear that energy efficiency improvements should be considered as an energy resource on the same scale as large power plants.



Overall Recommendation Three: Fund statewide energy efficiency educational outreach, workforce training, and development of public school and university courses.

If we are to realize the full benefit of the weatherization and rebate programs and other end-use energy efficiency programs, we have to develop a significant outreach program to show each energy user how they can best utilize the programs. We also need to train workers to deliver the services required and to educate students in the basic building sciences and economics of energy efficiency programs. These investments will help transform energy consumption behavior in a way that maximizes other energy efficiency investments and are critically important to developing a skilled and vibrant workforce for the energy efficiency economy.

Overall Recommendation Four: Empower the Regulatory Commission of Alaska to work through utilities to develop programs for end-users in the more efficient use of electrical energy.

In the same way that a home energy rebate program provides energy audits and incentives for homeowners to reduce their space heating demand, utilities could provide energy audits and incentives to reduce homeowner's electrical energy demand. These audits and incentives could be funded through a system benefit charge, but the legislature will likely have to authorize the RCA to approve rate structures that include such charges. Further, other utility driven programs for encouraging energy efficiency in the delivery and use of electricity can be identified, vetted, and spearheaded with RCA leadership and legislative direction.

Overall Recommendation Five: Legislate energy efficiency as a priority in the development of energy solutions.

Part of the funding for energy supply systems should support demand reduction efforts first, thereby reducing the size of the supply system needed to meet the demand. The potential energy resource just in the residential market is astounding. The energy potential, across all energy sectors, from efficiency is on par with other energy generation and extraction resources and is cost-effective. And, critically, energy efficiency promises great economic benefit in terms of the creation of a large and sustainable workforce and cost savings to Alaskan residents and businesses.

Not only is energy efficiency a valuable resource, but it allows us to maximize our supply side resources. By understanding energy efficiency as a largely untapped resource and investing in energy efficiency as a prerequisite to supply side expansion, we can make sure that we are not wasting our limited energy resources.

Conclusions

The present run-up in the price of oil is a reminder that there are forces beyond our control that affect the price and availability of fossil fuels. It is imperative that we use our present wealth to develop an economy that is much less reliant on fossil fuels to assure a healthy and sustainable future (Lovins (2005)). High and unstable energy costs make it difficult to generate and sustain growing business opportunities across the state. If energy costs reach the levels of 2008 again, which is currently predicted for this year (2011), we are likely to see a repeat of businesses closing and people leaving Alaska for more affordable living situations. Alaska's future depends on our ability to address the cost of living and doing business in Alaska in the face of volatile energy prices.

One of the most cost-effective resources we have is energy efficiency and conservation. Studies (e.g., American Council for an Energy-Efficient Economy (ACEEE) 2011) show that we can not only slow the increase in demand, but we can actually reduce demand in the future by making significant investments in energy efficiency and conservation measures. Results from AHFC's Home Energy Rebate Program demonstrate a 4 to 5 year payback on the state's investment, highlighting the cost effectiveness of energy efficiency improvements. The sustained energy and cost savings to businesses and homeowners from energy efficiency improvements will likely result in major reinvestment in Alaska's economy and stimulation of substantial economic growth across many sectors and regions. The recommendations in this report, if adopted, would take our state a long way along the path toward a more sustainable and vibrant economy.

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Appendix I – Evaluation of the implementation of the 2008 Report

The following table reviews the recommendations from the 2008 report and presents an evaluation of which ones have been implemented, how much remains to be done, and which programs need continuing support.

The appropriations indicated in the “2008” column refer to \$300 million for the weatherization and rebate programs in SB 330 (2008) and a \$60 million supplemental appropriation for FY 2009. Most of the intent items in the “2010” column are from HB 306 (2010) and the funding program entries, “F,” reflect authorizations in SB 220 (2010) of that year. The “% Done” column is a subjective evaluation by the author with input from AEA and AHFC personnel. A “G” in the Goals column indicates a recommendation that remains to be accomplished, and a “\$” indicates a significant need for continued funding.

Overall, this table suggests that about 60% of the recommendations from the 2008 report have been implemented. While this accomplishment is significant and laudable, many of the programs implemented rely on one-time capital appropriations and are not sustainable without additional funding. This need for sustainable funding was a major concern at the March 2nd workshop.

Table Key

I = intent, specific

i = intent, general

\$ = appropriation

F = funding program

f = funding available through another program

G = goal

AEA- Alaska Energy Authority is Project Lead

AHFC – Alaska Housing Finance Corporation is Project Lead

Table 1. Evaluation Matrix for the 2008 Recommendations on Energy Efficiency Policy

2008 Recommendations	2008	2010	% Done	Goals
<u>I. State Leadership</u>			60	
A. Governor vision (Legislature HB 306)		I	90	
B. Governor sub-cabinet		i	10	G
<u>II. Funding Energy Efficiency</u>			60	

A. Legislative appropriation	\$	F	50	\$
B. RCA - system benefit charges		i	10	G
C. Legislative endowment			0	
2008 Recommendations	2008	2010	% Done	Goals
D. Matching grants to municipalities			0	
III. Public Education and Outreach				
A. Legislative appropriation = \$1 million		i	30	G
IV. Baseline Data			80	
A. Survey residential & commercial buildings		AEA	75	\$
B. Public building database		i	90	
V. Existing Residential Buildings			80	
A. Increase funds for weatherization	\$		100	\$
B. Training program for EE workers		i	50	G
C. Fund audits and loan for retrofits (rebates)	\$		100	\$
D. Fund pilot smart meter program			50	\$
VI. New Residential Buildings			30	
A. BEES statewide energy codes			50	G
B. Statewide building code		i	0	G
VII. Existing Commercial Buildings			20	
A. AEA audits and loans for retrofits		F	30	\$
B. RCA require utilities to offer PAYS			10	G

<u>VIII. New Commercial Buildings</u>				
A. AEA develop commercial energy code		AHFC	80	\$
A. Gov.: 25% reduction by 2020		f	90	
<u>IX. Public Buildings Recommendations</u>				
	2008	2010	% D90one	Goals
B. BOR: 20% reduction by 2020		f	90	
C. Fund audit for all public schools		f	90	
D. Conservation matching grants K-12			0	
E. Low-int. loan program for public buildings		F	100	

Appendix II – March 2, 2011 Workshop on End-use Energy Efficiency

Attendees

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Also attending from AHFC for parts of the meeting were Dan Fauske, John Anderson, Mimi Burbage, Rosie Ricketts, and James Deimer.

Presentations

Presentations were given by CCHRC, AEA, AHFC, RCA and Todd Hoener of GVEA. Informal updates were provided by ISER, DOTPF, ANTHC, and AVEC. A summary of the information shared is provided below.

EE Policy and Program Recommendations Report update – John Davies

- Review of 2008 Energy Efficiency & Conservation Program and Policy Recommendations – Report widely used by CCHRC, AHFC, AEA, REAP, ACV and

others in advocating for energy efficiency and conservation programs and policies

- Major successes in EE&C: SB 289/330 passed in 2008, HB 306 & SB 220 passed in 2010 creating a state energy policy and sustainable energy act (unfunded). \$200 million for weatherization and \$160 million for the Home Energy Rebate program, increased awareness of energy issues, AEA funding and commitment to energy efficiency outreach and education efforts
- Challenges: supply side generation continues to dominate the conversation, no statewide building energy code, limited interest/understanding of demand side energy efficiency
- Where we are now – Have made major progress in moving the energy efficiency agenda forward in Alaska in the last few years and are faced again with oil over \$100/barrel.
- Top priorities moving forward:
 - Statewide Building/Energy Conservation Code
 - Utilities-based End-Use Electrical Efficiency Programs
 - Statewide Transportation Energy Reduction
 - Increased Workforce Development for Energy Efficiency, Renewable Energy, and Alternative Energy

Full report and PowerPoint presentation are available at the CCHRC website www.cchrc.org

AEA EUEE programs update – Sean Skaling

- AEA is taking Energy Efficiency & Conservation efforts seriously
- EE&CWG – the Energy Efficiency and Conservation Working Group has been meeting for more than a year and has developed branding and a one-stop website to act as a clearinghouse for Alaska energy efficiency and conservation information. The logo is available to members to use. Management of the website is being turned over to the Renewable Energy Alaska Project (REAP).
- EE&CCBG – Energy Efficiency and Conservation Community Block Grants were awarded to small Alaska communities last year
- AEA is managing a US DOE grant to (1) Update policy recommendations, (2) Assess barriers to energy efficiency and conservation behaviors and (3) Create an end-use baseline assessment. These efforts will be happening over the next year.

AHFC EUEE programs update - Scott Waterman

- ARIS – Alaska Retrofit Information System (ARIS) holds ratings files from the Home Energy Rebate (HER) program, Weatherization (Wx), BEES and the upcoming commercial energy program.
 - Commercial AKWarm is under development.
 - Residential AKWarm projections have been validated in cooperation with Enstar for Southcentral homes.

- HER - \$160 million allocation is fully encumbered. However, with overall 63 percent completion rates and the average rebate amount less than the maximum \$10,000 allowed, some encumbered funds are gradually released and the program will continue at a slower rate until funds are spent.
- Wx - \$200 million allocation is fully encumbered. Wx provider agencies went from original five to 13 which includes some regional housing authorities.
- Commercial Energy Efficiency revolving loan program – AHFC bonded for \$250 million to endow the revolving loan fund.

RCA EUEE docket update - James Keen

- RCA is opening an I-docket on energy efficiency. An I-docket is for information gathering purposes, everyone is encouraged to submit their information.
- Technical workshop scheduled for April 19-20, it is open to public and will focus on end-use management and decoupling
- RCA has no explicit direction from the legislature regarding energy efficiency.
- *In response to audience inquiry about a system benefit charge*
 - To implement a system benefit charge the commission would need a clear directive from the legislature.

Incentives & Planning: End-Use Electrical Energy Efficiency (E⁴) - Todd Hoener

- Overview of 2006 National Action Plan for Energy Efficiency recommendations and the Energy Independence and Security Act of 2007 (EISA) which required state utility regulators to consider EE recommendations.
- RCA opened a docket to look at Integrated Resource Planning that incorporates EE&C as well as changing rate structure to remove disincentives to conserve.
- EE&C activities should be managed by non-governmental entity with stable and sustainable funding such as that from a system benefit charge or some other mechanism.
- Removing throughput incentives through decoupling or other methods is necessary to move utilities toward meaningful demand-side energy efficiency
- Must include EE as the first source when doing generation planning

Other organizations that provided informal updates on their role in the EE&C landscape were: ISER, DOTPF, ANTHC, AVEC

ISER is assisting AEA, AHFC, and the engineering and technical staff at ASEP in Fairbanks in their data gathering and analysis efforts. There are four people at ISER who are a technical resource especially focused on data and data analysis.

DOTPF SB220 outlined a goal of EE&C upgrades to 25% of state buildings. DOTPF has contracts with two ESCOs (Siemens and Ameresco) to do this work, UA system can also work through these existing contracts. Have gathered most data for large buildings (10,000 sq ft or larger),

doing benchmarks and will be integrating that to AkWarm model. Currently they are executing projects in Anchorage, Seward, Palmer, Ketchikan, Juneau, Fairbanks and Coldfoot. DOTPF estimates there are 174 buildings over 10K sq ft; they are doing about 10 per year, so they should make the goal of upgrading 25% of state buildings in 20 years.

ANTHC has an energy coordinator for ANTHC and IHS in Alaska; they are responsible for implementing federal mandates in rural hospitals and ANMC. Have teamed with US DOE to determine capacity and implement efficiency measures. ANTHC is also working with AVEC on heat recovery in villages (around 12 villages right now). They are teamed with AVEC and AVCP to drive down water/heat costs in 37 villages.

AVEC partnered with ACVP and ANTHC – applied for stimulus funding (\$1.25 million) that will be used to install monitoring devices in homes in villages. There are enough for 10-15 in 30 villages that can rotate around within the community. There is an opportunity right now to put in a bulk order for TED 1000 if anyone wants to piggyback on that order (need to buy in a pallet order – 400). There is already an enormous level of conservation in villages because of natural incentives not to go over the 500kwh/month covered by PCE.

Top five priority recommendations

The top five priority recommendations for energy efficiency and conservation in Alaska

1. Statewide energy code that ensures equity through regional variables
2. Continue to fund HER and Wx
 - a. Potential modifications to HER suggested: 1. Allow all cost effective measure within certain timeframe 2. Match dollars invested by owner on a graduated basis
 - b. Potential modification to Wx is to increase the \$\$/house
3. Decoupling get rid of throughput incentive
4. Legislate conservation and energy efficiency as a priority
5. Public education
 - a. ID effective motivators and end-use consumption, make it hands-on, use competitions, use feedback metrics and technology, set high energy efficiency goals, coordinate the distribution of knowledge, identify source of sustainable funding for EE&C education, articulate efficiency goal and how to get there

Additional recommendations

Legislative Action

- Set higher energy efficiency goals (include total energy reduction).
- Establish target dollar or BTU/sq. ft. minimum standard.
- Establish funding and/or a reward system for regional planning and progress.
- Pay more attention to how PCE may act as a disincentive to energy efficiency (EE).
- Create incentives for highly efficient buildings – using an Alaska-specific standard.

- Require energy use index for public, commercial and residential buildings.
- Commercial rebate in addition to loans, tie rebate to loan program.
- Think holistically—integrate planning of heating and electricity.
- A third party entity should run end-use electrical energy efficiency and conservation (EE&C) programs.
- Include EE as pre-requisite for grants.
- Promote bulk purchase of energy efficiency tools and materials.
- Fund Village Energy Efficiency Program.
- Every public facility should have an energy audit and commissioning.
- Support separate line items in publically funded budgets for energy (electric, space heating and transportation).

RCA Action

- Create an energy efficiency index with attached metrics and outcomes.
- Require large utilities to implement real EE&C programs and policies.
- Provide incentives to users to reduce consumption and penalize energy hogs.
- Regulation to diversify energy sources to include EE as a way to meet demand.
- Provide specific electrical energy audits for homes/businesses.

Agency Action

- AHFC – The star systems (BEES) should be revamped to raise the bar.
- AEA – Encourage the capture waste heat wherever possible, particularly in commercial and industrial buildings.
- AHFC – Provide education in heating system use and maintenance.
- AHFC – Make sure to install the right size heating system.
- RCA or AHFC – Implement appliance swap outs.
- AHFC – Support and highlight the repairs and upgrades performed to heating systems for LIHEAP and AKHAP recipients.

Poster exercise detail

What have we learned from our experience in the past few years?

- We need more/better public relations/public education
- We need more/better data
- We need to quantify potential economic feasibility of getting the penetration of EE&C necessary to reduce heat and power loads so that it can be considered in IRPs
- We need to give adequate direction and support for RCA
- Need public \$ incentives
- We should help communities organize and help themselves with EE&C projects
- People will put money in the game if there is a reward (HER)
- Conservation and efficiency can work better and cheaper
- People respond to cost

- Need to take longer view of programs and workforce development

What is working well?

- Weatherization and the Home Energy Rebate Program
- Working relationships between agencies/entities
- Energy Efficiency and Conservation Working Group
- SB 220 and HB 306
- Data collection
- DOTPF retrofits
- Village Energy Efficiency Program
- Demand side education
- Large facility audits
- RuralCap Energywise

What is not working well?

- Lack of sustainable EE funding
- Lack of real participation/integration of efforts by utilities
- No statewide energy code
- Insufficient attention to behavior change
- Supply side still dominates the conversation
- People don't understand EE as a resource to meet energy demand
- Education efforts are not effective, they are information only
- Not enough contractors that understand weatherization
- End use EE for electrical
- Cross agency coordination
- No EE&C policy or requirements
- Rebate workforce not trained
- Continue to install energy guzzling infrastructure everywhere
- Existing use data is minimal and suspect. We cannot change what we cannot measure
- Have not involved transportation as much as could
- Statewide program application in rural Alaska