

SB

220

<target><bill>SB 220</bill><subject>SB
220</subject><comm>SF26</comm></target>

ALASKA STATE LEGISLATURE

Senate Resources Committee

**Senator Bill Wielechowski,
Co-Chair Senate Resources**

State Capitol Building, Room 115

Juneau, Alaska 99801-1182

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Senate Resources**

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SPONSOR STATEMENT

Senate Bill # 220: Alaska Sustainable Energy Act

During the summer and fall of 2010, the Senate Special Committee on Energy and Senate Resources Committee held hearings across the state on the energy challenges and opportunities facing Alaskans. Starting from the premise that Alaskans want to live and work where energy is available, reliable and affordable; we took testimony and learned firsthand about the impacts high energy costs have had on businesses, communities and families. The diverse range of ideas we received were integrated into a broad *Draft State Energy Policy and Program Recommendations* document that is available on the Alaska Senate Energy Policy Group's website: www.energy.aksenate.org

Working together as chairs of the Senate Resources Committee, we drafted the *Alaska Sustainable Energy Act* (SB 220) as an omnibus bill to address the challenges we heard from Alaskans. In addition to the omnibus energy bill, we also released a detailed list of funding recommendations that are available on the website. Where the *Alaska Sustainable Energy Act* breaks new ground, the funding recommendations are intended to build on previous efforts by the Legislature.

The *Alaska Sustainable Energy Act* starts by establishing a statewide energy policy that recognizes the importance of Alaska's fossil fuel resources but also identifies Alaska's vast renewable energy potential. With largely under-explored wind, wave and geothermal resources, Alaska can become a global leader in renewable energy. The policy also seeks to find ways to use energy more wisely and sets goals for energy efficiency. Finally, the policy states that cost-effective solutions need to be found for every community. Despite our vast distances and unique local challenges, energy is a basic need in Alaska and the foundation of our economy. Finding ways to meet the energy needs of our neighbors will make all of Alaska stronger. Therefore, we drafted the *Alaska Sustainable Energy Act* to provide the tools to move Alaska forward into a sustainable future.

SENATE FINANCE COMMITTEE REPORT

DATE: 3/10/10

FURTHER:

Rules/T. Cal

DATE TURNED
IN TO OFFICE:

4/9/10

Finance Committee considered

SENATE BILL NO. 220

SB 220 ENERGY EFFICIENCY/ ALTERNATIVE ENERGY

"An Act declaring a state energy policy; relating to energy efficiency and alternative energy; establishing the energy efficiency grant fund, an emerging energy technology fund, a renewable energy production tax credit, and an energy use index; and relating to a fuel purchasing cooperative, to energy codes and efficiency standards, to energy conservation targets in public buildings, to a state agency energy use reduction plan, to the alternative energy revolving loan fund, and to the renewable energy grant fund."

and recommends:

- be replaced with SCS or CS SB 220 (FIN)
- adopt previous SCS or CS _____ (_____)
- attached amendment(s)
- adopt _____ Letter of Intent
- further referral to _____ Committee

SENATE BILL:
 Same Title
 New Title

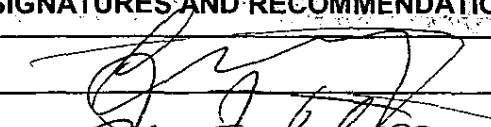

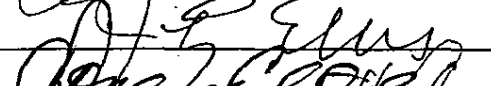




HOUSE BILL:
 Same Title
 Technical Title Change
 New Title w/ SCR # _____

NEW FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#
CEP/AIDEA	4/9	✓			7
CEP/AEA	4/9	✓			8
REV/MBBA	4/9			✓	9
REV/AHFC	4/9			✓	10
ADM/DGS	4/9			✓	11
DOT/SPE	4/10	✓			12

PREVIOUS FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#
DEC	3/4			✓	3
DHS	3/5		✓		6

SIGNATURES AND RECOMMENDATIONS	PRINTED LAST NAME	DO PASS	DO NOT PASS	NO REC	AMEND
	Huggins	✓			
	Thomas	✓			
	Egan	✓			
	Ellis	✓			
	Olson			X	
CO-CHAIR: 	Hoffman	✓			
CO-CHAIR: 	Stedman	✓			

FISCAL NOTE

STATE OF ALASKA
2010 LEGISLATIVE SESSION

Fiscal Note Number: _____
 Bill Version: CSSB 220 (FIN)
 () Publish Date: _____

Identifier (file name): CSSB220(FIN)-REV-MBBA-04-09-10 Dept. Affected: Revenue
 Title: ENERGY EFFICIENCY/ ALTERNATIVE ENERGY RDU: AK Municipal Bond Bank Authority
 Component: AMBBA Operations
 Sponsor: Senate Resources Committee
 Requester: Senate Finance Committee Component Number: 108

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information						
		FY 2011	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
OPERATING EXPENDITURES								
Personal Services								
Travel								
Contractual								
Supplies								
Equipment								
Land & Structures								
Grants & Claims								
Reserve Fund								
TOTAL OPERATING		0.0	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES								
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CHANGE IN REVENUES ()								
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts								
1003 GF Match								
1004 GF								
1005 GF/Program Receipts								
Charges for services								
Reserve Fund Earnings								
TOTAL		0.0	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2010) cost: 0.0

POSITIONS

Full-time								
Part-time								
Temporary								

ANALYSIS: (Attach a separate page if necessary)

Seante Bill 220 requires that the Alaska Municipal Bond Bank Authority prepare a report annually. The AMBBA should be able to fulfill this requirement with no additional cost to operations.

Prepared by: Deven Mitchell, Debt Manager
 Division: Treasury
 Approved by: Ginger Blaisdell, Director
Administrative Services Division, Department of Revenue

Phone 465-3750
 Date/Time 04-09-10; 6:52pm
 Date 04-09-10; 6:55pm

FISCAL NOTE

STATE OF ALASKA
2010 LEGISLATIVE SESSION

Fiscal Note Number: _____
 Bill Version: CSSB 220(FIN)
 () Publish Date: _____

Identifier (file name): CSSB220(FIN)-REV-AHFC-4-9-10 Dept. Affected: Revenue
 Title ENERGY EFFICIENCY/ ALTERNATIVE ENERGY RDU Alaska Housing Finance Corp.
 Component Operations
 Sponsor Senate Resources Committee
 Requester Senate Finance Committee Component Number 110

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information						
		FY 2011	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
OPERATING EXPENDITURES								
Personal Services								
Travel								
Contractual								
Supplies								
Equipment								
Land & Structures								
Grants & Claims								
Miscellaneous								
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES								
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CHANGE IN REVENUES ()								
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts								
1003 GF Match								
1004 GF								
1005 GF/Program Receipts								
1037 GF/Mental Health								
Other Interagency Receipts								
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2010) cost: _____

POSITIONS

Full-time								
Part-time								
Temporary								

ANALYSIS: *(Attach a separate page if necessary)*
 CS for Senate Bill 220(FIN) includes language that will set up an energy efficiency revolving loan fund and authorize the Alaska Housing Finance Corporation to sell up to \$250 million in bonds to fund the program.

 Costs associated with the issuance of these bonds are anticipated to be covered with annual operating budget authorizations. Operational costs for issuing and monitoring these bonds will be done with existing personnel and within the authorized operating budget for FY11 and beyond.

Prepared by: Bryan Butcher, Director, Governmental Relations/Public Affairs Phone 330-8445
 Division Alaska Housing Finance Corporation Date/Time 4/9/10 12:00 AM
 Approved by: Ginger Blaisdell, Director Date 04-09-10; 6:42pm
 Administrative Services Division, Department of Revenue

FISCAL NOTE

STATE OF ALASKA
2010 LEGISLATIVE SESSION

Fiscal Note Number: _____
 Bill Version: CSSB220(RES)
 () Publish Date: _____

Identifier (file name): SB220CS(RES)-DOA-DGS-04-09-10 Dept. Affected: DOA
 Title: "An act declaring a state energy policy..." RDU: Centralized Administrative Services
 Component: Purchasing
 Sponsor: (S) RES
 Requester: (S) FIN Component Number: 81

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information						
		FY 2011	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
OPERATING EXPENDITURES								
Personal Services								
Travel								
Contractual								
Supplies								
Equipment								
Land & Structures								
Grants & Claims								
Miscellaneous								
TOTAL OPERATING		0.0	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES								
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CHANGE IN REVENUES ()								
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts								
1003 GF Match								
1004 GF								
1005 GF/Program Receipts								
1037 GF/Mental Health								
Other Interagency Receipts								
TOTAL		0.0	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2010) cost: _____

POSITIONS

Full-time								
Part-time								
Temporary								

ANALYSIS: (Attach a separate page if necessary)

This legislation will have no fiscal impact on the Department of Administration.

Prepared by: Vern Jones, Chief Procurement Officer
 Division: General Services
 Approved by: Kevin Brooks, Deputy Commissioner
Department of Administration

Phone 907-465-2250
 Date/Time 4/9/10 5:00 PM
 Date 4/9/2010

FISCAL NOTE

STATE OF ALASKA
2010 LEGISLATIVE SESSION

Fiscal Note Number: 6
 Bill Version: CSSB 220(RES)
 (S) Publish Date: 3/10/10

Identifier (file name): SB220CS(RES)-DHSS-EA-03-05-10 Dept. Affected: Health & Social Services
 Title: Energy Efficiency/Alternative Energy RDU: Public Assistance
 Component: Energy Assistance Program
 Sponsor: Senate Resources
 Requester: Senate Resources Component Number: 226

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information						
		FY 2011	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
OPERATING EXPENDITURES								
Personal Services								
Travel								
Contractual								
Supplies								
Equipment								
Land & Structures								
Grants & Claims								
Miscellaneous								
TOTAL OPERATING	0.0	0.0	*	*	*	*	*	

CAPITAL EXPENDITURES							
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CHANGE IN REVENUES (
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts							
1003 GF Match							
1004 GF							
1005 GF/Program Receipts							
1037 GF/Mental Health							
Other Interagency Receipts							
TOTAL	0.0	0.0	*	*	*	*	*

Estimate of any current year (FY2010) cost: _____

POSITIONS

Full-time							
Part-time							
Temporary							

ANALYSIS: (Attach a separate page if necessary)

CSSB220 changes the name of the Alaska heating assistance program (AKHAP) to the Alaska affordable heating program (AAHP) and allows for an income eligibility limit of up to 250% of the federal poverty guidelines (FPG) when the average price of a barrel of North Slope Crude (NSC) between February and September of the preceding year exceeds \$150 per barrel. The bill also fixes the dollar value of a Community Heating Point (CHP). CHP is the key factor in determining the amount of heating assistance payments and, under this bill, the dollar value assigned to the CHP is linked to the average price of a barrel of NSC. This legislation allows payments for households receiving federal assistance from LIHEAP to be supplemented by AAHP funds to ensure payments to lowest income households is based on the same dollar per CHP value used to determine payments for the Alaska affordable heating program. It also establishes the Alaska affordable heating fund (AAHF) in the Department of Revenue (DOR) to be used by the Department of Health and Social Services (DHSS) to provide heating assistance payments to eligible households.

continued on next page

Prepared by: Ellie Fitzjarrald, Director
 Division: Public Assistance

Phone: 465-5847
 Date/Time: 3/3/10 10:51 AM

Approved by: Alison Elgee, Assistant Commissioner
DHSS Finance & Management Services

Date: 3/5/2010

ANALYSIS CONTINUATION

Assumptions

The \$5,000.0 in the governor's FY11 proposed budget for the Alaska heating assistance program is adequate to cover the initial benefit and administrative costs for the new Alaska affordable heating program. This would require an average price of a barrel of North Slope Crude oil (NSC) in the preceding year (Feb. - Sept. 2010) below \$75, which triggers a CHP value of \$130.

In general, AAHP will be administered and operated in the same manner as AKHAP.

A fair and equitable share of the appropriation for the Alaska affordable heating fund will be distributed to tribal organizations operating a regional affordable heating program.

Eligible households with incomes at or below 150% FPG may have their LIHEAP payment augmented with funds from the Alaska affordable heating fund.

For FY10, the state's share of the federal LIHEAP block grant only allows the state to provide awards based on a Community Heating Point (CHP) value of \$115 per point to eligible households. It is assumed federal funding for FY11 and the per-point value assigned to a CHP will remain the same.

In FY11, it is estimated that the state and tribal affordable heating programs will serve 21,600 households. Approximately 19,000 will be recipient households of the LIHEAP program and 2,600 will only be beneficiaries of the affordable heating program. It is assumed that the average number of points for which a household below 150% FPG is eligible is 10. The average number of points for a household between 151% and 225% FPG is 5.

Benefit costs will increase in FY12 due to a projected caseload growth of 3%, with costs remaining relatively stable in out years if the average price of a barrel of NSC remains below \$75. However, assessing program impacts is complicated by the uncertainty in estimating program participation. The cost of heating fuel for consumers increases as the value of NSC increases. Increased consumer costs are likely to increase demand for the program's services and benefits. This is expected to be most pronounced when the value of NSC exceeds \$150 per barrel and the higher income limit is triggered. It is estimated that as many as 5,000 more households may be eligible when the income limit reaches 250% FPG.

Projections of Total Benefit Costs: The \$5,000.0 currently in the governor's FY11 approved budget for the Alaska Heating Assistance Program will be used to cover benefit and administrative costs of the initial year of the Alaska Affordable Heating Program.

The total costs for benefits in FY11 are estimated to be \$4,540.0 in state general funds as shown below.

LIHEAP (State and Tribal) households: $\$130 - \$115 = \$15 \times 10 \text{ CHP} \times 19,000 \text{ households} =$	\$2,850.0
For AAHP (State and Tribal) households: $\$130 \times 5 \text{ CHP} \times 2,600 \text{ households} =$	<u>\$1,690.0</u>
	\$4,540.0

Changing only the NSC sale price, the annual costs for benefits would be:
\$6,570.0 when a barrel of NSC sells for \$75 to \$100 per barrel (\$140 per CHP); and
\$8,600.0 when a barrel of NSC sells for \$100 to \$150 per barrel (\$150 per CHP).

When NSC exceeds \$150 per barrel, the 250% income limit and the highest \$/CHP value is triggered and as many as 5,000 additional households may become eligible for a total cost of \$15,770.0 (\$165 per CHP).

FISCAL NOTE

STATE OF ALASKA
2010 LEGISLATIVE SESSION

Fiscal Note Number: 3
 Bill Version: CSSB 220(RES)
 (S) Publish Date: 3/10/10

Identifier (file name): SB220CS(RES)-DEC-CO-3-04-10 Dept. Affected: Environmental Conservation
 Title: Energy Efficiency / Alternative Energy RDU: Administration
 Sponsor: Senate Resources Committee Component: Office of the Commissioner
 Requester: Senate Resources Committee Component Number: 633

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information					
		FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
OPERATING EXPENDITURES							
Personal Services							
Travel							
Contractual							
Supplies							
Equipment							
Land & Structures							
Grants & Claims							
Miscellaneous							
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES							
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CHANGE IN REVENUES ()							
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts							
1003 GF Match							
1004 GF							
1005 GF/Program Receipts							
1037 GF/Mental Health							
Other Interagency Receipts							
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2010) cost: 0.0

POSITIONS

Full-time							
Part-time							
Temporary							

ANALYSIS: (Attach a separate page if necessary)

While section 6 and section 8 of the bill amends statutes which are to be implemented by the Department of Environmental Conservation, the amendments will have no additional fiscal impact. It should be noted, however, that there is currently no budget for implementing these statutes pertaining to permitting nuclear facility sites.

Prepared by: Marit Carlson-Van Dort
 Division: Office of the Commissioner
 Approved by: Larry Hartig
Commissioner

Phone 465-5871
 Date/Time 3/4/10 4:00 PM
 Date 3/4/2010

FISCAL NOTE

STATE OF ALASKA
2010 LEGISLATIVE SESSION

Fiscal Note Number: _____
 Bill Version: CS SB220 (FIN)
 () Publish Date: _____

Identifier (file name): SB220CS(FIN)-CED-AIDEA-4-9-10
 Title: Omnibus Energy Bill
 Sponsor: Senate Resources Committee
 Requester: Senate Finance Committee
 Dept. Affected: DCCED
 RDU: AIDEA
 Component: AIDEA operations
 Component Number: 1234

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information						
		FY 2011	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
OPERATING EXPENDITURES								
Personal Services	276.5		276.5	276.5	276.5	276.5	276.5	276.5
Travel								
Contractual								
Supplies								
Equipment								
Land & Structures								
Grants & Claims								
Miscellaneous								
TOTAL OPERATING	276.5	0.0	276.5	276.5	276.5	276.5	276.5	276.5

CAPITAL EXPENDITURES								
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CHANGE IN REVENUES ()								
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts								
1003 GF Match								
1004 GF								
1005 GF/Program Receipts								
1037 GF/Mental Health								
Other Interagency Receipts	276.5		276.5	276.5	276.5	276.5	276.5	276.5
TOTAL	276.5	0.0	276.5	276.5	276.5	276.5	276.5	276.5

Estimate of any current year (FY2010) cost: _____

POSITIONS

Full-time	3.0		3	3	3	3	3
Part-time							
Temporary							

ANALYSIS: (Attach a separate page if necessary)

SB 220, titled the "Alaska Sustainable Energy Act," impacts the Alaska Industrial Development and Export Authority by increasing needed positions for Alaska Energy Authority requirements.

Section 12 - establishing the "Emerging Energy Technology Fund" and requiring the authority to administer the fund by making grants to eligible applicants. Cost assumptions include:

Approximately \$276,518 per year to cover contract for personal services with AIDEA

Positions required: 1 Range 22 for program/project management; 1 Range 15 for finance/grant administration; 1 Range 12 for administrative support.

Prepared by: Sara Fisher-Goad, Deputy Director-Operations
 Division: Alaska Industrial Development and Export Authority
 Approved by: Emil Notti, Commissioner
Commerce, Community and Economic Development

Phone 907-771-3012
 Date/Time 4/9/10 12:00 AM
 Date 4/9/2010

FISCAL NOTE

STATE OF ALASKA
2010 LEGISLATIVE SESSION

Fiscal Note Number: _____
 Bill Version: CS SB220 (FIN)
 () Publish Date: _____

Identifier (file name): SB220CS(FIN)-CED-AEA-4-9-10 Dept. Affected: DCCED
 Title Omnibus Energy Bill RDU Alaska Energy Authority
 Component Statewide Project Development
 Sponsor Senate Resources Committee
 Requester Senate Finance Committee Component Number 2888

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information						
		FY 2011	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
OPERATING EXPENDITURES								
Personal Services								
Travel	21.8		20.2	20.2	20.2	20.2	20.2	20.2
Contractual	358.5		276.5	276.5	276.5	276.5	276.5	276.5
Supplies								
Equipment	10.0							
Land & Structures								
Grants & Claims								
Miscellaneous								
TOTAL OPERATING	390.3	0.0	296.7	296.7	296.7	296.7	296.7	296.7

CAPITAL EXPENDITURES								
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CHANGE IN REVENUES ()								
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FUND SOURCE (Thousands of Dollars)

	FY 2011	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
1002 Federal Receipts							
1003 GF Match							
1004 GF	390.3		296.7	296.7	296.7	296.7	296.7
1005 GF/Program Receipts							
1037 GF/Mental Health							
Other Interagency Receipts							
TOTAL	390.3	0.0	296.7	296.7	296.7	296.7	296.7

Estimate of any current year (FY2010) cost: _____

POSITIONS (see AIDEA FN for details)

Full-time							
Part-time							
Temporary							

ANALYSIS: (Attach a separate page if necessary)

SB 220, titled the "Alaska Sustainable Energy Act," impacts the Alaska Energy Authority by:

Section 11 - repealing and reenacting the purpose of the existing Southeast Energy Fund managed by the Alaska Energy Authority. From this fund AEA could award grants to a municipality, a joint action agency, or a utility cooperative for power projects, repayment of loans, and payments on bonds for hydroelectric projects and electrical transmission lines or interties serving Southeast Alaska that are entirely owned by the grantee.

(Continued)

Prepared by: Sara Fisher-Goad, Deputy Director-Operations Phone 907-771-3012
 Division Alaska Energy Authority Date/Time 4/9/10 12:00 AM
 Approved by: Emil Notti, Commissioner Date 4/9/2010
Commerce, Community and Economic Development

FISCAL NOTE

STATE OF ALASKA
2010 LEGISLATIVE SESSION

BILL NO. CSSB 220(FIN)

ANALYSIS CONTINUATION

Currently the fund balance is zero. Depending on the capitalization, AEA would need to draft regulations and develop a process to administer grants including an allocation method for the various types of eligible projects which would bring additional expenses. Costs are unknown at this time.

Section 12 - establishing the "Emerging Energy Technology Fund" and requiring the authority to administer the fund by making grants to eligible applicants. Cost Assumptions:

Approximately **\$82,000** in one-time start up costs to develop program criteria, RFA process, review process, grant agreements, etc. (Contractual)

Approximately **\$21,840** per year to cover Advisory Committee expenses (travel - assume \$660 airfare + 120 per diem x 7 members x 4 quarterly meetings)

Approximately **\$276,518** per year to cover contract for personal services with AIDEA
Positions required: 1 Range 22 for program/project management; 1 Range 15 for finance/grant administration; 1 Range 12 for administrative support.(Contractual)

Approximately **\$10,000** (Equipment) for new staff

Section 13 - changing the definition of a power project relative to the power project fund to include nuclear production. AEA's costs are zero because there are currently no projects of this type. However, in the event viable nuclear projects are identified, annual operating costs would increase by \$365,000 for each nuclear power project that has to be managed; \$165,000 for a project manager with technical nuclear knowledge and \$200,000 for contractual advisory service in the field.

FISCAL NOTE

**STATE OF ALASKA
2010 LEGISLATIVE SESSION**

Fiscal Note Number: _____
 Bill Version: CSSB 220 (FIN)
 () Publish Date: _____

Identifier CSSB220(FIN)-DOT-SPF-4-10-10 Dept. Affected: DOT&PF
 Title Omnibus Energy RDU Design, Engineering & Construction
 Component Statewide Public Facilities
 Sponsor Senate Resources
 Requester Senate Finance Component Number 2882

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	Appropriation Required	Information						
		FY 2011	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
OPERATING EXPENDITURES								
Personal Services	117.8		117.8	117.8	117.8	117.8	117.8	117.8
Travel	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Contractual	96.0		6.0	6.0	6.0	6.0	6.0	6.0
Supplies	9.5		1.5	1.5	1.5	1.5	1.5	1.5
Equipment								
Land & Structures								
Grants & Claims								
Miscellaneous								
TOTAL OPERATING	233.3	0.0	135.3	135.3	135.3	135.3	135.3	135.3

CAPITAL EXPENDITURES								
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CHANGE IN REVENUES ()								
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FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts								
1003 GF Match								
1004 GF	233.3		135.3	135.3	135.3	135.3	135.3	135.3
1005 GF/Program Receipts								
1037 GF/Mental Health								
Other Interagency Receipts								
TOTAL	233.3	0.0	135.3	135.3	135.3	135.3	135.3	135.3

Estimate of any current year (FY2010) cost: _____

POSITIONS

Full-time	1.0		1	1	1	1	1
Part-time							
Temporary							

ANALYSIS: (Attach a separate page if necessary)

DOT&PF will hire an Engineer/Architect II to oversee the retrofits of public buildings done through the revolving loan program. This position will be the state's expert on energy audits, retrofits and performance contracting and will work closely with the Alaska Housing Finance Corporation on the Alaska Energy Efficiency Revolving Loan Program providing assistance with the development and management of performance contracts, reviewing loan applications and setting standards. The position will standardize the collection of energy consumption data and expenses for those state facilities owned and operated by DOT&PF.

A consultant (\$90,000 budgeted) will study the feasibility of using compressed natural gas to power state vehicles and develop a pilot project with estimated costs by the required due date of January 2011. Supply costs in FY2011 include the cost of outfitting the new position with desk, computer, phone, and general office supplies. On going contractual costs include costs for copier, fax, phone, maintenance costs, core services costs and training and professional development.

Prepared by: Mary Siroky, Legislative Liaison
 Division Department of Transportation and Public Facilities
 Approved by: Frank Richards, Deputy Commissioner
 Department of Transportation and Public Facilities

Phone 465-4772
 Date/Time 4/10/10 10:00am
 Date 4/10/2010

adopted
4-9-10

26-LS1197B

Kane

4/8/2010

CS FOR SENATE BILL NO. 220(FIN)

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWENTY-SIXTH LEGISLATURE - SECOND SESSION

BY THE SENATE FINANCE COMMITTEE

Offered:

Referred:

Sponsor(s): SENATE RESOURCES COMMITTEE

A BILL

FOR AN ACT ENTITLED

1 "An Act relating to energy efficiency, energy conservation, and alternative energy, to an
 2 emerging energy technology fund, to the lease of state land to a public electric utility, to
 3 the Alaska heating assistance program, to state energy use data, to the Southeast energy
 4 fund, to nuclear energy production and facilities, to the definition of 'power project' or
 5 'project' as it relates to rural and statewide energy programs and the Alaska Energy
 6 Authority, and to the definition of 'alternative energy system'; establishing an Alaska
 7 energy efficiency revolving loan fund; directing the Department of Transportation and
 8 Public Facilities to prepare a report on the feasibility of using compressed natural gas to
 9 power vehicles in the state, including vehicles owned or operated by the state, and
 10 including in that study, if warranted, a pilot program proposal for powering some
 11 vehicles owned or operated by the state with compressed natural gas; authorizing and
 12 relating to the issuance of bonds by the Alaska Housing Finance Corporation; relating

1 to a report regarding a municipal energy improvements financing program and to an
2 energy report by the Office of the Governor; and providing for an effective date."

3 **BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:**

4 * **Section 1.** The uncodified law of the State of Alaska is amended by adding a new section
5 to read:

6 SHORT TITLE. This Act may be known as the Alaska Sustainable Energy Act.

7 * **Sec. 2.** AS 14.08.101 is amended to read:

8 **Sec. 14.08.101. Powers.** A regional school board may

9 (1) sue and be sued;

10 (2) contract with the department, the Bureau of Indian Affairs, or any
11 other school district, agency, or regional board for the provision of services, facilities,
12 supplies, or utilities;

13 (3) determine its own fiscal procedures, including but not limited to
14 policies and procedures for the purchase of supplies and equipment; the regional
15 school boards are exempt from AS 37.05 (Fiscal Procedures Act) and AS 36.30 (State
16 Procurement Code);

17 (4) appoint, compensate, and otherwise control all school employees in
18 accordance with this title; these employees are not subject to AS 39.25 (State
19 Personnel Act);

20 (5) adopt regulations governing organization, policies, and procedures
21 for the operation of the schools;

22 (6) establish, maintain, operate, discontinue, and combine schools
23 subject to the approval of the commissioner;

24 (7) recommend to the department projects for construction,
25 rehabilitation, and improvement of schools and education-related facilities as specified
26 in AS 14.11.011(b), and plan, design, and construct the project when the responsibility
27 for it is assumed under AS 14.11.020;

28 (8) by resolution adopted by a majority of all the members of the board
29 and provided to the commissioner of the department, assume ownership of all land and
30 buildings used in relation to the schools in the regional educational attendance area, as

1 provided for in AS 14.08.151(b);

2 (9) provide housing for rental to teachers, by leasing existing housing
3 from a local agency or individual, by entering into contractual arrangements with a
4 local agency or individual to lease housing that will be constructed by the local agency
5 or individual for that purpose, or, without using for the purpose that portion of public
6 school funding that consists of state aid provided under AS 14.17, by constructing or
7 otherwise acquiring housing that is owned and managed by the regional educational
8 attendance area for rental to teachers;

9 (10) employ a chief school administrator;

10 (11) apply for and use the proceeds of a loan from the Alaska
11 energy efficiency revolving loan fund (AS 18.56.855);

12 (12) exercise those other functions that may be necessary for the
13 proper performance of its responsibilities.

14 * Sec. 3. AS 18.45.020 is amended to read:

15 **Sec. 18.45.020. United States licenses or permits required.** A person may
16 not manufacture, construct, produce, transfer, acquire, or possess a special nuclear
17 material, by-product material, special nuclear material facility, by-product material
18 facility, production facility, or utilization facility, or act as an operator of a production
19 facility or utilization facility, wholly within the state without first obtaining a license
20 or permit for the activity in which the person proposes to engage from the Nuclear
21 Regulatory Commission if the commission requires a license or permit to be obtained
22 by persons proposing to engage in the activities.

23 * Sec. 4. AS 18.45.025(a) is amended to read:

24 (a) A person may not construct a nuclear fuel production facility, nuclear
25 utilization facility, utilization facility, reprocessing facility, or nuclear waste disposal
26 facility in the state without first obtaining a permit from the Department of
27 Environmental Conservation to construct the facility on land designated by the
28 legislature under (b) of this section.

29 * Sec. 5. AS 18.45.025(b) is amended to read:

30 (b) The legislature shall designate by law the land in the state on which a
31 nuclear fuel production facility, nuclear utilization facility, utilization facility,

1 nuclear reprocessing facility, or nuclear waste disposal facility may be located. In
2 designating the land in the state on which

3 (1) a nuclear utilization facility or utilization facility may be
4 located, the legislature shall act in the interest of regulating the economics of
5 nuclear energy;

6 (2) a nuclear fuel production facility, [NUCLEAR UTILIZATION,]
7 nuclear reprocessing facility, or nuclear waste disposal facility may be located, the
8 legislature shall act to protect the public health and safety.

9 * **Sec. 6.** AS 18.45.025(c) is repealed and reenacted to read:

10 (c) The Department of Environmental Conservation shall adopt regulations
11 governing the issuance of permits required by (a) of this section. However, a permit
12 may not be issued until the municipality with jurisdiction over the proposed facility
13 site has approved the permit.

14 * **Sec. 7.** AS 18.56.090 is amended by adding a new subsection to read:

15 (f) In furtherance of its corporate purpose, the corporation may, in cooperation
16 with the Alaska Energy Authority, provide technical assistance to municipalities
17 related to residential and commercial building energy codes and energy efficiency
18 standards.

19 * **Sec. 8.** AS 18.56 is amended by adding a new section to read:

20 **Sec. 18.56.855. Alaska energy efficiency revolving loan fund.** (a) The
21 Alaska energy efficiency revolving loan fund is established in the corporation to carry
22 out the purposes of this section. The revolving loan fund consists of money or assets
23 appropriated or transferred to the corporation for the revolving loan fund, including
24 money and assets deposited in the revolving loan fund by the corporation and earnings
25 on investments of money held in the revolving loan fund. The corporation may
26 establish separate accounts in the fund. The corporation shall establish the interest
27 rates, security provisions, and other terms of a loan made under this section taking into
28 consideration the corporation's cost of funds and other factors the corporation
29 considers appropriate.

30 (b) Money and other assets of the Alaska energy efficiency revolving loan
31 fund may be used to

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(1) make loans to regional educational attendance areas or to municipal governments, including subdivisions of municipal governments, or to the state for the purpose of financing energy efficiency improvements to buildings owned by regional educational attendance areas, by the state, or by municipalities in the state;

(2) secure bonds issued by the corporation to finance the loans described in (1) of this subsection;

(3) pay costs of administering the revolving loan fund; and

(4) pay the costs of administering and enforcing the terms of loans made by the corporation from the revolving loan fund.

(c) Before a regional educational attendance area, a municipal government, or a subdivision of a municipal government, may borrow money from the corporation under this section, the regional educational attendance area or the municipal government shall waive any sovereign immunity defense it may have available to it with respect to enforcement of the terms of the loan. A regional educational attendance area or a municipal government may waive sovereign immunity to comply with the requirement of this subsection. The state waives any sovereign immunity defense against enforcement of the terms of a loan made to the state under this section. A person or corporation having a claim under this section shall bring an action in a state court in Alaska that has jurisdiction over the claim.

(d) All regional educational attendance areas and municipal governments in the state are authorized to borrow from the corporation under this section. The corporation shall set out the terms of a loan to a regional educational attendance area in a loan agreement or similar document. At the discretion of the corporation, a borrowing by a regional educational attendance area or a municipal government under this section may be effected by use of a loan agreement or similar document evidencing and setting out the terms of the loan or by issuance of a bond by the municipal government to the corporation. Notwithstanding a charter provision requiring public sale by a regional educational attendance area or a municipality of its municipal bonds or other indebtedness, a regional educational attendance area or municipality may sell its bonds under this section to the corporation at a negotiated, private sale. At the discretion of the corporation, the bonds or other indebtedness of

1 the municipality may be general obligations of the municipality or may be secured by
2 an identified revenue source or by a combination of the full faith and credit of the
3 municipality and an identified revenue source.

4 (e) Notwithstanding any other provision of law, to the extent that a department
5 or agency of the state is the custodian of money payable to a regional educational
6 attendance area or to a municipality, at any time after written notice to the department
7 or agency head from the corporation that the regional educational attendance area or
8 municipality is in default on the payment of principal of or interest on municipal
9 bonds or other indebtedness then held or owned by the corporation, or amounts due
10 under an agreement between the corporation and a regional educational attendance
11 area or a municipality, the department or agency shall withhold the payment of that
12 money from that regional educational attendance area or municipality and pay over the
13 money to the corporation for the purpose of paying the principal of and interest on the
14 bonds or indebtedness. The notice must be given in each instance of default. If a notice
15 is given under this subsection and under AS 44.85.170 and the default is continuing
16 under this subsection and under AS 44.85.170, the department or agency shall make
17 payment to the corporation and to the Alaska Municipal Bond Bank Authority on a
18 pro rata basis, taking into consideration the principal amount of the respective default
19 amounts.

20 (f) An authorized state officer may borrow from the corporation under this
21 section for buildings owned by the state. The superintendent of a regional educational
22 attendance area, at the direction of the regional educational attendance area school
23 board, may borrow from the corporation under this section for buildings owned by the
24 regional educational attendance area.

25 (g) In addition to other security that may be given with respect to a loan made
26 under this section, the corporation may require a deed of trust on the building that is
27 the subject of the energy efficiency loan and the real estate on which the building is
28 located. A regional educational attendance area or a municipality may grant a deed of
29 trust to the corporation as needed for this purpose. An authorized state officer may
30 grant a deed of trust to the corporation as needed for this purpose.

31 (h) The corporation shall administer the Alaska energy efficiency revolving

1 loan fund in accordance with regulations adopted by the corporation. The corporation
2 may adopt regulations under AS 18.56.088 to carry out the purposes of this section.

3 (i) This section applies to home rule municipalities.

4 (j) In this section, "authorized state officer" means

5 (1) the commissioner of the department of the state for a building
6 owned by the state;

7 (2) the executive director of a public corporation for a building owned
8 by the public corporation;

9 (3) the legislative council for a building owned by the legislature;

10 (4) the administrative director of courts for a building owned by the
11 judicial system;

12 (5) any other person designated in writing by a person listed in (1) - (4)
13 of this subsection.

14 * **Sec. 9.** AS 37.07.040 is amended to read:

15 **Sec. 37.07.040. Office of management and budget.** The Alaska office of
16 management and budget shall

17 (1) assist the governor in meeting the requirements of AS 37.07.020,
18 including the coordination and analysis of state agency goals and objectives, plans,
19 and budget requests;

20 (2) prepare for submission to the governor an annually updated six-
21 year capital improvements program and the proposed capital improvements budget for
22 the coming fiscal year, the latter to include individual project justification with
23 documentation of estimated project cost;

24 (3) develop procedures to produce the information needed for effective
25 policy decision making, including procedures to provide for the dissemination of
26 information about plans, programs, and budget requests to be included in the annual
27 budget and opportunity for public review and comment during the period of budget
28 preparation;

29 (4) assist state agencies in their statement of goals and objectives to
30 achieve, among other things, the legislature's mission and desired results, preparation
31 of plans, assessments of the extent to which missions and desired results have been

1 achieved, budget requests, and reporting of program performance; all documents
2 forwarded by the office to a state agency containing instructions for the preparation of
3 program plans and budget requests and the reporting of program performance are
4 public information after the date they are forwarded;

5 (5) administer its responsibilities under the program execution
6 provisions of this chapter so that the policy decisions and budget determinations of the
7 governor and the legislature are implemented;

8 (6) provide the legislative finance division with the budget information
9 it may request;

10 (7) provide the legislative finance division with an advance copy of the
11 governor's budget workbooks at least seven days before the legislature convenes in a
12 regular session;

13 (8) prepare the proposed capital improvements budget for the coming
14 fiscal year evaluating both state and local requests from the standpoint of need, equity,
15 and priorities of the jurisdiction; other factors such as project amounts, population,
16 local financial match, federal funds being used for local match, municipality or
17 unincorporated community acceptance of the facility, and all associated costs of the
18 facility may be considered;

19 (9) for each department in the executive branch, report to the
20 legislature by the 45th day of each regular session the amount of money appropriated
21 to the department that is expected to lapse into the general fund at the end of the
22 current fiscal year;

23 (10) establish and administer a state agency program performance
24 management system involving planning, performance budgeting, performance
25 measurement, and program evaluation; the office shall ensure that information
26 generated under this system is useful for managing and improving the efficiency and
27 effectiveness of agency operations;

28 (11) by January 15, list each lease-purchase agreement entered into by
29 an agency during the immediately preceding fiscal year for the acquisition of
30 equipment or other personal property, together with a description of the property
31 acquired and financial details, including the purchase price, the term for payments, the

1 amount of each payment, and the amount of interest or financing charges paid;

2 (12) work with state agencies to develop a standardized
3 methodology to collect and store energy consumption and expense data.

4 * Sec. 10. AS 38.05.810(e) is amended to read:

5 (e) The lease, sale, or other disposal of state land at appraised fair market
6 value may be negotiated with a licensed public utility or a licensed common carrier by
7 the director with the approval of the commissioner if the utility or carrier reasonably
8 requires the land for the conduct of its business under its license. A lease with a
9 licensed public utility that is an electric utility entered into under this subsection
10 may not include, as part of the rent or other fee that is negotiated or charged, an
11 amount that is based on or determined by a percentage of gross revenue for
12 renewable energy produced by the electric utility.

13 * Sec. 11. AS 42.45.040 is repealed and reenacted to read:

14 **Sec. 42.45.040. Southeast energy fund.** (a) The Southeast energy fund is
15 established as a separate fund. The fund consists of

16 (1) money appropriated to the fund by the legislature;

17 (2) money transferred to it under former AS 42.45.050;

18 (3) gifts, bequests, contributions from other sources, and federal
19 money;

20 (4) interest earned on the fund balance; and

21 (5) investments, to be managed by the Department of Revenue, which
22 shall be the fiduciary of the fund under AS 37.10.071.

23 (b) The fund is not a dedicated fund.

24 (c) The authority may make grants from the Southeast energy fund to a
25 municipality of the state, a joint action agency established under AS 42.45.300, or a
26 member-owned electric cooperative established under AS 10.25, for power projects,
27 repayment of loans, and payments on bonds for hydroelectric projects and electrical
28 transmission lines or interties serving Southeast Alaska that are entirely owned by the
29 grantee.

30 (d) An appropriation from the fund for a project described in (c) of this section
31 lapses back into the fund if substantial, ongoing work on the project has not begun

1 within seven years after the effective date of the appropriation.

2 * **Sec. 12.** AS 42.45 is amended by adding a new section to read:

3 **Article 7A. Emerging Energy Technology Fund.**

4 **Sec. 42.45.375. Emerging energy technology fund.** (a) In order to promote
5 the expansion of energy sources available to Alaskans, the emerging energy
6 technology fund is established. The fund consists of

7 (1) money appropriated to the fund by the legislature to provide grants
8 for energy projects; and

9 (2) gifts, bequests, contributions from other sources, and federal
10 money appropriated to the fund.

11 (b) The fund is not a dedicated fund.

12 (c) The fund shall be administered by the authority, but the authority may
13 contract for the investment of money appropriated to the fund but not disbursed for a
14 grant. The authority, in consultation with the advisory committee established under (f)
15 of this section, may make grants from the fund to eligible applicants for demonstration
16 projects of technologies that have a reasonable expectation to be commercially viable
17 within five years and that are designed to

18 (1) test emerging energy technologies or methods of conserving
19 energy;

20 (2) improve an existing energy technology; or

21 (3) deploy an existing technology that has not previously been
22 demonstrated in the state.

23 (d) In making grants under this section, the authority, in consultation with the
24 advisory committee established under (f) of this section, shall give priority to

25 (1) Alaska residents, associations, organizations, or institutions;

26 (2) projects that demonstrate partnership with the University of Alaska
27 or another Alaska postsecondary institution;

28 (3) projects supported by matching funds or in-kind partnerships; and

29 (4) projects with potential for widespread deployment in the state.

30 (e) In administering the fund, the authority may enter into a contract or
31 agreement with the University of Alaska to provide technical and economic review

1 and analysis for the advisory committee established under (f) of this section and data
2 acquisition and analysis of the projects awarded grants.

3 (f) An advisory committee is established and consists of seven members. Each
4 member of the committee shall have a degree in science or engineering, or equivalent
5 professional experience, and at least two years of experience working in the state.
6 Members of the committee shall be appointed by the governor to staggered three-year
7 terms. The committee consists of one representative of each of the following groups:

- 8 (1) a business or organization engaged in the renewable energy sector;
- 9 (2) a business or organization engaged in the fossil fuel energy sector;
- 10 (3) the Alaska Power Association or an Alaska electric utility;
- 11 (4) the Denali Commission established under P.L. 105-277 and
12 mentioned in a note at 42 U.S.C. 3121;
- 13 (5) the National Renewable Energy Laboratory;
- 14 (6) the Arctic Energy Office of the National Energy Technology
15 Laboratory;
- 16 (7) the Alaska Industrial Development and Export Authority.

17 (g) A member of the advisory committee appointed under (f) of this section
18 serves without compensation but is entitled to per diem and travel expenses as
19 provided in AS 39.20.180.

20 (h) If a member of the advisory committee appointed under (f)(4), (5), or (6)
21 of this section is not available to serve as a member of the committee, the governor
22 shall appoint a representative from a federal agency or department with a comparable
23 mission or purpose to the agency listed in (f)(4), (5), or (6) of this section to fill the
24 position on the committee. If a representative from a federal agency or department is
25 not available to fill the position, the governor may appoint a member from a state
26 agency or department.

27 (i) A business or organization represented by a member of the advisory
28 committee under (f) of this section is not eligible to receive a grant from the fund.

29 (j) In this section,

30 (1) "eligible applicant" means

31 (A) an electric utility holding a certificate of public

1 convenience and necessity under AS 42.05;

2 (B) an independent power producer;

3 (C) a local government, quasi-governmental entity, or other
4 governmental entity, including a tribal council or housing authority;

5 (D) a business holding an Alaska business license; or

6 (E) a nonprofit organization.

7 (2) "energy technology" means technology that promotes, enhances, or
8 expands the diversity of available energy supply sources or means of transmission,
9 increases energy efficiency, or reduces negative energy-related environmental effects;
10 "energy technology" includes technology related to renewable sources of energy,
11 conservation of energy, enabling technologies, efficient and effective use of
12 hydrocarbons, and integrated energy systems;

13 (3) "fund" means the emerging energy technology fund.

14 * Sec. 13. AS 42.45.990(4) is amended to read:

15 (4) "power project" or "project" means a plant, works, system, or
16 facility, together with related or necessary facilities and appurtenances, including a
17 divided or undivided interest in or a right to the capacity of a power project or project,
18 that is used or is useful for the purpose of

19 (A) electrical or thermal energy production [OTHER THAN
20 NUCLEAR ENERGY PRODUCTION];

21 (B) waste energy utilization and energy conservation; or

22 (C) transmission, purchase, sale, exchange, and interchange of
23 electrical or thermal energy, including district heating or interties;

24 * Sec. 14. AS 44.42.020(a) is amended to read:

25 (a) The department shall

26 (1) plan, design, construct, and maintain all state modes of
27 transportation and transportation facilities and all docks, floats, breakwaters, buildings,
28 and similar facilities;

29 (2) study existing transportation modes and facilities in the state to
30 determine how they might be improved or whether they should continue to be
31 maintained;

1 (3) study alternative means of improving transportation in the state
2 with regard to the economic costs of each alternative and its environmental and social
3 effects;

4 (4) develop a comprehensive, long-range, intermodal transportation
5 plan for the state;

6 (5) study alternatives to existing modes of transportation in urban areas
7 and develop plans to improve urban transportation;

8 (6) cooperate and coordinate with and enter into agreements with
9 federal, state, and local government agencies and private organizations and persons in
10 exercising its powers and duties;

11 (7) manage, operate, and maintain state transportation facilities and all
12 docks, floats, breakwaters, and buildings, including all state highways, vessels,
13 railroads, pipelines, airports, and aviation facilities;

14 (8) study alternative means of transportation in the state, considering
15 the economic, social, and environmental effects of each alternative;

16 (9) coordinate and develop state and regional transportation systems,
17 considering deletions, additions, and the absence of alterations;

18 (10) develop facility program plans for transportation and state
19 buildings, docks, and breakwaters required to implement the duties set out in this
20 section, including but not limited to functional performance criteria and schedules for
21 completion;

22 (11) supervise and maintain all state automotive and mechanical
23 equipment, aircraft, and vessels, except vessels and aircraft used by the Department of
24 Fish and Game or the Department of Public Safety; for state vehicles maintained by
25 the department, the department shall every five years evaluate the cost, efficiency, and
26 commercial availability of alternative fuels for automotive purposes, and the purpose
27 for which the vehicles are intended to be used, and convert vehicles to use alternative
28 fuels or purchase energy efficient vehicles [TO USE ALTERNATIVE FUELS]
29 whenever practicable; the department may participate in joint ventures with public or
30 private partners that will foster the availability of alternative fuels for all automotive
31 fuel consumers;

- 1 (12) supervise aeronautics inside the state, under AS 02.10;
2 (13) implement the safety and financial responsibility requirements for
3 air carriers under AS 02.40;
4 (14) inspect weights and measures;
5 (15) at least every four years study alternatives available to finance
6 transportation systems in order to provide an adequate level of funding to sustain and
7 improve the state's transportation system.

8 * Sec. 15. AS 44.83.990(6) is amended to read:

9 (6) "power project" or "project" means a plant, works, system, or
10 facility, together with related or necessary facilities and appurtenances, including a
11 divided or undivided interest in or a right to the capacity of a power project or project,
12 that is used or is useful for the purpose of

13 (A) electrical or thermal energy production [OTHER THAN
14 NUCLEAR ENERGY PRODUCTION];

15 (B) waste energy utilization and energy conservation; or

16 (C) transmission, purchase, sale, exchange, and interchange of
17 electrical or thermal energy, including district heating or interties;

18 * Sec. 16. AS 46.11.900(1) is amended to read:

19 (1) "alternative energy system"

20 (A) means a source of thermal, mechanical, or electrical energy
21 that is not dependent on oil or gas [OR A NUCLEAR FUEL] for the supply of
22 energy for space heating and cooling, refrigeration and cold storage, electrical
23 power, mechanical power, or the heating of water;

24 (B) includes

25 (i) an alternative energy property as defined by 26
26 U.S.C. 48(a)(3)(A); and

27 (ii) a method of architectural design and construction
28 that provides for the collection, storage, and use of direct radiation from
29 the sun;

30 * Sec. 17. AS 47.25.621 is amended to read:

31 Sec. 47.25.621. Alaska affordable heating [ASSISTANCE] program. (a)

1 The Alaska affordable heating [ASSISTANCE] program is established in the
2 Department of Health and Social Services to provide expanded eligibility for Alaska
3 residents for home heating assistance, to the extent funds are available in the Alaska
4 affordable heating fund [APPROPRIATED BY THE LEGISLATURE FOR THAT
5 PURPOSE].

6 (b) The Alaska affordable heating [ASSISTANCE] program established
7 under this section is in addition to the federal low-income heating and energy
8 assistance provided under 42 U.S.C. 8621 - 8629 (Low-Income Home Energy
9 Assistance Act of 1981), as amended, and implementing regulations.

10 * **Sec. 18.** AS 47.25.621 is amended by adding a new subsection to read:

11 (c) The Alaska affordable heating fund is established as a separate fund to be
12 managed by the Department of Revenue. The fund consists of appropriations made to
13 it. Interest earned by the fund may be appropriated to it. The Department of Health and
14 Social Services shall use money in the fund for Alaska affordable heating payments.

15 * **Sec. 19.** AS 47.25.622 is amended to read:

16 **Sec. 47.25.622. Duties.** The Department of Health and Social Services
17 [DEPARTMENT] shall

18 (1) administer the Alaska affordable heating [ASSISTANCE]
19 program provided under AS 47.25.621;

20 (2) adopt regulations under AS 44.62 (Administrative Procedure Act)
21 to carry out the purpose of the program;

22 (3) coordinate payments among other heating assistance programs to
23 avoid duplication of payments.

24 * **Sec. 20.** AS 47.25.623 is amended to read:

25 **Sec. 47.25.623. Eligibility; payment amount.** An individual is eligible for
26 home heating assistance payments under the Alaska affordable heating
27 [ASSISTANCE] program if the individual

28 (1) is a resident of the state;

29 (2) is physically present and resides in a home in the state when the
30 home heating costs are incurred;

31 (3) for assistance calculated under (b) and (c) of this section, has

1 gross household income not to exceed, as a percentage of the federal poverty
2 guideline for Alaska set by the United States Department of Health and Human
3 Services and revised under 42 U.S.C. 9902(2),

4 (A) 225 percent for a determination to be made under (c)(1)

5 - (3) of this section; and

6 (B) 250 percent for a determination to be made under (c)(4)

7 of this section; and [HAS GROSS HOUSEHOLD INCOME ABOVE 150
8 PERCENT BUT THAT DOES NOT EXCEED 225 PERCENT OF THE
9 FEDERAL POVERTY GUIDELINE FOR ALASKA SET BY THE UNITED
10 STATES DEPARTMENT OF HEALTH AND HUMAN SERVICES AND
11 REVISED UNDER 42 U.S.C. 9902(2);]

12 (4) meets other eligibility requirements specified in regulations
13 adopted under AS 47.25.622.

14 * **Sec. 21.** AS 47.25.623 is amended by adding new subsections to read:

15 (b) The Department of Health and Social Services shall determine the number
16 of points for each eligible individual based on the point formula used under 42 U.S.C.
17 8621 - 8629 (Low-Income Home Energy Assistance Act of 1981), as amended, and
18 implementing regulations. Except as provided in (d) of this section, the amount of the
19 Alaska affordable heating payment for an individual equals the base amount calculated
20 under (c) of this section minus the amount the individual is eligible to receive under
21 the federal low-income home energy assistance program under 42 U.S.C. 8621 - 8629,
22 as amended, and implementing regulations.

23 (c) The Department of Health and Social Services shall calculate the base
24 amount of the Alaska affordable heating payment for the individual based on points
25 determined under (b) of this section and on the average price a barrel of Alaska North
26 Slope crude oil for sale on the United States West Coast during September through
27 February of the preceding fiscal year as follows:

28 (1) \$130 a point when the average price is not more than \$75 a barrel;

29 (2) \$140 a point when the average price is more than \$75 and not more
30 than \$100 a barrel;

31 (3) \$150 a point when the average price is more than \$100 and not

1 more than \$150 a barrel;

2 (4) \$165 a point when the average price is more than \$150 a barrel.

3 (d) Under the program authorized by AS 47.25.621 - 47.25.626, taking into
4 consideration the gross household income rates established in (a) of this section and
5 the base amounts to be calculated under (b) and (c) of this section,

6 (1) if insufficient money is appropriated to fully fund the Alaska
7 affordable heating payments during the fiscal year, the department

8 (A) shall, for the duration of that fiscal year, suspend
9 calculation and payment under (a)(3)(B) of this section and calculate and pay
10 all eligible individuals under (a)(3)(A) of this section; and

11 (B) may, to the extent there is or may be an appropriation
12 balance surplus to the amount required to make all payments under (A) of this
13 paragraph, by regulation, establish at any time during the fiscal year a
14 prospective pro rata reduction of the payment rates that the department will
15 pay to eligible individuals under the program during that fiscal year qualifying
16 under (a)(3)(B) of this section and, thereafter, may provide for prorated
17 payments; and

18 (2) if the commissioner reasonably determines that the total of
19 appropriations from all sources during the fiscal year may exceed the amount required
20 to fully fund all applications for assistance for Alaska affordable heating payments, the
21 commissioner may expend the amount of excess money, not to exceed the total
22 amount of the appropriations, to carry out the purpose of AS 47.25.621 - 47.25.626;
23 under the authority of this paragraph, the commissioner shall distribute the estimated
24 excess money pro rata among individuals receiving assistance under this section
25 without regard to the limitations set out in the dollar value of the point formula
26 expressed in (c)(1) - (4) of this section.

27 * Sec. 22. AS 47.25.626(a) is amended to read:

28 (a) The Department of Health and Social Services [DEPARTMENT] may
29 develop a regional Alaska heating [ASSISTANCE] program for the administration of
30 AS 47.25.621 - 47.25.626 to provide home heating assistance in a uniform and cost-
31 effective manner in a region of this state if an Alaska Native organization is authorized

1 to implement a federally approved tribal family assistance plan that includes that
2 region and has been awarded a tribal energy assistance grant for a program that
3 includes that region under 42 U.S.C. 8623(d).

4 * Sec. 23. AS 47.25.626(b) is amended to read:

5 (b) The department may award contracts to implement a program developed
6 under (a) of this section. A contract authorized for delivery of home heating assistance
7 under a regional Alaska heating [ASSISTANCE] program under this section is exempt
8 from the competitive bid requirements of AS 36.30 (State Procurement Code). Subject
9 to appropriation, a contract under this section must be in an amount that represents a
10 fair and equitable share of the money appropriated for the Alaska **affordable** heating
11 [ASSISTANCE] program under AS 47.25.621 - 47.25.626 to serve the state residents
12 specified in (a) of this section. The authority provided under this section to contract is
13 in addition to the authority to contract in AS 47.05.015 or other law.

14 * Sec. 24. AS 47.25.626(f) is amended to read:

15 (f) If the department establishes a regional Alaska heating [ASSISTANCE]
16 program and awards a contract to provide home heating assistance under this section,

17 (1) a person applying for home heating assistance under AS 47.25.621
18 - 47.25.626 in the region of the state covered by the regional Alaska heating assistance
19 program may obtain home heating [ASSISTANCE] from the department only through
20 the organization designated by the department to serve the region;

21 (2) the department may require the contractor

22 (A) to operate and administer the contract in a manner
23 consistent with the organization's federally approved energy assistance
24 grant and plan; or

25 (B) to apply the provisions of AS 47.25.623 to determine
26 eligibility for home heating assistance to a person for whom assistance
27 may be paid under the contract or may allow the contractor to use other
28 criteria to determine that eligibility.

29 * Sec. 25. AS 42.45.375, enacted by sec. 12 of this Act, is repealed January 1, 2015.

30 * Sec. 26. The uncodified law of the State of Alaska is amended by adding a new section to
31 read:

1 OFFICE OF MANAGEMENT AND BUDGET. Not later than January 31, 2011, the
2 Office of Management and Budget shall develop a standardized methodology to collect and
3 store energy consumption and expense data as described in AS 37.07.040(12), as enacted by
4 sec. 9 of this Act.

5 * **Sec. 27.** The uncodified law of the State of Alaska is amended by adding a new section to
6 read:

7 OFFICE OF THE GOVERNOR ENERGY REPORT. Not later than January 31, 2011,
8 the governor shall submit a report to the legislature providing recommendations for how best
9 to structure state energy programs and offices to increase the coordination and efficiency of
10 the state's efforts. The report must also include an examination of existing powers and duties
11 and the structure of the Alaska Energy Authority and its board of directors, specifically
12 analyzing the relationship between the Alaska Energy Authority and the Alaska Industrial
13 Development and Export Authority.

14 * **Sec. 28.** The uncodified law of the State of Alaska is amended by adding a new section to
15 read:

16 USE OF COMPRESSED NATURAL GAS TO POWER VEHICLES; PILOT
17 PROGRAM; STUDY; PROPOSAL; REPORT. (a) The Department of Transportation and
18 Public Facilities shall, under the authority of AS 44.42.020(a)(3), study the feasibility of using
19 compressed natural gas to power vehicles in the state. The study must

20 (1) review existing government programs and incentives offered in Utah and
21 other North American jurisdictions that promote the use of compressed natural gas to power
22 vehicles;

23 (2) review and summarize relevant studies and investigations on existing
24 public policy incentives that encourage the use of compressed natural gas to power vehicles;

25 (3) evaluate the environmental benefits and technical merits of using
26 compressed natural gas to power vehicles;

27 (4) consider the economic, environmental, and technological advantages and
28 disadvantages of using and promoting the use of compressed natural gas to power vehicles in
29 the state; and

30 (5) if warranted by the findings of the study, set out a proposal for a pilot
31 program in the state to test the use of compressed natural gas to power vehicles owned or

1 operated by the state; the proposal must

2 (A) recommend the most cost-effective and appropriate departments
3 and geographic locations for a pilot program;

4 (B) detail how the pilot program, if successful, could be expanded to
5 provide for increased use of compressed natural gas to power vehicles owned or
6 operated by the state, as well as privately owned or operated vehicles;

7 (C) estimate the costs to the state of a pilot program in which the state
8 would purchase vehicles powered by compressed natural gas or convert existing
9 vehicles to be powered by compressed natural gas, including

10 (i) the costs of maintaining vehicles powered by compressed
11 natural gas and training maintenance personnel;

12 (ii) the costs of adapting, or encouraging the adapting of, state
13 vehicle fueling locations to provide compressed natural gas;

14 (iii) the costs of using compressed natural gas instead of diesel
15 fuel or gasoline;

16 (iv) the costs of expanding the pilot program or developing
17 additional pilot programs under (B) of this paragraph;

18 (v) other costs or savings that can be reasonably expected to
19 accompany the pilot program.

20 (b) The Department of Transportation and Public Facilities shall prepare a report
21 containing the results of the study under (a) of this section not later than January 31, 2011.
22 The department shall notify the legislature when the report is available.

23 * **Sec. 29.** The uncodified law of the State of Alaska is amended by adding a new section to
24 read:

25 BOND AUTHORIZATION AND PROVISIONS. (a) In addition to the powers in
26 AS 18.56.090, the Alaska Housing Finance Corporation may issue bonds in an amount not to
27 exceed \$250,000,000 to make loans from the energy efficiency revolving loan fund
28 established by AS 18.56.855, enacted by sec. 8 of this Act, and to finance the purposes
29 permitted by AS 18.56.855, enacted by sec. 8 of this Act. AS 18.56.110 - 18.56.190 and
30 18.56.855, enacted by sec. 8 of this Act, apply to bonds issued under this section, except that
31 bonds issued under this section are not subject to, and may not be counted against, the bond

1 issuance limitation set out in AS 18.56.110(g).

2 (b) The Alaska Housing Finance Corporation shall deposit the proceeds of bonds
3 issued under (a) of this section in the Alaska energy efficiency revolving loan fund in
4 accordance with AS 18.56.855, enacted by sec. 8 of this Act.

5 * Sec. 30. The uncodified law of the State of Alaska is amended by adding a new section to
6 read:

7 MUNICIPAL ENERGY IMPROVEMENTS FINANCING PROGRAM
8 RECOMMENDATION. Not later than January 31, 2011, the Department of Revenue shall
9 submit to the legislature a report and recommendations regarding the feasibility of a
10 municipal energy improvements financing program. The report must

11 (1) address financing programs for energy efficiency and renewable energy
12 projects on residential, commercial, and industrial property through property tax assessments;
13 and

14 (2) identify the costs and benefits of a municipal energy improvements
15 financing program in the state.

16 * Sec. 31. The uncodified law of the State of Alaska is amended by adding a new section to
17 read:

18 TRANSITION: REGULATIONS. (a) To the extent consistent with secs. 17 - 24 of
19 this Act, regulations of the Department of Health and Social Services adopted under the
20 authority of AS 47.25.622 that are in effect on the effective date of secs. 17 - 24 of this Act
21 remain in effect until the department adopts regulations consistent with secs. 17 - 24 of this
22 Act.

23 (b) A state agency affected by this Act with the authority to adopt regulations under
24 state law may proceed to adopt regulations necessary to implement the changes made by this
25 Act. The regulations take effect in accordance with applicable state law but not before the
26 effective date of the law implemented by the regulation.

27 * Sec. 32. The uncodified law of the State of Alaska is amended by adding a new section to
28 read:

29 REGULATIONS: ATTORNEY INSTRUCTION. Throughout the Alaska
30 Administrative Code, the regulations attorney is instructed to change the phrase "Alaska
31 Heating Assistance Program" to "Alaska Affordable Heating Program," as appropriate, if

1 consistent with the changes made in secs. 17 - 24 of this Act.

2 * **Sec. 33.** The uncodified law of the State of Alaska is amended by adding a new section to
3 read:

4 REVISOR'S INSTRUCTIONS. (a) The revisor of statutes is instructed to change the
5 heading of art. 6 of AS 18.56 from "Energy Conservation" to "Energy Efficiency and
6 Conservation Programs."

7 (b) The revisor of statutes is instructed to change the heading of art. 4 of AS 47.25
8 from "Alaska Heating Assistance Program" to "Alaska Affordable Heating Program."

9 * **Sec. 34.** Section 31(b) of this Act takes effect immediately under AS 01.10.070(c).

26-LS1197\Q
Kane
4/6/2010

CS FOR SENATE BILL NO. 220(FIN)

**IN THE LEGISLATURE OF THE STATE OF ALASKA
TWENTY-SIXTH LEGISLATURE - SECOND SESSION**

BY THE SENATE FINANCE COMMITTEE

**Offered:
Referred:**

Sponsor(s): SENATE RESOURCES COMMITTEE

A BILL

FOR AN ACT ENTITLED

1 **"An Act declaring a state energy policy; relating to energy efficiency, energy**
2 **conservation, and alternative energy; relating to an emerging energy technology fund;**
3 **relating to the lease of state land to a public electric utility; relating to the Alaska**
4 **heating assistance program, to state energy use data, to the Southeast energy fund, to**
5 **nuclear energy production and facilities, to the definition of 'power project' or 'project'**
6 **as it relates to rural and statewide energy programs and the Alaska Energy Authority,**
7 **and to the definition of 'alternative energy system'; establishing an Alaska energy**
8 **efficiency revolving loan fund; directing the Department of Transportation and Public**
9 **Facilities to prepare a report on the feasibility of using compressed natural gas to power**
10 **vehicles in the state, including vehicles owned or operated by the state, and including in**
11 **that study, if warranted, a pilot program proposal for powering some vehicles owned or**
12 **operated by the state with compressed natural gas; authorizing and relating to the**

1 **issuance of bonds by the Alaska Housing Finance Corporation; relating to a report**
2 **regarding a municipal energy improvements financing program; relating to an energy**
3 **report by the Office of the Governor; and providing for an effective date."**

4 **BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:**

5 * **Section 1.** The uncodified law of the State of Alaska is amended by adding a new section
6 to read:

7 **SHORT TITLE.** This Act may be known as the Alaska Sustainable Energy Act.

8 * **Sec. 2.** The uncodified law of the State of Alaska is amended by adding a new section to
9 read:

10 **LEGISLATIVE POLICY.** The legislature recognizes that the state's economic
11 prosperity is dependent on available, reliable, and affordable residential, commercial, and
12 industrial energy to supply the state's electric, heating, and transportation needs. The
13 legislature further recognizes that energy efficiency, renewable energy, fossil fuels, and
14 conservation will each play an important role in meeting the state's energy needs, which vary
15 widely across the state's diverse geographic regions. In establishing a state energy policy, the
16 legislature intends for the state to achieve a 10 percent increase in energy efficiency from
17 2010 levels by 2015 and a 15 percent increase in energy efficiency by 2020, after accounting
18 for growth in population and economy. Therefore, it is the policy of the state to

19 (1) institute a comprehensive and coordinated approach to supporting energy
20 efficiency and conservation by

21 (A) establishing statewide energy efficiency codes for new and
22 renovated public buildings and by assisting local communities interested in adopting
23 energy efficiency codes for new and renovated residential and commercial buildings;

24 (B) decreasing public building energy consumption through
25 conservation measures and energy-efficient technologies; and

26 (C) educating state residents on the benefits of energy efficiency and
27 conservation, including dissemination of information on state and federal programs
28 that reward energy efficiency;

29 (2) encourage economic development by

30 (A) promoting the development of renewable energy resources,

1 including geothermal, wind, solar, hydroelectric, hydrokinetic, tidal, and biomass
2 energy with a goal of generating 50 percent of the state's electricity using renewable
3 energy resources by 2020;

4 (B) promoting the development, transport, and efficient use of
5 nonrenewable energy resources, including natural gas, coal, oil, nuclear energy, gas
6 hydrates, and heavy oil, for use by Alaskans, for export, and as feedstock for value-
7 added enterprises;

8 (C) working to identify and assist with development of the most cost-
9 effective, long-term sources of energy for each community statewide;

10 (D) creating and maintaining a state fiscal regime that encourages
11 private sector development of the state's energy resources;

12 (3) support energy research, education, and workforce development by
13 investing in

14 (A) training and education programs that address energy conservation,
15 efficiency, extraction, processing, and transportation, including programs that address
16 workforce development and workforce transition; and

17 (B) applied energy research and development of emerging
18 technologies, including university programs, to achieve reductions in state energy
19 costs and stimulate industry investment in the state;

20 (4) coordinate governmental functions by

21 (A) actively collaborating with the private sector and local and federal
22 agencies to achieve the state's energy goals and to meet emissions, renewable energy,
23 and energy production targets; and

24 (B) reviewing and streamlining state and federal regulatory processes
25 and balancing the economic costs of review with the level of review necessary to
26 protect the public interest.

27 * Sec. 3. AS 14.08.101 is amended to read:

28 **Sec. 14.08.101. Powers.** A regional school board may

29 (1) sue and be sued;

30 (2) contract with the department, the Bureau of Indian Affairs, or any
31 other school district, agency, or regional board for the provision of services, facilities,

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supplies, or utilities;

(3) determine its own fiscal procedures, including but not limited to policies and procedures for the purchase of supplies and equipment; the regional school boards are exempt from AS 37.05 (Fiscal Procedures Act) and AS 36.30 (State Procurement Code);

(4) appoint, compensate, and otherwise control all school employees in accordance with this title; these employees are not subject to AS 39.25 (State Personnel Act);

(5) adopt regulations governing organization, policies, and procedures for the operation of the schools;

(6) establish, maintain, operate, discontinue, and combine schools subject to the approval of the commissioner;

(7) recommend to the department projects for construction, rehabilitation, and improvement of schools and education-related facilities as specified in AS 14.11.011(b), and plan, design, and construct the project when the responsibility for it is assumed under AS 14.11.020;

(8) by resolution adopted by a majority of all the members of the board and provided to the commissioner of the department, assume ownership of all land and buildings used in relation to the schools in the regional educational attendance area, as provided for in AS 14.08.151(b);

(9) provide housing for rental to teachers, by leasing existing housing from a local agency or individual, by entering into contractual arrangements with a local agency or individual to lease housing that will be constructed by the local agency or individual for that purpose, or, without using for the purpose that portion of public school funding that consists of state aid provided under AS 14.17, by constructing or otherwise acquiring housing that is owned and managed by the regional educational attendance area for rental to teachers;

(10) employ a chief school administrator;

(11) apply for and use the proceeds of a loan from the Alaska energy efficiency revolving loan fund (AS 18.56.855);

(12) exercise those other functions that may be necessary for the

1 proper performance of its responsibilities.

2 * Sec. 4. AS 18.45.020 is amended to read:

3 **Sec. 18.45.020. United States licenses or permits required.** A person may
4 not manufacture, construct, produce, transfer, acquire, or possess a special nuclear
5 material, by-product material, **special nuclear material facility, by-product material**
6 **facility**, production facility, or utilization facility, or act as an operator of a production
7 **facility** or utilization facility, wholly within the state without first obtaining a license
8 or permit for the activity in which the person proposes to engage from the Nuclear
9 Regulatory Commission if the commission requires a license or permit to be obtained
10 by persons proposing to engage in the activities.

11 * Sec. 5. AS 18.45.025(a) is amended to read:

12 (a) A person may not construct a nuclear fuel production facility, **nuclear**
13 **utilization facility**, utilization facility, reprocessing facility, or nuclear waste disposal
14 facility in the state without first obtaining a permit from the Department of
15 Environmental Conservation to construct the facility on land designated by the
16 legislature under (b) of this section.

17 * Sec. 6. AS 18.45.025(b) is amended to read:

18 (b) The legislature shall designate by law the land in the state on which a
19 nuclear fuel production **facility**, nuclear utilization **facility, utilization facility**,
20 nuclear reprocessing **facility**, or nuclear waste disposal facility may be located. In
21 designating the land in the state on which

22 **(1) a nuclear utilization facility or utilization facility may be**
23 **located, the legislature shall act in the interest of regulating the economics of**
24 **nuclear energy;**

25 **(2) a nuclear fuel production facility, [NUCLEAR UTILIZATION,]**
26 nuclear reprocessing **facility**, or nuclear waste disposal facility may be located, the
27 legislature shall act to protect the public health and safety.

28 * Sec. 7. AS 18.45.025(c) is repealed and reenacted to read:

29 (c) The Department of Environmental Conservation shall adopt regulations
30 governing the issuance of permits required by (a) of this section. However, a permit
31 may not be issued until the municipality with jurisdiction over the proposed facility

1 site has approved the permit.

2 * **Sec. 8.** AS 18.56.090 is amended by adding a new subsection to read:

3 (f) In furtherance of its corporate purpose, the corporation may, in cooperation
4 with the Alaska Energy Authority, provide technical assistance to municipalities
5 related to residential and commercial building energy codes and energy efficiency
6 standards.

7 * **Sec. 9.** AS 18.56 is amended by adding a new section to read:

8 **Sec. 18.56.855. Alaska energy efficiency revolving loan fund.** (a) The
9 Alaska energy efficiency revolving loan fund is established in the corporation to carry
10 out the purposes of this section. The revolving loan fund consists of money or assets
11 appropriated or transferred to the corporation for the revolving loan fund, including
12 money and assets deposited in the revolving loan fund by the corporation and earnings
13 on investments of money held in the revolving loan fund. The corporation may
14 establish separate accounts in the fund. The corporation shall establish the interest
15 rates, security provisions, and other terms of a loan made under this section taking into
16 consideration the corporation's cost of funds and other factors the corporation
17 considers appropriate.

18 (b) Money and other assets of the Alaska energy efficiency revolving loan
19 fund may be used to

20 (1) make loans to regional educational attendance areas or to municipal
21 governments, including subdivisions of municipal governments, for the purpose of
22 financing energy efficiency improvements to buildings owned by regional educational
23 attendance areas or by municipalities in the state;

24 (2) secure bonds issued by the corporation to finance the loans
25 described in (1) of this subsection;

26 (3) pay costs of administering the revolving loan fund; and

27 (4) pay the costs of administering and enforcing the terms of loans
28 made by the corporation from the revolving loan fund.

29 (c) Before a regional educational attendance area, a municipal government, or
30 a subdivision of a municipal government may borrow money from the corporation
31 under this section, the regional educational attendance area or the municipal

1 government shall waive any sovereign immunity defense it may have available to it
 2 with respect to enforcement of the terms of the loan. A regional educational
 3 attendance area or a municipal government may waive sovereign immunity to comply
 4 with the requirement of this subsection. A person or corporation having a claim under
 5 this section shall bring an action in a state court in Alaska that has jurisdiction over the
 6 claim.

7 (d) All regional educational attendance areas and municipal governments in
 8 the state are authorized to borrow from the corporation under this section. The
 9 corporation shall set out the terms of a loan to a regional educational attendance area
 10 in a loan agreement or similar document. At the discretion of the corporation, a
 11 borrowing by a regional educational attendance area or a municipal government under
 12 this section may be effected by use of a loan agreement or similar document
 13 evidencing and setting out the terms of the loan or by issuance of a bond by the
 14 municipal government to the corporation. Notwithstanding a charter provision
 15 requiring public sale by a regional educational attendance area or a municipality of its
 16 municipal bonds or other indebtedness, a regional educational attendance area or
 17 municipality may sell its bonds under this section to the corporation at a negotiated,
 18 private sale. At the discretion of the corporation, the bonds or other indebtedness of
 19 the municipality may be general obligations of the municipality or may be secured by
 20 an identified revenue source or by a combination of the full faith and credit of the
 21 municipality and an identified revenue source.

22 (e) Notwithstanding any other provision of law, to the extent that a department
 23 or agency of the state is the custodian of money payable to a regional educational
 24 attendance area or to a municipality, at any time after written notice to the department
 25 or agency head from the corporation that the regional educational attendance area or
 26 municipality is in default on the payment of principal of or interest on municipal
 27 bonds or other indebtedness then held or owned by the corporation, or amounts due
 28 under an agreement between the corporation and a regional educational attendance
 29 area or a municipality, the department or agency shall withhold the payment of that
 30 money from that regional educational attendance area or municipality and pay over the
 31 money to the corporation for the purpose of paying the principal of and interest on the

1 bonds or indebtedness. The notice must be given in each instance of default. If a notice
2 is given under this subsection and under AS 44.85.170 and the default is continuing
3 under this subsection and under AS 44.85.170, the department or agency shall make
4 payment to the corporation and to the Alaska Municipal Bond Bank Authority on a
5 pro rata basis, taking into consideration the principal amount of the respective default
6 amounts.

7 (f) The superintendent of a regional educational attendance area, at the
8 direction of the regional educational attendance area school board, may borrow from
9 the corporation under this section for buildings owned by the regional educational
10 attendance area.

11 (g) In addition to other security that may be given with respect to a loan made
12 under this section, the corporation may require a deed of trust on the building that is
13 the subject of the energy efficiency loan and the real estate on which the building is
14 located. A regional educational attendance area or a municipality may grant a deed of
15 trust to the corporation as needed for this purpose.

16 (h) The corporation shall administer the Alaska energy efficiency revolving
17 loan fund in accordance with regulations adopted by the corporation. The corporation
18 may adopt regulations under AS 18.56.088 to carry out the purposes of this section.

19 (i) This section applies to home rule municipalities.

20 * **Sec. 10.** AS 37.07.040 is amended to read:

21 **Sec. 37.07.040. Office of management and budget.** The Alaska office of
22 management and budget shall

23 (1) assist the governor in meeting the requirements of AS 37.07.020,
24 including the coordination and analysis of state agency goals and objectives, plans,
25 and budget requests;

26 (2) prepare for submission to the governor an annually updated six-
27 year capital improvements program and the proposed capital improvements budget for
28 the coming fiscal year, the latter to include individual project justification with
29 documentation of estimated project cost;

30 (3) develop procedures to produce the information needed for effective
31 policy decision making, including procedures to provide for the dissemination of

1 information about plans, programs, and budget requests to be included in the annual
2 budget and opportunity for public review and comment during the period of budget
3 preparation;

4 (4) assist state agencies in their statement of goals and objectives to
5 achieve, among other things, the legislature's mission and desired results, preparation
6 of plans, assessments of the extent to which missions and desired results have been
7 achieved, budget requests, and reporting of program performance; all documents
8 forwarded by the office to a state agency containing instructions for the preparation of
9 program plans and budget requests and the reporting of program performance are
10 public information after the date they are forwarded;

11 (5) administer its responsibilities under the program execution
12 provisions of this chapter so that the policy decisions and budget determinations of the
13 governor and the legislature are implemented;

14 (6) provide the legislative finance division with the budget information
15 it may request;

16 (7) provide the legislative finance division with an advance copy of the
17 governor's budget workbooks at least seven days before the legislature convenes in a
18 regular session;

19 (8) prepare the proposed capital improvements budget for the coming
20 fiscal year evaluating both state and local requests from the standpoint of need, equity,
21 and priorities of the jurisdiction; other factors such as project amounts, population,
22 local financial match, federal funds being used for local match, municipality or
23 unincorporated community acceptance of the facility, and all associated costs of the
24 facility may be considered;

25 (9) for each department in the executive branch, report to the
26 legislature by the 45th day of each regular session the amount of money appropriated
27 to the department that is expected to lapse into the general fund at the end of the
28 current fiscal year;

29 (10) establish and administer a state agency program performance
30 management system involving planning, performance budgeting, performance
31 measurement, and program evaluation; the office shall ensure that information

1 generated under this system is useful for managing and improving the efficiency and
2 effectiveness of agency operations;

3 (11) by January 15, list each lease-purchase agreement entered into by
4 an agency during the immediately preceding fiscal year for the acquisition of
5 equipment or other personal property, together with a description of the property
6 acquired and financial details, including the purchase price, the term for payments, the
7 amount of each payment, and the amount of interest or financing charges paid;

8 **(12) work with state agencies to develop a standardized**
9 **methodology to collect and store energy consumption and expense data.**

10 * Sec. 11. AS 38.05.810(e) is amended to read:

11 (e) The lease, sale, or other disposal of state land at appraised fair market
12 value may be negotiated with a licensed public utility or a licensed common carrier by
13 the director with the approval of the commissioner if the utility or carrier reasonably
14 requires the land for the conduct of its business under its license. **A lease with a**
15 **licensed public utility that is an electric utility entered into under this subsection**
16 **may not include, as part of the rent or other fee that is negotiated or charged, an**
17 **amount that is based on or determined by a percentage of gross revenue for**
18 **renewable energy produced by the electric utility.**

19 * Sec. 12. AS 42.45.040 is repealed and reenacted to read:

20 **Sec. 42.45.040. Southeast energy fund.** (a) The Southeast energy fund is
21 established as a separate fund. The fund consists of

- 22 (1) money appropriated to the fund by the legislature;
23 (2) money transferred to it under former AS 42.45.050;
24 (3) gifts, bequests, contributions from other sources, and federal
25 money;
26 (4) interest earned on the fund balance; and
27 (5) investments, to be managed by the Department of Revenue, which
28 shall be the fiduciary of the fund under AS 37.10.071.

29 (b) The fund is not a dedicated fund.

30 (c) The authority may make grants from the Southeast energy fund to a
31 municipality of the state, a joint action agency established under AS 42.45.300, or a

1 member-owned electric cooperative established under AS 10.25, for power projects,
2 repayment of loans, and payments on bonds for hydroelectric projects and electrical
3 transmission lines or interties serving Southeast Alaska that are entirely owned by the
4 grantee.

5 (d) An appropriation from the fund for a project described in (c) of this section
6 lapses back into the fund if substantial, ongoing work on the project has not begun
7 within seven years after the effective date of the appropriation.

8 * **Sec. 13.** AS 42.45 is amended by adding a new section to read:

9 **Article 7A. Emerging Energy Technology Fund.**

10 **Sec. 42.45.375. Emerging energy technology fund.** (a) In order to promote
11 the expansion of energy sources available to Alaskans, the emerging energy
12 technology fund is established. The fund consists of

13 (1) money appropriated to the fund by the legislature to provide grants
14 for energy projects; and

15 (2) gifts, bequests, contributions from other sources, and federal
16 money appropriated to the fund.

17 (b) The fund is not a dedicated fund.

18 (c) The fund shall be administered by the authority, but the authority may
19 contract for the investment of money appropriated to the fund but not disbursed for a
20 grant. The authority, in consultation with the advisory committee established under (f)
21 of this section, may make grants from the fund to eligible applicants for demonstration
22 projects of technologies that have a reasonable expectation to be commercially viable
23 within five years and that are designed to

24 (1) test emerging energy technologies or methods of conserving
25 energy;

26 (2) improve an existing energy technology; or

27 (3) deploy an existing technology that has not previously been
28 demonstrated in the state.

29 (d) In making grants under this section, the authority, in consultation with the
30 advisory committee established under (f) of this section, shall give priority to

31 (1) Alaska residents, associations, organizations, or institutions;

1 (2) projects that demonstrate partnership with the University of Alaska
2 or another Alaska postsecondary institution;

3 (3) projects supported by matching funds or in-kind partnerships; and

4 (4) projects with potential for widespread deployment in the state.

5 (e) In administering the fund, the authority may enter into a contract or
6 agreement with the University of Alaska to provide technical and economic review
7 and analysis for the advisory committee established under (f) of this section and data
8 acquisition and analysis of the projects awarded grants.

9 (f) An advisory committee is established and consists of seven members. Each
10 member of the committee shall have a degree in science or engineering, or equivalent
11 professional experience, and at least two years of experience working in the state.
12 Members of the committee shall be appointed by the governor to staggered three-year
13 terms. The committee consists of one representative of each of the following groups:

14 (1) a business or organization engaged in the renewable energy sector;

15 (2) a business or organization engaged in the fossil fuel energy sector;

16 (3) the Alaska Power Association or an Alaska electric utility;

17 (4) the Denali Commission established under P.L. 105-277 and
18 mentioned in a note at 42 U.S.C. 3121;

19 (5) the National Renewable Energy Laboratory;

20 (6) the Arctic Energy Office of the National Energy Technology
21 Laboratory;

22 (7) the Alaska Industrial Development and Export Authority.

23 (g) A member of the advisory committee appointed under (f) of this section
24 serves without compensation but is entitled to per diem and travel expenses as
25 provided in AS 39.20.180.

26 (h) If a member of the advisory committee appointed under (f)(4), (5), or (6)
27 of this section is not available to serve as a member of the committee, the governor
28 shall appoint a representative from a federal agency or department with a comparable
29 mission or purpose to the agency listed in (f)(4), (5), or (6) of this section to fill the
30 position on the committee. If a representative from a federal agency or department is
31 not available to fill the position, the governor may appoint a member from a state

1 agency or department.

2 (i) A business or organization represented by a member of the advisory
3 committee under (f) of this section is not eligible to receive a grant from the fund.

4 (j) In this section,

5 (1) "eligible applicant" means

6 (A) an electric utility holding a certificate of public
7 convenience and necessity under AS 42.05;

8 (B) an independent power producer;

9 (C) a local government, quasi-governmental entity, or other
10 governmental entity, including a tribal council or housing authority;

11 (D) a business holding an Alaska business license; or

12 (E) a nonprofit organization.

13 (2) "energy technology" means technology that promotes, enhances, or
14 expands the diversity of available energy supply sources or means of transmission,
15 increases energy efficiency, or reduces negative energy-related environmental effects;
16 "energy technology" includes technology related to renewable sources of energy,
17 conservation of energy, enabling technologies, efficient and effective use of
18 hydrocarbons, and integrated energy systems;

19 (3) "fund" means the emerging energy technology fund.

20 * Sec. 14. AS 42.45.990(4) is amended to read:

21 (4) "power project" or "project" means a plant, works, system, or
22 facility, together with related or necessary facilities and appurtenances, including a
23 divided or undivided interest in or a right to the capacity of a power project or project,
24 that is used or is useful for the purpose of

25 (A) electrical or thermal energy production [OTHER THAN
26 NUCLEAR ENERGY PRODUCTION];

27 (B) waste energy utilization and energy conservation; or

28 (C) transmission, purchase, sale, exchange, and interchange of
29 electrical or thermal energy, including district heating or interties;

30 * Sec. 15. AS 44.42.020(a) is amended to read:

31 (a) The department shall

1 (1) plan, design, construct, and maintain all state modes of
2 transportation and transportation facilities and all docks, floats, breakwaters, buildings,
3 and similar facilities;

4 (2) study existing transportation modes and facilities in the state to
5 determine how they might be improved or whether they should continue to be
6 maintained;

7 (3) study alternative means of improving transportation in the state
8 with regard to the economic costs of each alternative and its environmental and social
9 effects;

10 (4) develop a comprehensive, long-range, intermodal transportation
11 plan for the state;

12 (5) study alternatives to existing modes of transportation in urban areas
13 and develop plans to improve urban transportation;

14 (6) cooperate and coordinate with and enter into agreements with
15 federal, state, and local government agencies and private organizations and persons in
16 exercising its powers and duties;

17 (7) manage, operate, and maintain state transportation facilities and all
18 docks, floats, breakwaters, and buildings, including all state highways, vessels,
19 railroads, pipelines, airports, and aviation facilities;

20 (8) study alternative means of transportation in the state, considering
21 the economic, social, and environmental effects of each alternative;

22 (9) coordinate and develop state and regional transportation systems,
23 considering deletions, additions, and the absence of alterations;

24 (10) develop facility program plans for transportation and state
25 buildings, docks, and breakwaters required to implement the duties set out in this
26 section, including but not limited to functional performance criteria and schedules for
27 completion;

28 (11) supervise and maintain all state automotive and mechanical
29 equipment, aircraft, and vessels, except vessels and aircraft used by the Department of
30 Fish and Game or the Department of Public Safety; for state vehicles maintained by
31 the department, the department shall every five years evaluate the cost, efficiency, and

1 commercial availability of alternative fuels for automotive purposes, and the purpose
2 for which the vehicles are intended to be used, and convert vehicles to use alternative
3 fuels or purchase energy efficient vehicles [TO USE ALTERNATIVE FUELS]
4 whenever practicable; the department may participate in joint ventures with public or
5 private partners that will foster the availability of alternative fuels for all automotive
6 fuel consumers;

7 (12) supervise aeronautics inside the state, under AS 02.10;

8 (13) implement the safety and financial responsibility requirements for
9 air carriers under AS 02.40;

10 (14) inspect weights and measures;

11 (15) at least every four years study alternatives available to finance
12 transportation systems in order to provide an adequate level of funding to sustain and
13 improve the state's transportation system.

14 * Sec. 16. AS 44.83.990(6) is amended to read:

15 (6) "power project" or "project" means a plant, works, system, or
16 facility, together with related or necessary facilities and appurtenances, including a
17 divided or undivided interest in or a right to the capacity of a power project or project,
18 that is used or is useful for the purpose of

19 (A) electrical or thermal energy production [OTHER THAN
20 NUCLEAR ENERGY PRODUCTION];

21 (B) waste energy utilization and energy conservation; or

22 (C) transmission, purchase, sale, exchange, and interchange of
23 electrical or thermal energy, including district heating or interties;

24 * Sec. 17. AS 46.11.900(1) is amended to read:

25 (1) "alternative energy system"

26 (A) means a source of thermal, mechanical, or electrical energy
27 that is not dependent on oil or gas [OR A NUCLEAR FUEL] for the supply of
28 energy for space heating and cooling, refrigeration and cold storage, electrical
29 power, mechanical power, or the heating of water;

30 (B) includes

31 (i) an alternative energy property as defined by 26

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U.S.C. 48(a)(3)(A); and

(ii) a method of architectural design and construction that provides for the collection, storage, and use of direct radiation from the sun;

* Sec. 18. AS 47.25.621 is amended to read:

Sec. 47.25.621. Alaska affordable heating [ASSISTANCE] program. (a)

The Alaska affordable heating [ASSISTANCE] program is established in the Department of Health and Social Services to provide expanded eligibility for Alaska residents for home heating assistance, to the extent funds are available in the Alaska affordable heating fund [APPROPRIATED BY THE LEGISLATURE FOR THAT PURPOSE].

(b) The Alaska affordable heating [ASSISTANCE] program established under this section is in addition to the federal low-income heating and energy assistance provided under 42 U.S.C. 8621 - 8629 (Low-Income Home Energy Assistance Act of 1981), as amended, and implementing regulations.

* Sec. 19. AS 47.25.621 is amended by adding a new subsection to read:

(c) The Alaska affordable heating fund is established as a separate fund to be managed by the Department of Revenue. The fund consists of appropriations made to it. Interest earned by the fund may be appropriated to it. The Department of Health and Social Services shall use money in the fund for Alaska affordable heating payments.

* Sec. 20. AS 47.25.622 is amended to read:

Sec. 47.25.622. Duties. The Department of Health and Social Services [DEPARTMENT] shall

- (1) administer the Alaska affordable heating [ASSISTANCE] program provided under AS 47.25.621;
- (2) adopt regulations under AS 44.62 (Administrative Procedure Act) to carry out the purpose of the program;
- (3) coordinate payments among other heating assistance programs to avoid duplication of payments.

* Sec. 21. AS 47.25.623 is amended to read:

Sec. 47.25.623. Eligibility; payment amount. An individual is eligible for

1 home heating assistance payments under the Alaska affordable heating
2 [ASSISTANCE] program if the individual

3 (1) is a resident of the state;

4 (2) is physically present and resides in a home in the state when the
5 home heating costs are incurred;

6 (3) for assistance calculated under (b) and (c) of this section, has
7 gross household income not to exceed, as a percentage of the federal poverty
8 guideline for Alaska set by the United States Department of Health and Human
9 Services and revised under 42 U.S.C. 9902(2),

10 (A) 225 percent for a determination to be made under (c)(1)
11 - (3) of this section; and

12 (B) 250 percent for a determination to be made under (c)(4)
13 of this section; and [HAS GROSS HOUSEHOLD INCOME ABOVE 150
14 PERCENT BUT THAT DOES NOT EXCEED 225 PERCENT OF THE
15 FEDERAL POVERTY GUIDELINE FOR ALASKA SET BY THE UNITED
16 STATES DEPARTMENT OF HEALTH AND HUMAN SERVICES AND
17 REVISED UNDER 42 U.S.C. 9902(2);]

18 (4) meets other eligibility requirements specified in regulations
19 adopted under AS 47.25.622.

20 * **Sec. 22.** AS 47.25.623 is amended by adding new subsections to read:

21 (b) The Department of Health and Social Services shall determine the number
22 of points for each eligible individual based on the point formula used under 42 U.S.C.
23 8621 - 8629 (Low-Income Home Energy Assistance Act of 1981), as amended, and
24 implementing regulations. Except as provided in (d) of this section, the amount of the
25 Alaska affordable heating payment for an individual equals the base amount calculated
26 under (c) of this section minus the amount the individual is eligible to receive under
27 the federal low-income home energy assistance program under 42 U.S.C. 8621 - 8629,
28 as amended, and implementing regulations.

29 (c) The Department of Health and Social Services shall calculate the base
30 amount of the Alaska affordable heating payment for the individual based on points
31 determined under (b) of this section and on the average price a barrel of Alaska North

1 Slope crude oil for sale on the United States West Coast during September through
2 February of the preceding fiscal year as follows:

- 3 (1) \$130 a point when the average price is not more than \$75 a barrel;
- 4 (2) \$140 a point when the average price is more than \$75 and not more
5 than \$100 a barrel;
- 6 (3) \$150 a point when the average price is more than \$100 and not
7 more than \$150 a barrel;
- 8 (4) \$165 a point when the average price is more than \$150 a barrel.

9 (d) Under the program authorized by AS 47.25.621 - 47.25.626, taking into
10 consideration the gross household income rates established in (a) of this section and
11 the base amounts to be calculated under (b) and (c) of this section,

12 (1) if insufficient money is appropriated to fully fund the Alaska
13 affordable heating payments during the fiscal year, the department

14 (A) shall, for the duration of that fiscal year, suspend
15 calculation and payment under (a)(3)(B) of this section and calculate and pay
16 all eligible individuals under (a)(3)(A) of this section; and

17 (B) may, to the extent there is or may be an appropriation
18 balance surplus to the amount required to make all payments under (A) of this
19 paragraph, by regulation, establish at any time during the fiscal year a
20 prospective pro rata reduction of the payment rates that the department will
21 pay to eligible individuals under the program during that fiscal year qualifying
22 under (a)(3)(B) of this section and, thereafter, may provide for prorated
23 payments; and

24 (2) if the commissioner reasonably determines that the total of
25 appropriations from all sources during the fiscal year may exceed the amount required
26 to fully fund all applications for assistance for Alaska affordable heating payments, the
27 commissioner may expend the amount of excess money, not to exceed the total
28 amount of the appropriations, to carry out the purpose of AS 47.25.621 - 47.25.626;
29 under the authority of this paragraph, the commissioner shall distribute the estimated
30 excess money pro rata among individuals receiving assistance under this section
31 without regard to the limitations set out in the dollar value of the point formula

1 expressed in (c)(1) - (4) of this section.

2 * **Sec. 23.** AS 47.25.626(a) is amended to read:

3 (a) The **Department of Health and Social Services** [DEPARTMENT] may
4 develop a regional Alaska heating [ASSISTANCE] program for the administration of
5 AS 47.25.621 - 47.25.626 to provide home heating assistance in a uniform and cost-
6 effective manner in a region of this state if an Alaska Native organization is authorized
7 to implement a federally approved tribal family assistance plan that includes that
8 region and has been awarded a tribal energy assistance grant for a program that
9 includes that region under 42 U.S.C. 8623(d).

10 * **Sec. 24.** AS 47.25.626(b) is amended to read:

11 (b) The department may award contracts to implement a program developed
12 under (a) of this section. A contract authorized for delivery of home heating assistance
13 under a regional Alaska heating [ASSISTANCE] program under this section is exempt
14 from the competitive bid requirements of AS 36.30 (State Procurement Code). Subject
15 to appropriation, a contract under this section must be in an amount that represents a
16 fair and equitable share of the money appropriated for the Alaska **affordable** heating
17 [ASSISTANCE] program under AS 47.25.621 - 47.25.626 to serve the state residents
18 specified in (a) of this section. The authority provided under this section to contract is
19 in addition to the authority to contract in AS 47.05.015 or other law.

20 * **Sec. 25.** AS 47.25.626(f) is amended to read:

21 (f) If the department establishes a regional Alaska heating [ASSISTANCE]
22 program and awards a contract to provide home heating assistance under this section,

23 **(1) a person applying for home heating assistance under AS 47.25.621**
24 **- 47.25.626 in the region of the state covered by the regional Alaska heating assistance**
25 **program may obtain home heating [ASSISTANCE] from the department only through**
26 **the organization designated by the department to serve the region;**

27 **(2) the department may require the contractor**

28 **(A) to operate and administer the contract in a manner**
29 **consistent with the organization's federally approved energy assistance**
30 **grant and plan; or**

31 **(B) to apply the provisions of AS 47.25.623 to determine**

1 eligibility for home heating assistance to a person for whom assistance
2 may be paid under the contract or may allow the contractor to use other
3 criteria to determine that eligibility.

4 * **Sec. 26.** AS 42.45.375, enacted by sec. 13 of this Act, is repealed January 1, 2015.

5 * **Sec. 27.** The uncodified law of the State of Alaska is amended by adding a new section to
6 read:

7 OFFICE OF MANAGEMENT AND BUDGET. Not later than January 31, 2011, the
8 Office of Management and Budget shall develop a standardized methodology to collect and
9 store energy consumption and expense data as described in AS 37.07.040(12), as enacted by
10 sec. 10 of this Act.

11 * **Sec. 28.** The uncodified law of the State of Alaska is amended by adding a new section to
12 read:

13 OFFICE OF THE GOVERNOR ENERGY REPORT. Not later than January 31, 2011,
14 the governor shall submit a report to the legislature providing recommendations for how best
15 to structure state energy programs and offices to increase the coordination and efficiency of
16 the state's efforts. The report must also include an examination of existing powers and duties
17 and the structure of the Alaska Energy Authority and its board of directors, specifically
18 analyzing the relationship between the Alaska Energy Authority and the Alaska Industrial
19 Development and Export Authority.

20 * **Sec. 29.** The uncodified law of the State of Alaska is amended by adding a new section to
21 read:

22 USE OF COMPRESSED NATURAL GAS TO POWER VEHICLES; PILOT
23 PROGRAM; STUDY; PROPOSAL; REPORT. (a) The Department of Transportation and
24 Public Facilities shall, under the authority of AS 44.42.020(a)(3), study the feasibility of using
25 compressed natural gas to power vehicles in the state. The study must

26 (1) review existing government programs and incentives offered in Utah and
27 other North American jurisdictions that promote the use of compressed natural gas to power
28 vehicles;

29 (2) review and summarize relevant studies and investigations on existing
30 public policy incentives that encourage the use of compressed natural gas to power vehicles;

31 (3) evaluate the environmental benefits and technical merits of using

1 compressed natural gas to power vehicles;

2 (4) consider the economic, environmental, and technological advantages and
3 disadvantages of using and promoting the use of compressed natural gas to power vehicles in
4 the state; and

5 (5) if warranted by the findings of the study, set out a proposal for a pilot
6 program in the state to test the use of compressed natural gas to power vehicles owned or
7 operated by the state; the proposal must

8 (A) recommend the most cost-effective and appropriate departments
9 and geographic locations for a pilot program;

10 (B) detail how the pilot program, if successful, could be expanded to
11 provide for increased use of compressed natural gas to power vehicles owned or
12 operated by the state, as well as privately owned or operated vehicles;

13 (C) estimate the costs to the state of a pilot program in which the state
14 would purchase vehicles powered by compressed natural gas or convert existing
15 vehicles to be powered by compressed natural gas, including

16 (i) the costs of maintaining vehicles powered by compressed
17 natural gas and training maintenance personnel;

18 (ii) the costs of adapting, or encouraging the adapting of, state
19 vehicle fueling locations to provide compressed natural gas;

20 (iii) the costs of using compressed natural gas instead of diesel
21 fuel or gasoline;

22 (iv) the costs of expanding the pilot program or developing
23 additional pilot programs under (B) of this paragraph;

24 (v) other costs or savings that can be reasonably expected to
25 accompany the pilot program.

26 (b) The Department of Transportation and Public Facilities shall prepare a report
27 containing the results of the study under (a) of this section not later than January 31, 2011.
28 The department shall notify the legislature when the report is available.

29 * Sec. 30. The uncodified law of the State of Alaska is amended by adding a new section to
30 read:

31 BOND AUTHORIZATION AND PROVISIONS. (a) In addition to the powers in

1 AS 18.56.090, the Alaska Housing Finance Corporation may issue bonds in an amount not to
2 exceed \$250,000,000 to make loans from the energy efficiency revolving loan fund
3 established by AS 18.56.855, enacted by sec. 9 of this Act, and to finance the purposes
4 permitted by AS 18.56.855, enacted by sec. 9 of this Act. AS 18.56.110 - 18.56.190 and
5 18.56.855, enacted by sec. 9 of this Act, apply to bonds issued under this section, except that
6 bonds issued under this section are not subject to, and may not be counted against, the bond
7 issuance limitation set out in AS 18.56.110(g).

8 (b) The Alaska Housing Finance Corporation shall deposit the proceeds of bonds
9 issued under (a) of this section in the Alaska energy efficiency revolving loan fund in
10 accordance with AS 18.56.855, enacted by sec. 9 of this Act.

11 * Sec. 31. The uncodified law of the State of Alaska is amended by adding a new section to
12 read:

13 MUNICIPAL ENERGY IMPROVEMENTS FINANCING PROGRAM
14 RECOMMENDATION. Not later than January 31, 2011, the Department of Revenue shall
15 submit to the legislature a report and recommendations regarding the feasibility of a
16 municipal energy improvements financing program. The report must

17 (1) address financing programs for energy efficiency and renewable energy
18 projects on residential, commercial, and industrial property through property tax assessments;
19 and

20 (2) identify the costs and benefits of a municipal energy improvements
21 financing program in the state.

22 * Sec. 32. The uncodified law of the State of Alaska is amended by adding a new section to
23 read:

24 TRANSITION: REGULATIONS. (a) To the extent consistent with secs. 18 - 25 of
25 this Act, regulations of the Department of Health and Social Services adopted under the
26 authority of AS 47.25.622 that are in effect on the effective date of secs. 18 - 25 of this Act
27 remain in effect until the department adopts regulations consistent with secs. 18 - 25 of this
28 Act.

29 (b) A state agency affected by this Act with the authority to adopt regulations under
30 state law may proceed to adopt regulations necessary to implement the changes made by this
31 Act. The regulations take effect in accordance with applicable state law but not before the

1 effective date of the law implemented by the regulation.

2 * **Sec. 33.** The uncodified law of the State of Alaska is amended by adding a new section to
3 read:

4 REGULATIONS: ATTORNEY INSTRUCTION. Throughout the Alaska
5 Administrative Code, the regulations attorney is instructed to change the phrase "Alaska
6 Heating Assistance Program" to "Alaska Affordable Heating Program," as appropriate, if
7 consistent with the changes made in secs. 18 - 25 of this Act.

8 * **Sec. 34.** The uncodified law of the State of Alaska is amended by adding a new section to
9 read:

10 REVISOR'S INSTRUCTIONS. (a) The revisor of statutes is instructed to change the
11 heading of art. 6 of AS 18.56 from "Energy Conservation" to "Energy Efficiency and
12 Conservation Programs."

13 (b) The revisor of statutes is instructed to change the heading of art. 4 of AS 47.25
14 from "Alaska Heating Assistance Program" to "Alaska Affordable Heating Program."

15 * **Sec. 35.** Section 32(b) of this Act takes effect immediately under AS 01.10.070(c).

LEGAL SERVICES

DIVISION OF LEGAL AND RESEARCH SERVICES
LEGISLATIVE AFFAIRS AGENCY
STATE OF ALASKA

(907) 465-3867 or 465-2450
FAX (907) 465-2029
Mail Stop 3101

State Capitol
Juneau, Alaska 99801-1182
Deliveries to: 129 6th St., Rm. 329

MEMORANDUM

March 5, 2010

SUBJECT: Sectional summary of CSSB 220(RES) (Work Order No. 26-LS1197D)

TO: Senator Lesil McGuire
Co-Chair of the Senate Resources Committee
Attn: Mike Pawlowski

FROM: Brian J. Kane *BJK*
Legislative Counsel

You have requested a sectional summary of Work Order No. 26-LS1197D, a bill draft known as the Alaska Sustainable Energy Act.

Please note that a sectional summary of a bill is not an authoritative interpretation of a bill. The bill itself is the best statement of its contents.

Section 1 of the bill provides for the short title of the bill.

Sections 2 and 3 of the bill offer the legislative policy and purpose for certain sections of the bill.

Section 4 of the bill allows a regional school board to apply for and use the proceeds of a loan from the Alaska energy efficiency revolving loan fund.

Section 5 of the bill amends AS 18.45.020 to include the phrases "special nuclear material facility" and "by-product material facility" in order to cover more projects or activities in this section for which a license or permit may be needed from the Nuclear Regulatory Commission.

Section 6 of the bill adds the phrase "nuclear utilization facility" to AS 18.45.025(a) in order to conform with definitions listed in AS 18.45.900.

Section 7 of the bill amends AS 18.45.025(b) to state that when the legislature designates by law the land in the state on which a nuclear utilization facility or utilization facility may be located, it must act only in the interest of regulating the economics of nuclear energy.

Section 8 of the bill deletes a line of AS 18.45.025(c) that states that a permit may not be issued unless approved by the governor, leaving only a requirement for approval by the Department of Environmental Conservation and a municipality.

Section 9 of the bill provides the Alaska Housing Finance Corporation with the power to provide technical assistance to municipalities regarding energy codes and efficiency standards.

Section 10 of the bill creates an energy efficiency revolving loan fund in the Alaska Housing Finance Corporation for providing loans to regional attendance areas, municipalities, or the state for the purpose of financing energy efficiency improvements to buildings.

Section 11 of the bill tasks the Department of Transportation and Public Facilities with reviewing the option of using alternative energy when adopting plans and specifications for public works.

Section 12 of the bill provides that the state shall give consideration in procurements to purchasing energy efficient equipment.

Section 13 of the bill requires the Office of Management and Budget to work with state agencies to develop a standardized methodology to collect and store energy consumption and expense data.

Section 14 of the bill repeals and reenacts the Southeast Energy Fund to expand the options for money going into the fund and expands the projects for which the fund may be used.

Section 15 of the bill amends a provision of the renewable energy grant fund regarding the methodology for determining the order of projects to receive funding and requiring activity reports to be filed by grant recipients.

Section 16 of the bill amends the renewable energy fund statute by requiring the Alaska Energy Authority to hire an expert to conduct financial and economic analysis for each recommended grant application.

Section 17 of the bill tasks the Alaska Energy Authority with facilitating the organization of a statewide fuel purchasing cooperative.

Section 18 of the bill creates the emerging energy technology fund.

Section 19 of the bill amends the definition of "power project" or "project" in AS 42.45.990(4) to delete the exclusion of nuclear energy from the definition in relation to statewide and rural energy programs.

Senator Lesil McGuire

March 5, 2010

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Section 20 of the bill adds the renewable energy production tax credit as an exception to a tax credit limitation set for corporations.

Section 21 of the bill establishes a renewable energy production tax credit.

Section 22 of the bill requires the Department of Transportation and Public Facilities to purchase energy efficient cars whenever practicable.

Section 23 of the bill tasks the Department of Transportation and Public Facilities with retrofitting 25 percent of all public facilities by 2020, making sure that deferred maintenance and new construction meet national standards for energy efficiency, and reporting to the legislature on the department's progress.

Section 24 of the bill requires the Alaska Energy Authority to annually plan and conduct, in cooperation with the Alaska Housing Finance Corporation, a public education campaign to promote energy efficiency and conservation.

Section 25 of the bill amends the definition of "power project" or "project" in AS 44.83.990(6) to delete the exclusion of nuclear energy from the definition in relation to the Alaska Energy Authority.

Sections 26 - 33 of the bill amend the alternative energy revolving loan fund by amending the funding sources and having the fund used only for commercial buildings.

Section 34 of the amendment amends the definition of "alternative energy system" in AS 46.11.900(1) to remove the exclusion of nuclear fuel as it relates to financing of energy efficient homes and buildings.

Sections 35 - 42 converts the Alaska heating assistance program into the Alaska affordable heating program and makes substantive and conforming changes to that program.

Section 43 of the bill repeals AS 43.20.046 and 43.98.040, which are the renewable energy production tax credit sections of the bill, on January 1, 2018.

Section 44 of the bill repeals AS 44.42.067(c) (retrofit and new construction for energy efficiency, added by bill section 23) on January 1, 2021.

Section 45 of the bill repeals AS 45.88.010(c), 45.88.030(c), 45.88.030(d), and 45.88.040(a).

Section 46 of the bill requires the Office of Management and Budget to work with state agencies to develop a standardized methodology to collect and store energy consumption and expense data no later than November 1, 2010.

Senator Lesil McGuire
March 5, 2010
Page 4

Section 47 of the bill requires the Department of Transportation and Public Facilities, in consultation with the Alaska Energy Authority, to adopt and implement a systematic process for prioritizing the retrofitting of state facilities for a long-term increase in energy efficiency and reduction of energy costs.

Section 48 of the bill requires the Department of Transportation and Public Facilities to study the feasibility of using compressed natural gas to power vehicles in the state and develop a proposal for a pilot program if warranted by the study.

Section 50 of the bill authorizes the Alaska Housing Finance Corporation to issue bonds to support making loans from the energy efficiency revolving loan fund established by AS 18.56.855.

Section 51 of the bill directs the revisor of statutes to make two changes to article headings to conform with statutory changes.

BJK:plm
10-140.plm

Good morning Chairman Hedman - Members HB 306 * * *
passed
My name is - Bill Allen
City Manager - City of Palmer / President of Alaska
Municipal Managers Association

I am testifying in support of CS for Senate
Bill 220. Thanks to Senate Resources ^{and the special committee on Energy} for the
Bill declaring a State Energy Policy - My opinion
is the proposed legislation is clear & clear -
Very well written -

The goals of SB 220 are "spot on" regarding
a state energy policy relating to energy efficiency,
energy conservation & alternative energy.

The goals of SB 220 that I refer to: address -

- 1) providing affordable & reliable energy for Alaskan families & businesses;
- 2) will stimulate private sector investment;
- 3) produce long term savings by maximizing energy efficiency;
- 4) the state leading by example &
- 5) promote innovation

I support the "high level" goals of the proposed energy policy i.e. increase energy efficiency by 15% by 2020. This is a goal that our city will also establish - we are ~~well~~ ^{well} on our way with the assistance from the state - we received an energy grant if we are ~~replacing~~ ^{removing} out old lights and replacing them with more energy efficient

ones - the State has been very generous to the City of Palmer providing grants for water line replacement projects - because we have eliminated considerable water leakage (3 years ago it was 46%) in our water distribution system the water pumps don't run as much therefore a considerable savings in power - maybe as much as 15% - 20%.

We also support the State endorsing the development of non-renewable energy resources including traditional sources as also by-products of hot waste water from power plants -

The Energy Efficiency Revolving Loan Fund is a great idea by capitalizing the fund with bond sales, federal stimulus funds -

I note that the Bill proposes 60% to retrofit state buildings & 40% to retrofit school and municipal facilities - please consider both @ 60% - we both have the same Mission

The City of Palmer's Power & heat expense in 2009 was \$169,285. Our goal is to reduce that expense to the City by 25% over the next 3 years. We are currently exploring the possibility of using hot water discharge for heating public buildings at the water treatment plant in Palmer as well as generating additional power to put on the
5016 MEA Guid. Passage of SB 220 would be very helpful

To that end we strongly support the Emerging Energy Technology ^{collaborative} grant proposed @ AEA, ^{together in cooperation} NY, Calif, Texas, Maine and other states have similar funds established.

and finally, I appreciate the proposed legislation including a provision for technical assistance for municipalities regarding energy codes and efficiency standards ^{we will be} ^{discussing @ that!}

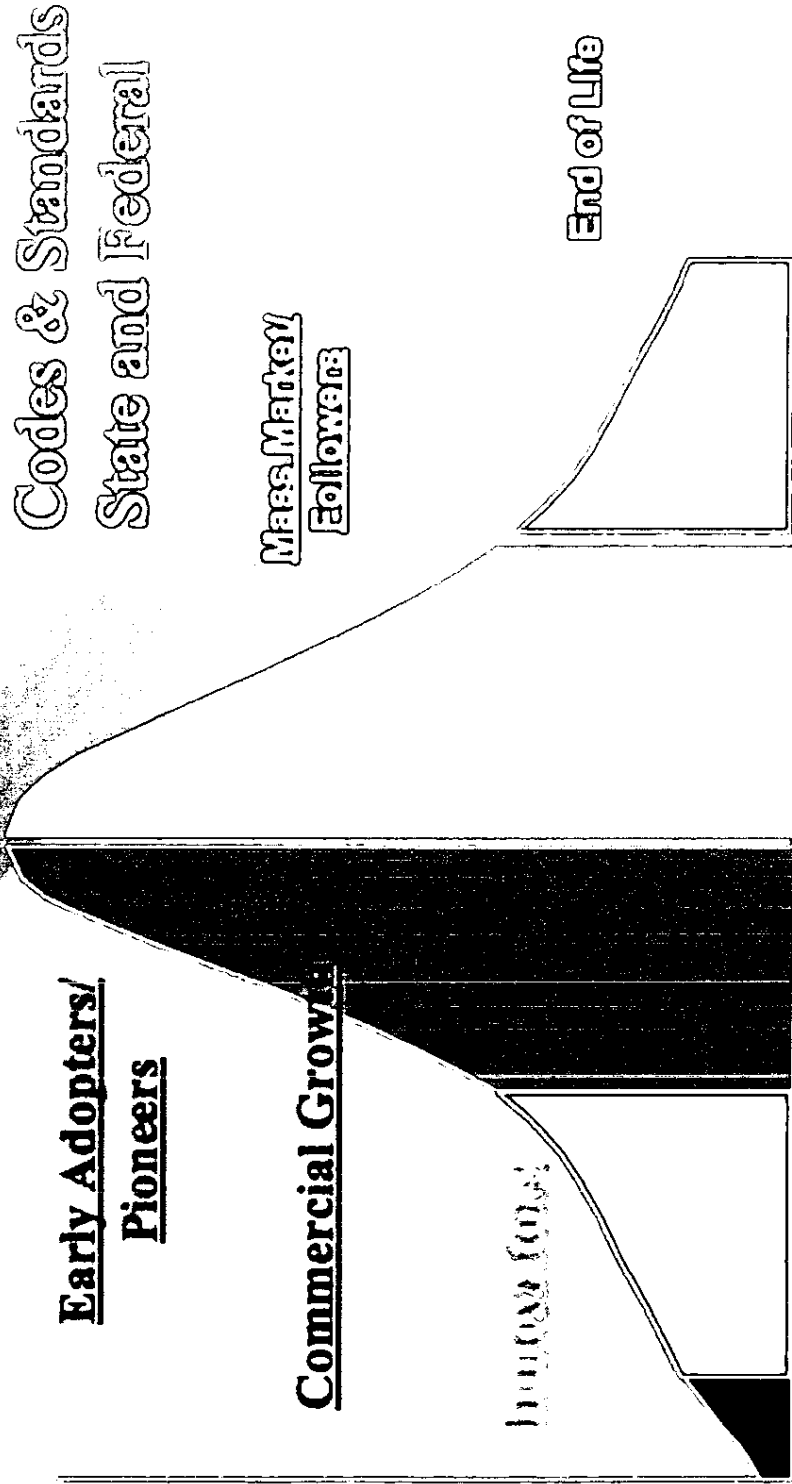
Also, the notion to develop a plan to coordinate & consolidate energy programs in the state makes a lot of sense.

SB 220 appears to be a great first step in leading our state to greater self-sufficiency & sustainability of energy resources.

Thank you Resources Committee and the Senate's Special Committee on Energy - good piece of work

Product Commercialization Curve Emerging Technology

Emerging Technology
Adaptation Rate



Early Adopters/
Pioneers

Commercial Growth

Mass Market
Followers

End of Life

Codes & Standards
State and Federal

Program deployment

Time →

3/25/10



Legislative Testimony
Senate Finance SB 220
March 2010

Good morning, my name is Robert Venables and I am the Energy Coordinator for Southeast Conference. Southeast Conference is the State's regional development organization (ARDOR) whose mission is to undertake activities that promote strong economies, healthy communities and a quality environment in Southeast Alaska. For over a dozen years our energy committee has worked with the State, local governments and utilities toward reducing and someday, eliminating the use of diesel as a primary fuel source for the generation of electricity (primarily through the utilization of the region's plentiful hydroelectric potential and development of an interconnected transmission system to share those resources to adjacent communities without sufficient resources of their own.

Southeast Conference applauds the work of the Senate Resources and Energy Committee, creating an energy policy and long-term vision for the state that can serve as a guide for meeting Alaskan's current and future energy needs. We especially appreciate the committee taking the time to meet in southeast and take input on the many components of this bill. This far-reaching legislation addresses the need for a comprehensive energy policy that goes beyond the renewable grant program (as great as that program is), and provides guidance and goals that gives the state and its citizens more "tools" in the tool box. The Production Tax Credit and the Alternative Energy Loan fund along with other provisions of this bill do exactly that. The Emerging Energy Technology Fund will encourage innovation and exploration of new sources of renewable energy such as tidal and wave energy for our coastal communities. And those of us in southeast particularly appreciate the inclusion of SB 132 into this omnibus bill as that will allow a mechanism to address the long list of energy infrastructure needs in the region.

Senate Bill 220 addresses many of the priorities long sought by our region and we eagerly look forward to continuing our collaborative work with the legislature and state agencies to implement the steps outlined in this important legislation. Again thank you for your considerable work on this legislation and we look forward to its passage and enactment.



TEL: (907) 443-5231 • FAX: (907) 443-4452

- SERVING THE
- VILLAGES OF:
- BREVIG MISSION
- COUNCIL
- DIOMEDE
- ELIM
- GAMBELL
- GOLOVIN
- KING ISLAND
- KOYUK
- MARY'S IGLOO
- NOME
- SAVOONGA
- SHAKTOOLIK
- SHISHMARIEF
- SOLOMON
- STEBBINS
- ST MICHAEL
- TELLER
- UNALAKLEET
- WALES
- WHITE MOUNTAIN

March 24, 2010

Senate Finance Committee
 Honorable Co-Chair Senator Burt Stedman
 Honorable Co-Chair Senator Lyman Hoffman
 Alaska State Capitol
 Juneau AK, 99801-1182

RE: - CSSB220(RES) Sec 15(d)(1) Pg 12, Ln 21 - Renewable Energy project preference


Honorable Senate Finance Committee:

Kawerak, Inc. is a regional Native non-profit organization providing services to 15 Native Villages in the Bering Strait Region. Energy consumes from 40-60% of per-capita income in these small remote communities. The Renewable Energy Grant Fund offers hope for some long term relief. Please think carefully about proposed changes in the project ranking method.

We oppose the proposed amendment to AS 42.45.045(d) found in Section 15 of CSSB220(RES) that would give Renewable Energy Grant preference to "projects that are likely to have financial benefit that exceeds the amount of grant funds received" because it would divert renewable energy grant funding away from small isolated rural communities, where it is needed most, and into regional hubs and big cities. Financial analysis is bound to favor places where construction costs are low and projects can capture economies of scale.

We recommend the Renewable Energy Grant Fund AS 42.45.045(d) continue to give preference "to projects that serve any area in which the average cost of energy to each resident of the area exceeds the average cost to each resident of other areas of the state."

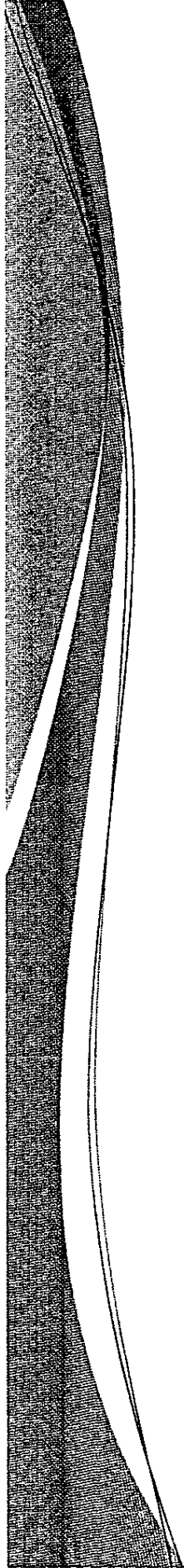
Respectfully,


 Loretta Bullard, President, Kawerak Inc

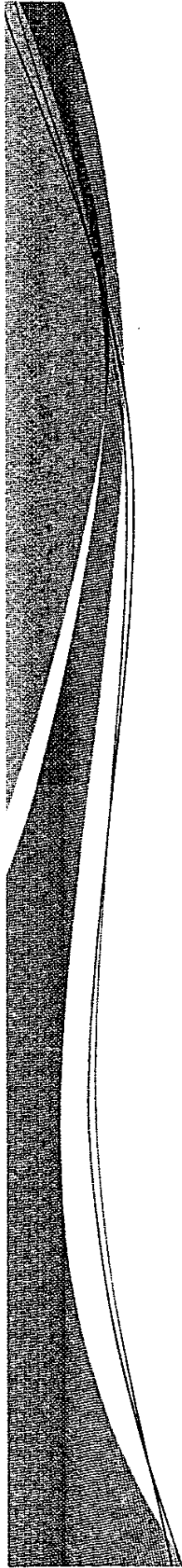
- CC: Honorable Co-Chair Senator Bert Stedman, Room 516
- CC: Honorable Co-Chair Senator Lyman Hoffman, Room 518
- CC: Honorable Senator Donald Olson, Room 508

Alaska Sustainable Energy Act: SB 220

Presentation to Senate Finance (3/25/10)



**Product of the
Senate Resources
Committee
and
Senate Special
Committee on Energy**



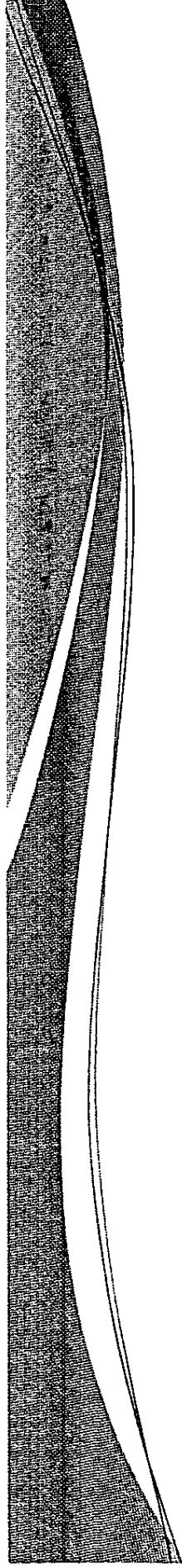
Interim Field Hearings

- Tanana
- Fairbanks
- Ruby
- Kenai
- Anchorage
- Kenai
- Haines
- Ouzinkie



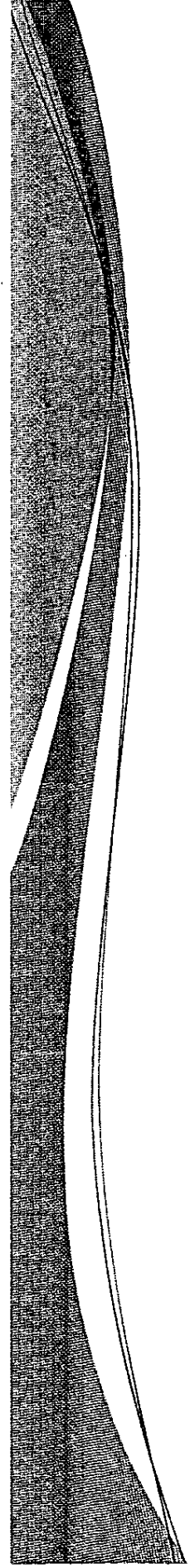
Reached out to:

- **Renewable Energy Alaska Program**
- **Alaska Center for Energy and Power**
- **Alaska Federation of Natives**
- **Cold Climate Housing Research Center**
- **Commonwealth North**
- **Alaska Power Association**
- **Southeast Conference**
- **Many other organizations**



Products:
**State Energy Policy and
Program Recommendations**
(50+ pages)

- ❖ **Budgetary (Letter to Senate
Finance Committee)**
- ❖ **Statutory (SB 220)**



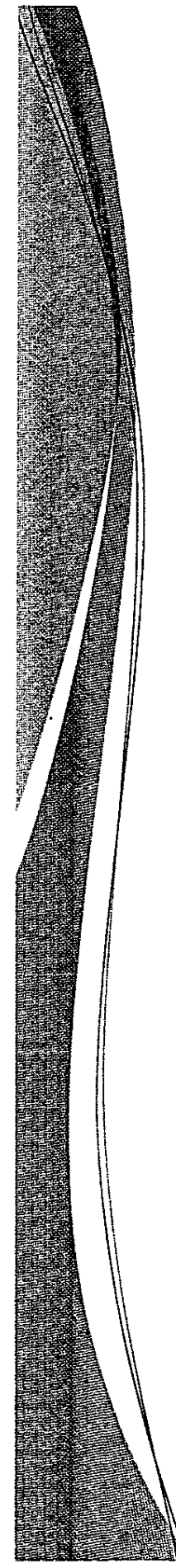
Hundreds of Comments Received

- **Sifted through comments**
- **Met with stakeholders**
- **Reviewed plans & policies from
other states**
- **Refined ideas with experts**



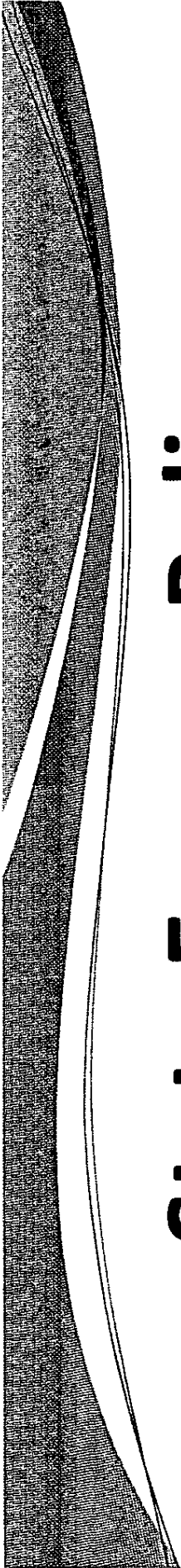
SB 220 Goals

- **Provide affordable and reliable energy for Alaskan families and businesses**
- **Stimulate private sector investment**
- **Produce long-term savings by maximizing energy efficiency**
- **Lead by example**
- **Promote innovation**



Major Bill Components

- State Energy Policy
- Energy Efficiency Revolving Loan Fund
- Efficiency in Government
- Renewable Energy Tax Credit
- Emerging Energy Technology Fund
- Energy Loans for Businesses
- Alaska Affordable Heating Program



State Energy Policy

(Sections 2 & 3)

- High level goals
- Increase energy efficiency by 15% by 2020
- Generate 50% of electricity statewide using renewable energy by 2020



State Energy Policy

(Sections 2 & 3)

- **Promote the development of nonrenewable energy resources, including natural gas, heavy oil, nuclear energy, coal, gas hydrates, etc...**
- **Support energy research, education and workforce development**
- **Maintain a fiscal regime that encourages private sector development**



Nuclear Energy

(Sections 5, 6, 7, 8, 19 & 25)

- **Levels playing field for nuclear energy.**
- **Removes requirement for Governor's approval of projects.**
- **Leaves in place requirement for municipal and DEC approval.**
- **Stringent federal permitting process.**
- **Enables nuclear projects to apply for funding from the Power Project Fund.**



Energy Efficiency Revolving Loan Fund

(Sections 4 & 10)

- Authorizes AHFC to sell up to \$250 million in bonds
- Leverages \$18 million in federal stimulus funds
- 60% to retrofit state buildings and 40% to retrofit school and municipal facilities
- Fund should operate in perpetuity
- Could create hundreds or thousands of jobs as weatherization & home energy rebate program have (estimated at 2,500 jobs)



Leading By Example

(Sections 11, 12, 23, & 24)

- Retrofit at least 25⁰% of state buildings by 2020. Shown to save at least 20% a year on energy costs.
- Could translate into \$2.75¹ million/year since state spends roughly \$55 million on heating & lighting.

1. [based on 25% of facilities being retrofitted



Pay-offs from Retrofitting

(Sections 10 & 23)

- State recently retrofit 8 state buildings
- Were guaranteed savings of at least \$278,000/year by the contractor.
- In year 1, savings = \$366,000
- In year 2, savings = \$592,000
- Last year's savings = \$571,000
- Savings alone from retrofitting 25 % of state buildings could cover the fiscal note for SB 220.



Leading By Example

(Sections 23, 11 & 22)

- **Build all new state buildings to high efficiency standards.**
- **Use alternative energy for new public works, if viable and cost-effective.**
- **Purchase energy efficient appliances, equipment and vehicles.**



Energy Efficiency Campaign

(Section 24)

- **Tasks AEA and AHFC with educating Alaskans about low-costs ways to save energy.**
- **Not only help for individual households, but way to contain cost of building new power generation facilities. (\$9 billion needed in Railbelt alone over next 50 years)**
- **Experts estimate between 8% and 50% can be saved through efficiency measures alone.**
- **Cheapest ways to meet energy needs.**



Emerging Energy Technologies

(Section 18)

- With high energy costs, Alaska is perfect place to test emerging technologies.
- Can demonstrate technologies and reduce costs for local residents
- Potential to export technologies
- 25% of world's population lives without access to electricity – looking for new ways to energize



Emerging Energy Technologies

(Section 18)

- Would establish competitive grant program at AEA to foster innovation.
- Matched with federal funds from Denali Commission, DOE & private research dollars.
- Creates high-tech jobs and spurs investment in Alaska's economy.
- NY, CA, TX, MA, and others have funds.
- Alaska has potential in be world leader in emerging technologies, given our resources.



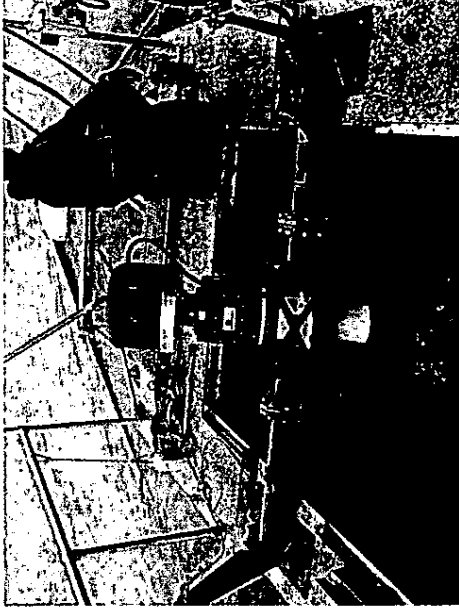
Emerging Technology Fund

(Section 18)

- In 2009, Denali Commission solicited proposals.
- 50 proposals totaling \$29 million were submitted.
- 9 selected to receive \$4 million in grants.
- Goal: To develop emerging technologies that have the potential for widespread deployment.

Example of EETF Project

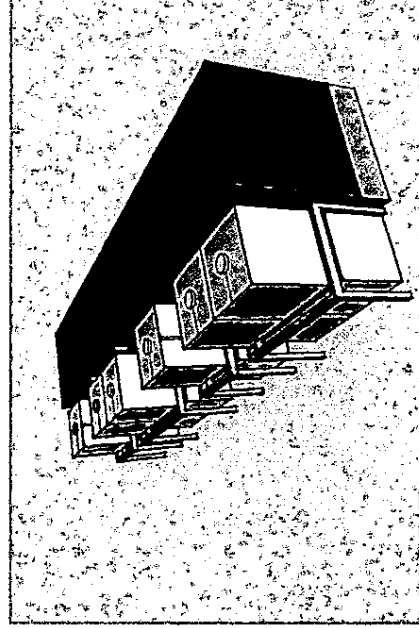
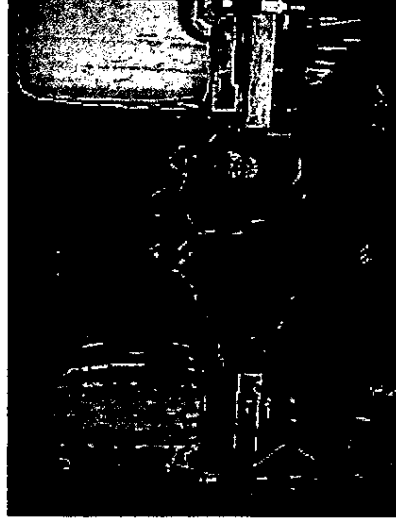
- **Nenana Hydrokinetic Turbine: Ocean Renewable Power Corp.**
- **Tests whether power can be reliably and economically generated from the movement of the Nenana River.**
- **Alaska has significant hydrokinetic potential in both rivers and tidal basins.**
- **Most in-land communities are situated along navigable waterways, such as the Yukon and Kuskokwim, that could produce hydrokinetic energy.**



Ruby Hydrokinetic Turbine
Alaska Center for Energy & Power

Example of EETF Project

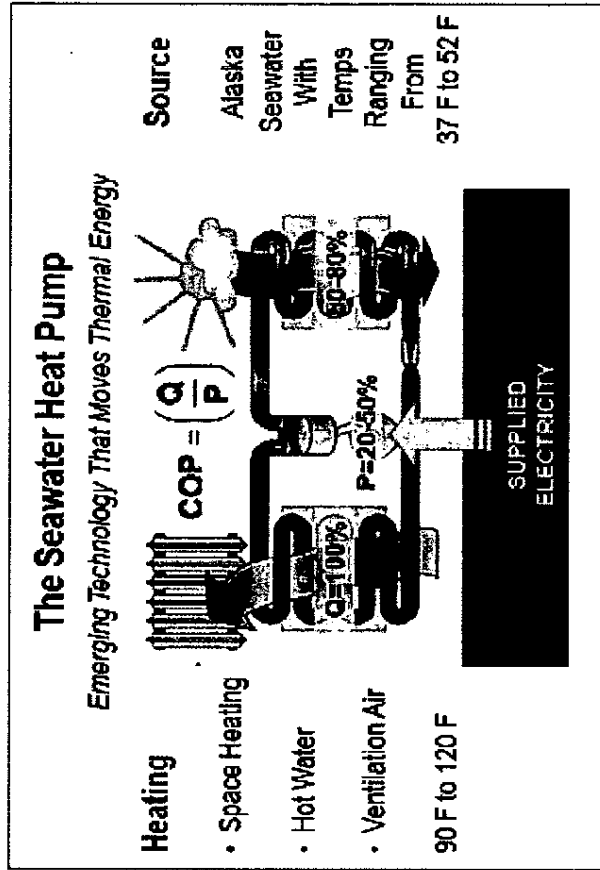
- Cordova Electric Cooperative: “Biogas digester” technology
- Widespread in India and China.
- Microbes naturally break down organic feedstock to produce methane. Can be used for heating & cooking.
- Will test use of various cold-loving microbes and compare efficiency for household scale projects.
- Digestors could be used as a local, renewable energy source for Alaskan homes.



Source: freewheelings.com

Example of EETF Project

- Alaska SeaLife Center: Seawater Heat Pump
- Will pump seawater through a heat exchanger containing antifreeze which will boil and vaporize a refrigerant into a pressurized compressor.
- The condensed heat circulates into building at 120 degrees F.
- Technology successfully deployed in Norway and Sweden.



Source: Denali Commission



Renewable Energy Tax Credit

(Sections 20 & 21)

- Encourages investment by the private sector in renewable energy
- Supports the goal of generating 50% of electricity using renewable by 2025
- 25 states offer renewable energy corporate tax incentives; 5 states and the federal government offer production tax credits
- Only accrue once a project is in operation
- 15% tax refundable credit based on sales
- Capped at 10% of capital investment
- Sunsets January 1, 2018



Renewable Energy Tax Credit

(Sections 20 and 21)

• Calculating the credit, what do we need to know?

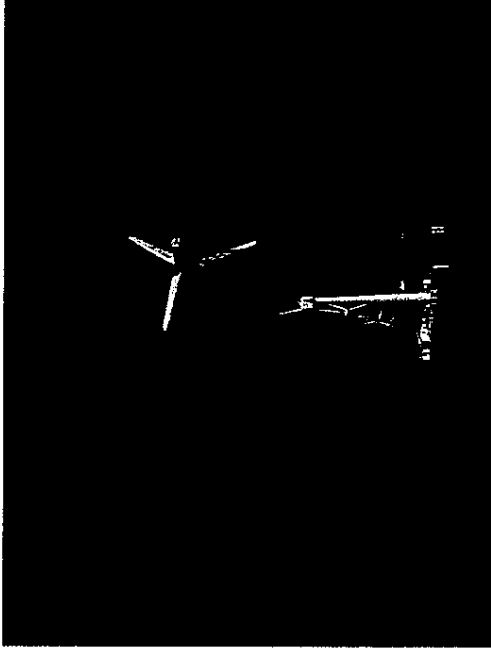
1. What is the capital cost?
2. What state/federal grants did the project receive?
3. What is the cost per kilowatt-hour?
4. What is the capacity factor?

Remember:

- There are 8760 hours in a year.
- 1 Megawatt/hr = 1000 Kilowatt/hrs
- \$.01 KW/hr = \$10 MW/hr

RETC: An Example

- **A 5 MW Wind Farm**
- **CAPEX: \$23.5 million**
- **Grants:**
 - **\$2 million federal grant**
 - **\$3.5 million renewable energy grant fund**
- **Capacity Factor: 20%**
- **Cost per KW/hr: \$.38**





RETC: An Example

- **Step 1: Calculate gross electricity sales**
 - $5 \text{ MW/hr} \times 8760 \text{ hrs/yr} \times 20\% \text{ capacity factor} = 8760 \text{ MW/yr}$
 - $8760 \text{ MW/yr} \times 1000 \text{ KW/MW} \times \$0.38 \text{ KW} = \$3,328,800 \text{ year}$
- **Step 2: Calculate the annual credit**
 - $\$3,328,800 \times 15\% = \$499,320$
- **Step 3: Calculate the total allowable credit**
 - $\text{CAPEX} = (\$23.5 \text{ mm} - \$2 \text{ mm} - \$3.5 \text{ mm} = \$18 \text{ mm}) \times 10\% = \1.8 mm
- **Step 4: How does it work in practice?**
 - Year 1: \$499,320 Year 2: \$499,320 Year 3: \$499,320
 - Year 4 (\$1.8 - [\$499,320x3]): \$302,040 Year 5: \$0



RETC: Transferable vs. Refundable

• Transferable credits are:

- Approved by the Department.
- Must be marketed and purchased.
- Broker fees and demands of purchaser means less than full credit goes to the person receiving the incentive.
- The cost to the state is the same. \$1 in credit = \$1 in forgone revenue.

• Refundable credits are:

- Subject to Appropriation.
- 100% of credit goes to the recipient.
- Easier to administer.



Loans to Businesses

(Sections 26-33)

- Would provide loans of up to \$50,000 for alternative energy systems and energy conservation improvements.
- Businesses must be primarily owned by Alaskans. Interest rate: prime, plus 1%. Minimum of 5%.
- Money can be used for insulation, thermal windows, furnace replacement, etc.. Or on energy systems which are not dependent on oil or gas.



Affordable Heating Program

(Section 35-42)

- **Objectives:**
- **Make program more responsive to a family's actual heating costs.**
- **Increase assistance as oil prices rise, need increases & the state enjoys a budget surplus.**
- **Maintain statewide eligibility.**
- **Use existing administrative structure.**



HOW LIHEAP Works

(Section 35-42)

- Benefits are calculated by multiplying each applicant's "points" by the dollar per point available.
- Points are awarded based on household income; heating degree days in household location; type and size of house; presence of children, elderly or disabled in home.



Program refinement #1

(Sections 35-42)

- Link program eligibility to price of oil.
- Oil under \$150/barrel = 225% of poverty level (\$62,000 for a family of four).
- Oil over \$150/barrel = 250% of FPL (\$69,000 for a family of four).



Program Refinement #2

(Sections 35-42)

- Link program benefits to the price of oil
 - \$130/point when crude is $< \$75/\text{barrel}$
 - \$140/point when crude is $\$75\text{-}\$100/\text{barrel}$
 - \$150/point when crude is $\$100\text{-}\$150/\text{barrel}$
 - \$165/point when crude is $> \$150/\text{barrel}$
- This year points are valued at \$115.
- Last year, points were valued at \$220, which was bumped up to \$316 by a special approp.



Program Details

(Sections 35-42)

- **DHSS will pro-rate payments if appropriations are insufficient to cover full program cost.**
- **Payments go to fuel vendors, not households.**
- **Individuals must apply and qualify each year.**
- **Current federal appropriation is \$28 million.**
- **Current state appropriation is \$5 million.**
- **20,191 households currently served.**



Other Provisions

- **Technical assistance for municipalities regarding energy codes and efficiency standards. (S.9)**
- **Standard methodology for energy consumption and expense date (S. 10)**
- **Expands purposes of the Southeast Energy Fund (S.14)**



Other Provisions

- **AEA facilitate organization and provide technical assistance for a statewide fuel cooperative (S.17)**
- **Develop a plan to coordinate & consolidate energy programs (S. 48)**
- **Study CNG vehicles (S.49)**



Conclusion

- SB 220 not a panacea, but a step forward
- Proposes a variety of steps to stimulate private investment, lead by example, and promote efficiency and innovation.
- Other bills address instate gas, gas storage, gas-to-liquids, exploration incentives, O&G taxes, etc...
- Working closely with our House counterparts
- SB 220 is just a piece of the pie, leading Alaska to greater self-sufficiency and sustainability



House energy omnibus

- HB 305 = House energy omnibus bill
- House Energy Committee held extensive field hearings during the interim
- Assembled a stakeholder group
- High level of commitment to passage of a meaningful omnibus bill
- Just this week, the House unanimously passed HB 306, a declaration of state energy policy. Great 1st step.

Tools in the Toolbox

The *Alaska Sustainable Energy Act* includes a broad range of policy tools designed to attract investment in Alaska's energy sector and stimulate the economy. The programs in SB 220 fall into three basic categories: near-term, mid-term and long-term solutions.

Near Term Solutions: Plan and Assist

- **Energy Efficiency Revolving Loan Fund:** Senate Bill 220 creates a revolving loan program to fund energy efficiency improvements in public buildings. School districts, municipalities and state government will have access to the funds needed to upgrade their facilities. Based on what we have seen from the State's *Weatherization* and *Home Energy Rebate* programs, this fund will foster 1,500 to 2,000 jobs in the construction industry in Alaska. SB 220 authorizes the Alaska Housing Finance Corporation to issue \$250 million in bonds to capitalize this critical new loan fund.
- **Help for Alaskan Families When Fuel Prices Soar:** SB 220 links benefits from the state's Heating Assistance Program to the price of oil, providing additional assistance to low-income families when fuel prices are high, Alaskans need help the most, and the state enjoys significant surpluses. This program is a supplement to the federal Low-Income Heating Assistance Program (LIHEAP).
- **Retrofit State Buildings:** Just like a person's home, state buildings can be made more energy efficient. Currently, the State of Alaska alone (not counting schools) spends roughly \$55 million per year on heating and lighting its buildings. Energy efficiency improvements can save 20% in energy costs, which could translate to more than \$10 million in savings per year. SB 220 requires the Department of Transportation and Public Facilities to prioritize which buildings to fix first and to construct any new buildings to high efficiency standards. It also mandates that renewable energy systems be considered when constructing new public works projects.
- **Energy Policy for Alaska:** SB 220 adopts an energy policy for Alaska, including the goal to increase energy efficiency by 15% and generate 50% of the state's electricity using renewable energy sources by 2020.
- **Statewide Fuel Cooperative:** Many rural communities struggle with crippling fuel costs. SB 220 directs the Alaska Energy Authority to work with interested communities to establish a fuel coop that will facilitate bulk purchases, lowering costs especially for small communities.
- **Coordinate and Consolidate State Energy Programs:** SB 220 asks the Governor to evaluate how best to coordinate the State's energy departments and programs in order to avoid duplication of efforts. The Governor is directed to provide a plan to the legislature by November of 2010.

- **Purchase Energy Efficient Vehicles and Equipment:** SB 220 mandates that the state consider long-term energy costs when purchasing vehicles for its fleet and equipment for its operations. It also requires the state to study the feasibility of using compressed natural gas to power vehicles in Alaska.
- **Public Education Campaign:** SB 220 tasks the Alaska Energy Authority and the Alaska Housing Finance Corporation (AHFC) with educating Alaskans about low-cost ways they can cut their energy consumption and costs. Using energy more efficiently helps not only individual households, but also assists the state in containing the cost of new power generation facilities. In addition, the bill directs the AHFC to provide technical assistance to municipalities interested in adopting local energy codes.

Medium Term Solutions: Incentivize Investment

- **Renewable Energy Tax Credit:** Several states have passed renewable energy tax credits to encourage investment in renewable energy resources. SB 220 provides a refundable tax credit to investors to encourage private sector investment in Alaska's renewable energy sector.
- **Loans to Businesses for Energy Conservation Improvements:** Alaska already provides loan programs to households for energy improvements. SB 220 includes loans of up to \$50,000 for businesses to enable investments in energy efficiency. This program will help primarily small businesses get access to the capital they need to make investments that will save money and encourage economic development.
- **Nuclear Energy:** SB 220 levels the playing field for nuclear energy projects in Alaska, ensuring that as new technologies are developed, Alaska can consider them alongside other options. It also enables proponents of small-scale nuclear energy projects to apply for funding from the state's Power Project Fund.
- **Southeast Energy Fund:** SB 220 expands the purposes for which this fund may be used, providing an improved mechanism for constructing generation and transmission projects in Southeast Alaska. Many communities in the region are still powered by high-cost diesel systems, despite the region's enormous hydropower potential.

Long Term Solutions: Innovate

- **Emerging Energy Technology Fund (EETF):** With the high cost of energy in many of our communities, Alaska provides a unique opportunity for innovation. The *Alaska Sustainable Energy Act* would create a fund that would provide grants for testing energy technologies in Alaska. The EETF would foster innovation and enable Alaskans to develop solutions to our energy challenges in Alaska; creating high-tech jobs and spurring investment in our economy.

Fact Sheet for the Renewable Energy Refundable Tax Credit

Senate Bill 220: 26-LS1197D Sections 20 & 21

Prepared By: Michael Pawlowski, Aide Senator Lesil McGuire

Production tax credits have been used by the federal government and other states to encourage the development of electricity from renewable energy sources. Unlike grants or other incentives offered during the design and construction phases, production credits only accrue to a project when it begins generating electricity. This attribute makes production tax credits an attractive incentive mechanism. The *Alaska Sustainable Energy Act* (Senate Bill 220) offers a renewable energy refundable tax credit as policy alternative to encourage investment in renewable energy in Alaska. This fact sheet is intended to provide an explanation of how the refundable credit is calculated. The projects selected are for illustrative purposes only and do not represent actual projects. Data for the calculations were taken from potential projects identified in the *Alaska Energy Report* prepared by the Alaska Energy Authority and available online.



Example 1: A 5 MW Wind Power Plant

Capital Cost:	\$23.5 million
Installed Capacity:	10%
Kilowatt-Hours/yr:	4,380,000
KwH Charge:	.63 cents
Grants:	\$3.5 million Renewable Energy Fund \$2 million Federal

Step 1: **Calculate the base credit:** 15% of the electricity sold.

$.63 \text{ cents} \times 4,380,000 \text{ kilowatt-hours/year} = \$2,759,400$ in gross sales of electricity.

$\$2,759,400 \text{ per year} \times 15\% \text{ credit rate} = \$413,910$ annual refundable credit

Step 2: **Calculate the total allowable credit:** 10% of CAPEX (excluding grants)

CAPEX: $\$23.5 \text{ million} - \$3.5 \text{ million REF} - \$2 \text{ million in federal} = \18 million

Allowable CAPEX of $\$18 \text{ million} \times 10\% =$ allowable cap of $\$1.8 \text{ million}$.

Step 3: **In Practice:** the credits are available for 5 years subject to the cap for CAPEX:

Base Credit: $\$413,910$ over 5 years = $\$2,069,550$ but maximum = $\$1.8 \text{ million}$

Year 1: $\$413,910$: Year 2: $\$413,910$: Year 3: $\$413,910$ Year 4: $\$413,910$

Year 5: **$\$144,360$** ($\$1.8 \text{ million} - \$1,655,640 [\$413,910 \times 4]$)

Total Renewable Energy Refundable Tax Credit: $\$1,800,000$

DSIRE

Database of State Incentives for Renewables & Efficiency



Financial Incentives for Renewable Energy

State	Personal Tax	Corp. Tax	Sales Tax	Prop. Tax	Rebates	Grants	Loans	Industry Support	Bonds	Production Incentives
Federal	3-F	4-F				3-F	5-F	1-F		1-F
Alabama	1-S				2-U	1-S	1-S 1-U			1-U
Alaska						1-S	2-S			1-U
Arizona	3-S	1-S	1-S	2-S	6-U		1-U	1-S		
Arkansas					1-U		1-U			
California				1-S	6-S 38-U 2-L		2-S 1-U 2-L			1-S 2-U
Colorado			2-S 1-L	2-S	9-U 1-L	1-S 1-L	1-S 3-U 1-L			
Connecticut			2-S	1-S	3-S 2-U	2-S	2-S 1-P	2-S		
Delaware					1-S	2-S				
Florida		2-S	2-S		1-S 10-U 1-L		1-S 5-U	1-L		2-U
Georgia	1-S	1-S	1-S		1-S 8-U		1-U			2-U
Hawaii	1-S	1-S		1-L	1-S 1-U		2-S 2-U 1-L	1-S		1-S
Idaho	1-S		1-S	1-S		1-P	1-S		1-S	1-P
Illinois			1-S	2-S	1-S 3-U	1-S 1-L 1-P	1-S		1-S	1-P
Indiana	1-S			1-S	1-S 4-U	1-S	1-U			
Iowa	1-S	2-S	1-S	3-S	11-U	1-S	2-S 1-U			1-U
Kansas				1-S	2-U		1-S	1-S		
Kentucky	1-S	2-S	1-S		7-U	1-S	1-S 1-L 1-P			1-U
Louisiana	1-S	1-S		1-S			2-S			
Maine			1-S		2-S	1-S	1-P			1-S
Maryland	3-S	3-S	2-S	4-S 7-L	4-S 1-L	1-S	3-S	1-S		
Massachusetts	1-S	2-S	1-S	1-S	3-S 5-U	4-S	1-S 1-U 1-P	3-S		1-S 1-P
Michigan				2-S	2-S 3-U	2-S		4-S		1-U
Minnesota			2-S	1-S	3-S 23-U	2-S 2-U	5-S 3-U			1-S 1-U
Mississippi					4-U		1-S 2-U			1-U
Missouri		1-S			9-U		1-S 1-U			
Montana	3-S	1-S		3-S	4-U	1-U	1-S	2-S		1-P
Nebraska			1-S		2-U		1-S			
Nevada			1-S	3-S	1-S 1-U		1-S			
New Hampshire				1-S	1-S 4-U		1-S 1-P			
New Jersey			1-S	1-S	6-S	1-S	2-S 1-U	1-S		2-S
New Mexico	5-S	4-S	3-S				1-S	1-S	1-S	3-U
New York	3-S	1-S	1-S	2-S 1-L	6-S 4-U	2-S	3-S 1-L	2-S		
North Carolina	1-S	1-S	1-S	2-S	6-U	1-S	3-S 1-U			3-U 1-P
North Dakota	1-S	1-S		2-S			2-U			
Ohio		1-S	1-S	1-L	5-U 1-P	6-S	2-S 1-U 1-L	1-S		
Oklahoma		1-S			3-U		4-S 2-U	1-S		
Oregon	1-S	1-S		1-S	8-S 21-U	2-S 1-P	3-S 9-U	1-S		1-S 1-U 1-P
Pennsylvania				1-S	1-S 1-L	8-S 1-U 2-L	6-S 1-U 5-L	3-S		
Rhode Island	1-S	1-S	1-S	2-S	1-U	1-S	1-S 1-P			1-P
South Carolina	1-S	2-S	1-S		5-U		1-S 5-U			1-S 2-U 1-P
South Dakota				3-S	4-U		2-U			
Tennessee				1-S	1-U	2-S	2-S 1-U	1-S		1-U
Texas		1-S		1-S	19-U 2-L	2-S	2-S	1-S		2-U
Utah	1-S	1-S	1-S		6-U			1-S		
Vermont	1-S	1-S	1-S	1-S	1-S	2-S 1-U	3-S 1-P			1-S 2-U
Virginia				1-S	1-S		1-S	1-S		1-U
Washington			1-S		16-U	1-L 1-P	13-U	1-S		1-S 3-U 1-P
West Virginia	1-S	1-S		1-S						
Wisconsin			1-S	1-S	7-S 4-U	1-S 2-U	2-S	2-S		5-U
Wyoming			1-S		1-S 3-U		2-U			
District of Columbia					1-S					
Palau										
Guam										
Puerto Rico	2-S	1-S	2-S	1-S	5-S			1-S		
Virgin Islands					1-S	1-S	1-S			
N. Mariana Islands										
American Samoa										

Totals	39	39	37	61	335	69	159	35	3	57
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F = Federal S = State/Territory L = Local U = Utility P = Private



Energy Conservation Pilot School Report

By Jon Paxton
January 30, 2010

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Introduction

One of the purpose is to educate how to save energy by changing habits and to be more aware of energy saving. The pilot schools were identified by having larger usages of electricity or gas then the average school. In the summer of 2007 the schools are Baxter Elementary, Creekside Elementary, Muldoon Elementary, Ptarmigan Elementary, Senic Park Elementary, Taku Elementary, Service High, Aquarian Charter, and Benney Benson Charter were selected to be the pilots.

This program provides the principles of these schools with a binder of information. The information that was included was energy saving tips that consists of low cost, no cost ideas, and tables for electricity and gas usages for each month from January 2002 to July 2009. The tables have current five year average, 2007 five year average, and the difference between them.

The analysis used the breakdown of the monthly electrical and gas usages, the difference between the five year current and the 2007 five year. Another investigation considered the square footage of the school and the degree days. Degree days are difference be between the building and the outside temperature then for the month the differences are added together. The square footages were obtained from the Ten-Year Capital Improvement Plan.

Analysis

For the energy usage tables that were provided to the principles the calculations were.

The current five year average was calculated by;

For each month $(\text{current} + 2008 + 2007 + 2006 + 2005) / 5$

The 2007 five year average was calculated by;

For each month $(2006 + 2005 + 2004 + 2003 + 2002) / 5$

The difference was calculated by;

For each month $(\text{Current five year average} - 2007 \text{ five year average})$

The tables containing the degree day and the square footage calculation for the energy usages are.

For each month $(\text{usage} / (\text{square footage} \times \text{degree days}))$

Percent Difference for 5 year average to 2007

For each month $((2007 - 5 \text{ year average}) / 5 \text{ year average}) \times 100$

Percent Difference for 2007 to 2008

For each month $((2008 - 2007) / 2007) \times 100$

Percent Difference for 2007 to 2009

For each month $((2009 - 2007) / 2007) \times 100$

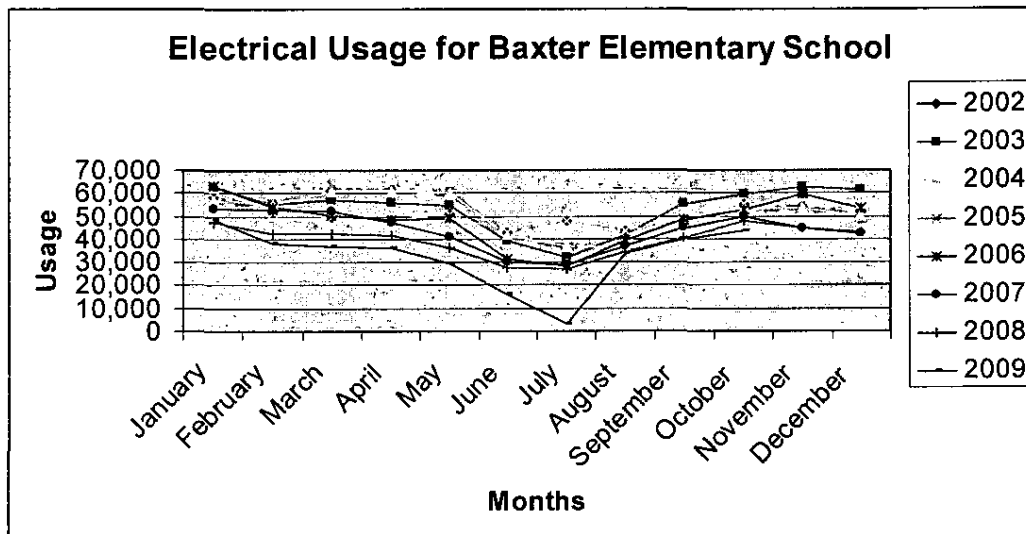
These calculations were used to find how efficient the school is in the usage of the electricity and gas. The degree days help to take into consideration the outside temperature. The square footage brings the schools to a usage per foot. The five year averages take into consideration variations in usage. The difference between the current

and the 2007 averages will show if there has been an improvement. The percent difference between the five year average, 2008, and 2009 to 2007 (this is the base year) will show if there has been an improvement.

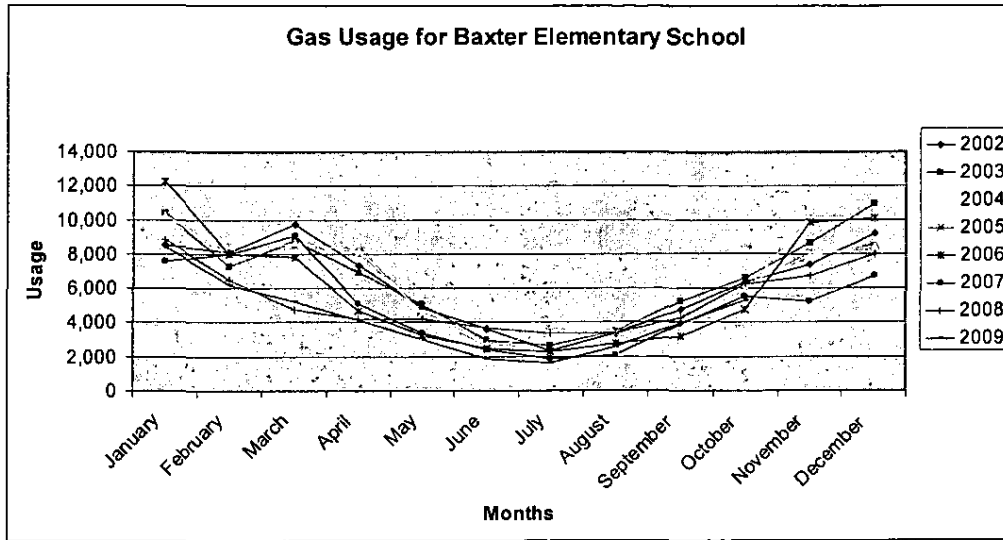
Baxter Elementary

Baxter Elementary School has shown significant improvement in both electrical and gas usages. The largest difference between current five year average and the 2007 five year average in electricity was in May. The usage of electricity has show improvement over the last three years to be constant and in general lower then the year before. The largest difference for gas was in April. The usage of gas has also shown a stead decline in use over the last three years with each year being better then the one before. The month that have the most electrical and gas usage is January.

The electrical usage per square footage per degree days there was an improvement of 87% was obtained in July between 2007 and 2009 in percent difference in electricity. The months with the highest usage of electricity are July and August. For gas the largest percent difference is 32% between 2007 and 2009. The months with the most gas usage per square foot and degree days are July and August. There is a general show of decline in usage per square foot and degree days with the exception of July and August there was an increases in electricity in 2009.



Graph I Electrical Usage for Baxter Elementary School

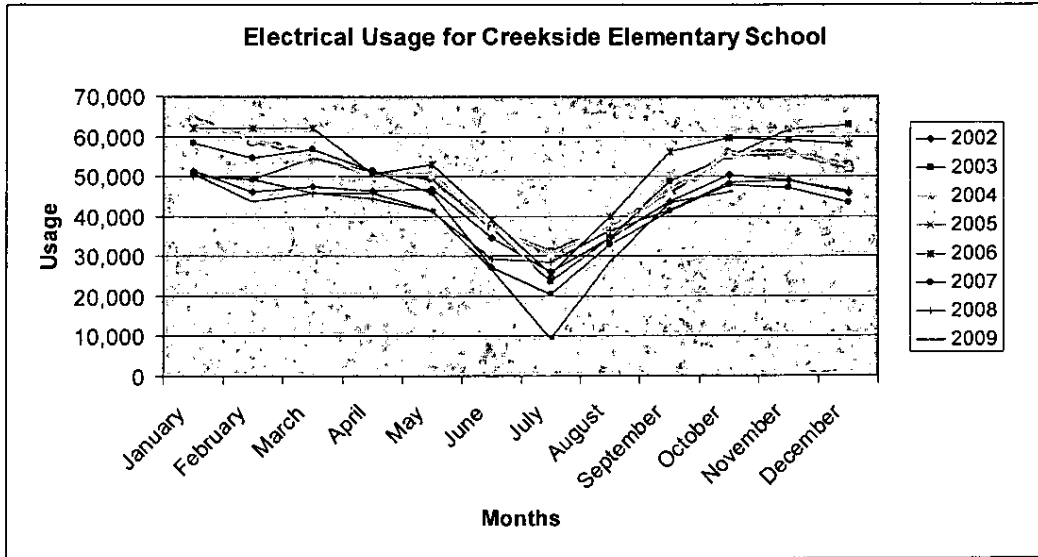


Graph II Gas Usage for Baxter Elementary School

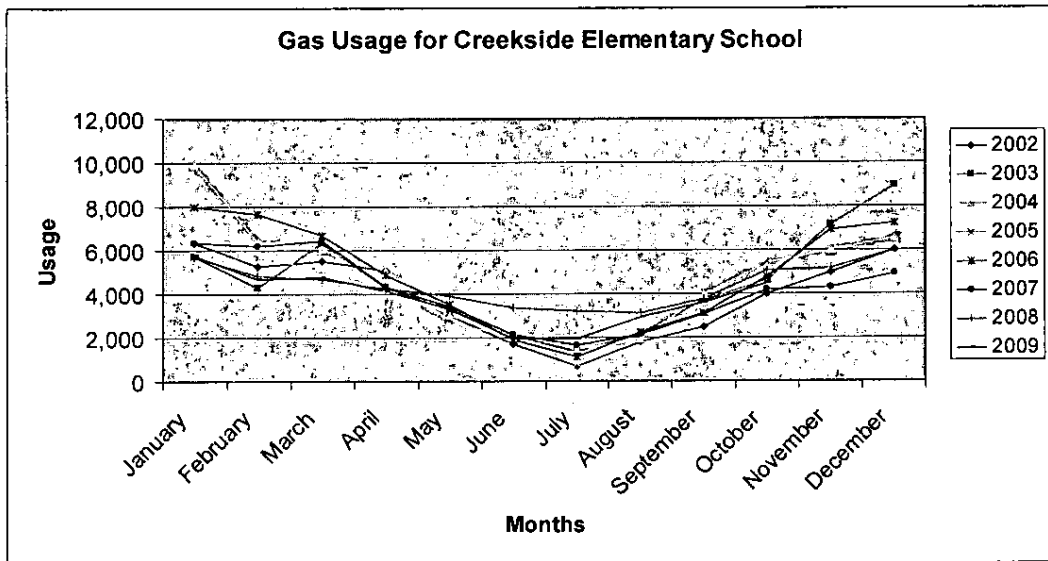
Creekside Elementary

Creekside Elementary School has shown some improvement in electrical usage when comparing the current five year average to the 2007 five year average. In the gas comparison there was improvement and some loss. The largest electrical improvement was in June and the smallest was in April. When looking at 2009 to 2008 usage in electricity went up in January, March, April, May, and September. The gas usage shows improvement between the current five year average and the 2007 five year average for the months of January, February, March, April, October, November, and December. In the months of May, June, July, August, and September there is an increase in gas usage in the difference between the current and 2007 five year averages. In comparing the years of 2008 and 2009 for gas usage there is an improvement in seven months of the year. The month with the highest usage for electrical and gas is January.

In the electrical usage per square footage per degree days the percent difference between 2007 and 2009 show improvement with the highest being 47% in July. The months with the highest usage per square footage per degree days are June and August for electricity. The gas usage there is an improvement for the percent difference between 2007 and 2009 for the months of March, April, May, and June, however for January, February, July, August, and September there is an increase. The months having the highest usage of gas per square footage per degree days are July and August.



Graph III Electrical Usage for Creekside Elementary School



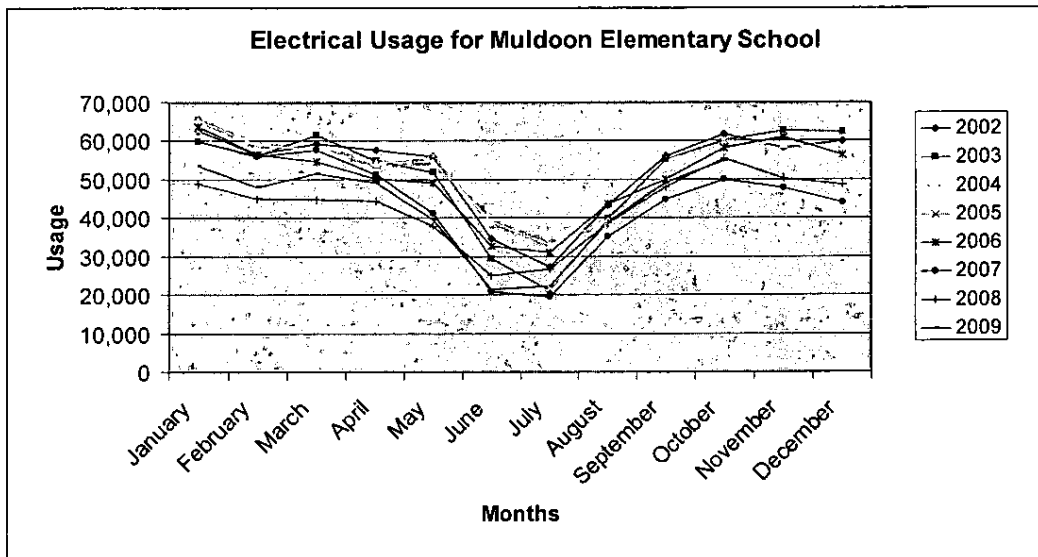
Graph IV Gas Usage for Creekside Elementary School

Muldoon Elementary

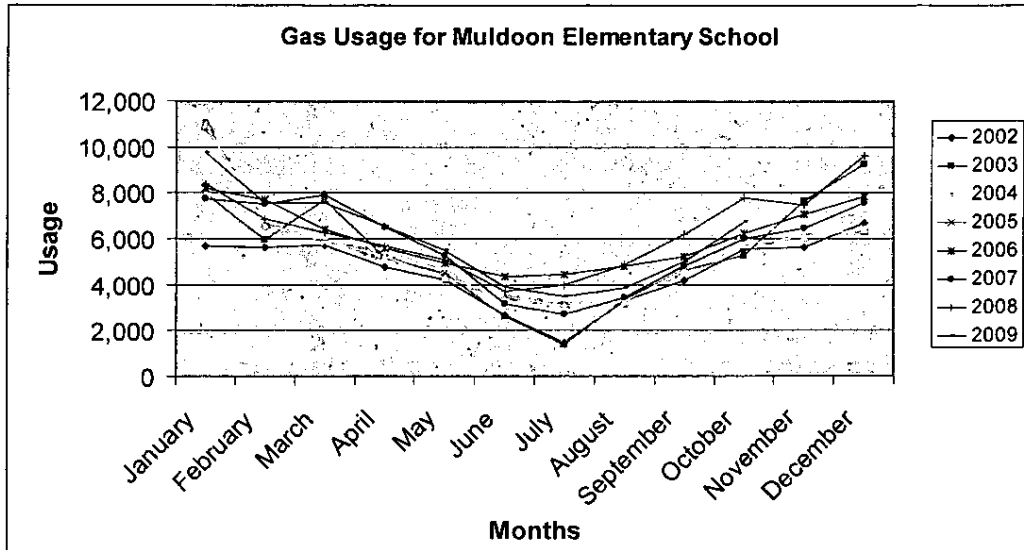
Muldoon Elementary School has shown an improvement in the electrical usage. The largest difference in electrical usage is in May and the second largest in June. The

usage went up in 2009 from 2008 in March, April, May, June, July, August, and September. The months that show improvement between 2008 and 2009 are January, February, and October. The month with the highest electrical usage is January. The difference between the current and 2007 five year averages show that there was no improvement in the gas usage. There was more gas energy used in the current five year average than the 2007 five year average. The largest gas usage is in January and the second largest is in December. There has been an increase in gas usage between 2008 and 2009.

The percent difference between 2008 and 2007 for the electrical usage per square foot per degree days in electricity show improvement except for March. In the percent difference between 2009 and 2007 for electricity show an increase in usage for May, June, July, and September per square foot per degree days. This also showed improvement in January, February, March, and August. In the usage of electricity per square foot per degree days the usage in 2009 was up from 2008. The highest electricity usages are July and August. In the gas usage per square footage per degree days shows little improvement for the percent difference between 2007 and 2009. There is an increase in usage for January, February, March, May, June, and July. The largest percent difference was in January. The months with the highest gas usage per square footage per degree days are June and July. Between the years of 2008 and 2009 the months show a decrease in March, August, and September.



Graph V Electrical Usage for Muldoon Elementary School



Graph VI Gas Usage for Creekside Elementary School

Ptarmigan Elementary

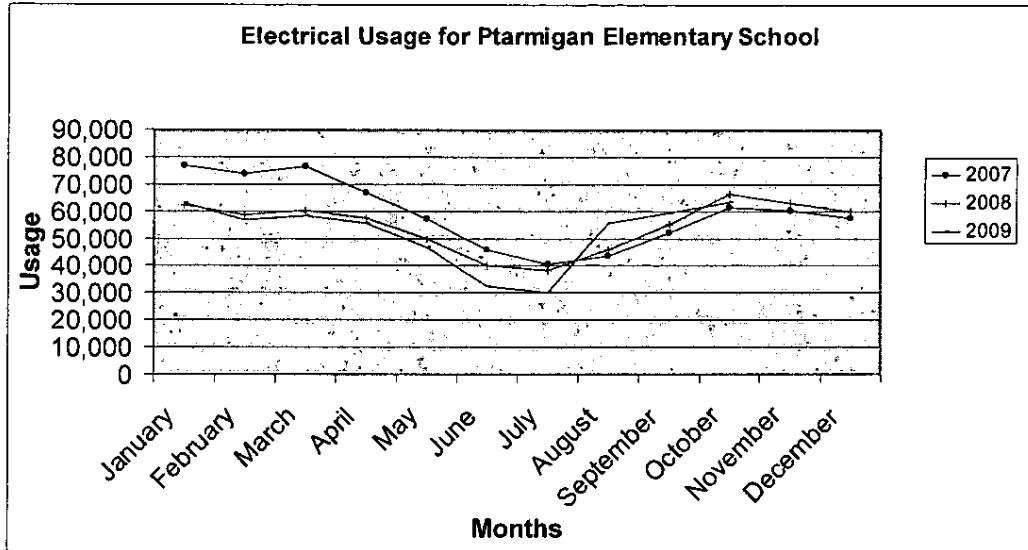
Ptarmigan Elementary School was renovated in 2004 there was an increase in square footage for the school. To account for the renovation another analysis was done. Taking the average of the usage data from September 2004 to December 2006 and comparing it to the current five year average. With this analysis for electrical there is an improvement in all the months except September where there is an increase in usage. There is a general decline in the usage of electricity between 2007 and 2009. The month of September shows an increase in usage over the year. The months with the highest usage for electricity are January and October. The gas usage there is an improvement. Between the years of 2007 and 2009 the months that show a decline in the usage of gas are January, February, May, and June. The months that have the highest usage of gas are January and February.

The 2002 to 2009 analysis of the usages shows improvement in electricity between the 2007 five year average and the current five year average. The months that have the highest usage in electricity are January and October. The month that shows the greatest improvement is August. The usage in gas showed an improvement for the months of January, March, May, June, July, August, September, and December in the difference between the 2007 and current five year averages. In the month of July 2003 no data on the gas usage was found. Over all the usage of gas declines between the years of 2008 and 2009, this shows improvement. The months with the highest usage in gas are January and February.

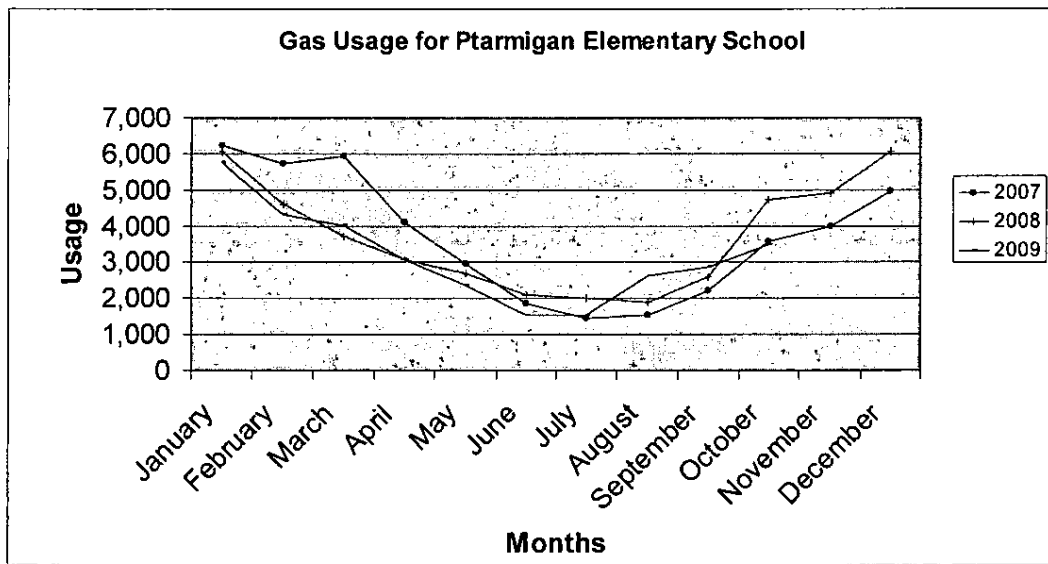
The analysis of usage per square foot and degree days the electrical usage shows improvement for the percent difference between 2009 and 2007, only September shows and increases in usage. Comparing the percent differences of 2007 and 2008 to 2007 and 2009 there was an increase in electrical usage. For the gas usage there is improvement looking at the percent difference between 2007 and 2009 except in July, August, and

Energy Conservation Pilot School Report for Anchorage School District

September. When looking at the percent difference between 2007 to 2008 and 2007 to 2009 there was improvement in the months of January, March, and June. There was an increase of energy usage in 2009 from 2008. The months with the most usage in gas are July and August for 2009.



Graph VII Electrical Usage for Ptarmigan Elementary School

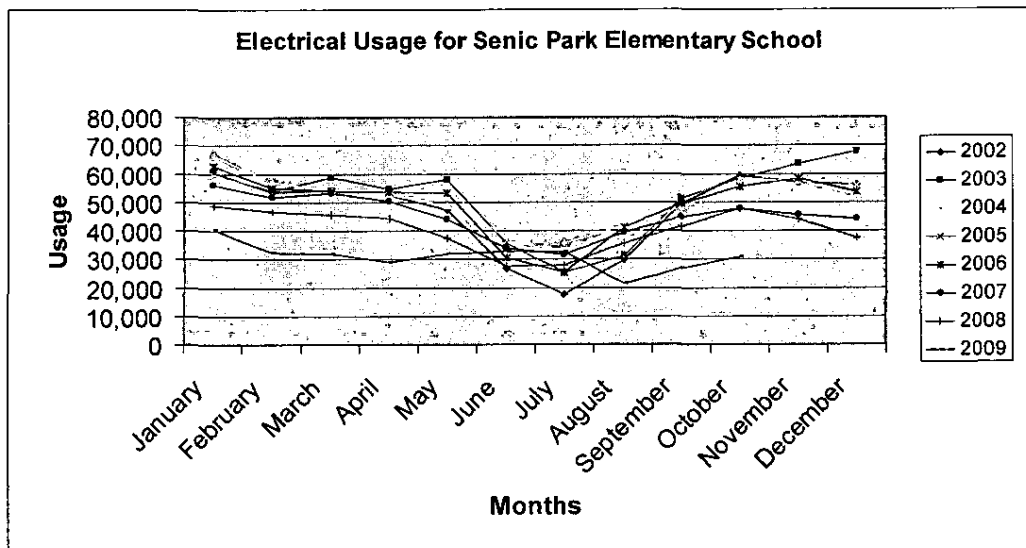


Graph VIII Gas Usage for Ptarmigan Elementary School

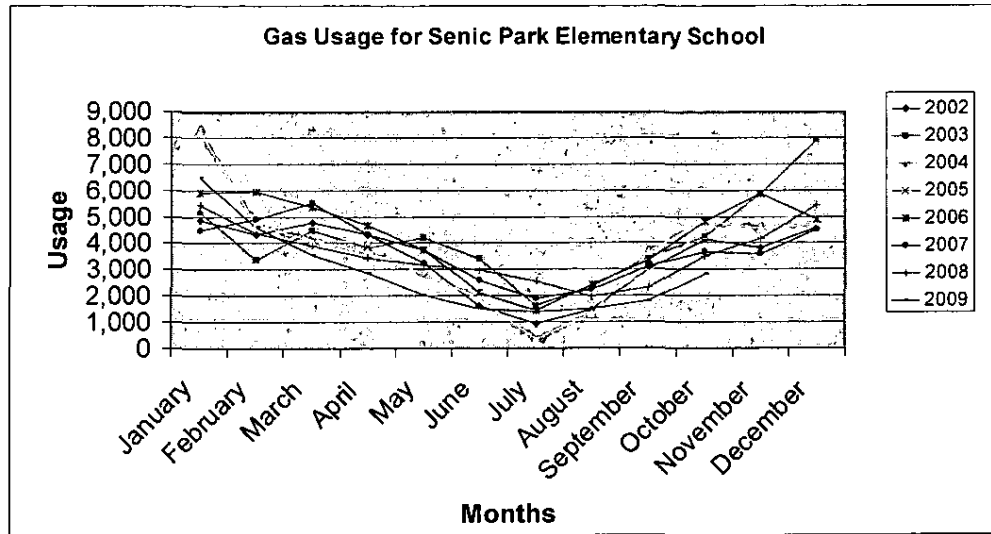
Senic Park Elementary

Senic Park Elementary School shows improvement in electrical usage when comparing the 2007 to the current five year averages. One month shows an increase in electrical usages between the 2007 and the current five year averages in July. When looking at the electrical usage between 2008 and 2009 there is a decrease in usage except in June and July. The months that have the highest usage are January and July. The gas usage show improvement as well except for February, June, July, and August when looking at the 2007 and current five year averages. Comparing the usage of gas from 2008 to 2009 there is a decrease in the usages except for January and February. The over all between 2007 and 2009 there is a gradual decrease in usage. The months with the highest usage in gas are January and February.

The usage per square footage per degree days for electricity there is improvement; however there is an increase in the percent difference of 2007 to 2009 in February and July. Comparing the percent difference of 2007 to 2008 and 2007 to 2009 there is an increase in the electrical usage per square footage per degree days in the months of February, May, June, and July. The months that have the largest usages per square footage and degree days are February, and July in 2009. The gas usage per square footage per degree days there is improvement when looking at the percent difference of 2007 to 2009 except in January. Comparing the percent differences of 2007 to 2008 and 2007 to 2009 there is an increase in January and February, all the other months there is a decrease in the usage. The months that have the highest usage in gas per square footage per degree days are July and August.



Graph IX Electrical Usage for Senic Park Elementary School

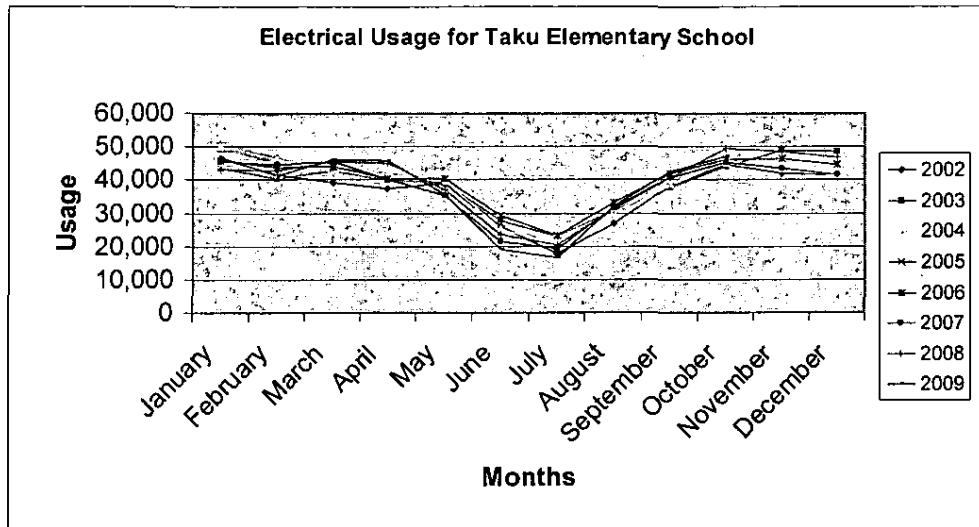


Graph X Gas Usage for Senic Park Elementary School

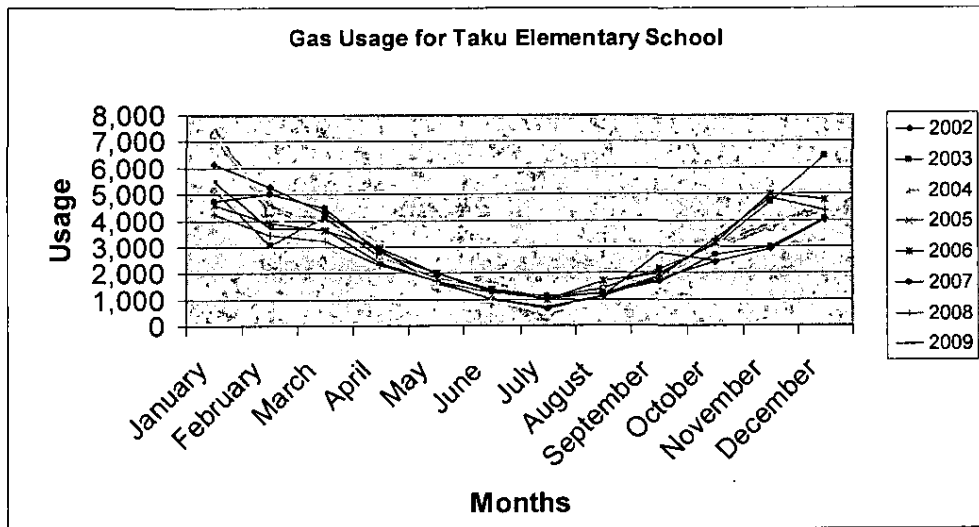
Taku Elementary

Taku Elementary School decreased in electrical usage between 2007 and 2008 however in 2008 to 2009 there was an increase in the usage. There was more electrical usage in the current five year average then the 2007 five year average with the exception of five months. For the months of February, May, June, July, and October there was a decrease in the electrical usage between 2008 and 2009. The months with the highest electrical usages are October and November. The gas usage also declined between 2007 and 2008 similar to the electrical between 2008 and 2009 there is an increase in the usage. Comparing the current and the 2007 five year averages there was an increase in the usages in eight of the months. The months that had a decrease in gas usage between 2008 and 2009 are May, June, July, and August. The months with the highest gas usages are January and November.

In the analysis of the electrical usage per square footage per degree days there was improvement. Comparing the percent differences between 2007 and 2008 to 2007 and 2009 a decrease in the electrical usage, however two months show an increase in the usage. The percent difference between 2007 and 2009 there is an increase in the electrical usage in March, April, and May. Comparing the percent difference of 2007 to 2008 and 2007 to 2009 one month has improved March. The other months show an increase in the usage between 2008 and 2009. The analysis for the gas usage per square footage per degree days there are three months that show improvement in the percent difference between 2007 to 2008 and 2007 to 2009. The usages decrease from 2007 to 2008 but then an increase in the usage from 2008 to 2009. The months with the highest usage of electricity per square feet and degree days are August and July in 2009. For the gas usage per square feet per degree day the months with the highest usages are September and July in 2009.



Graph XI Electrical Usage for Taku Elementary School



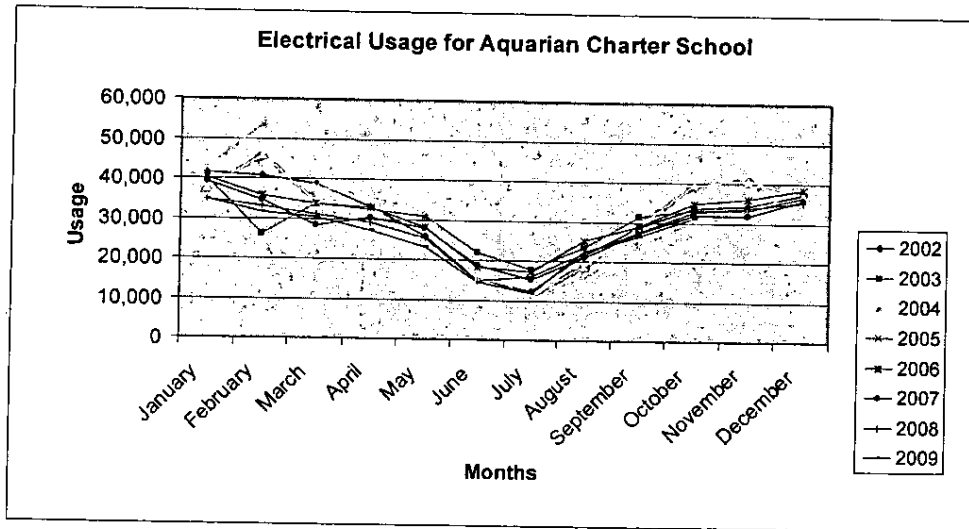
Graph XII Gas Usage for Taku Elementary School

Aquarian Charter

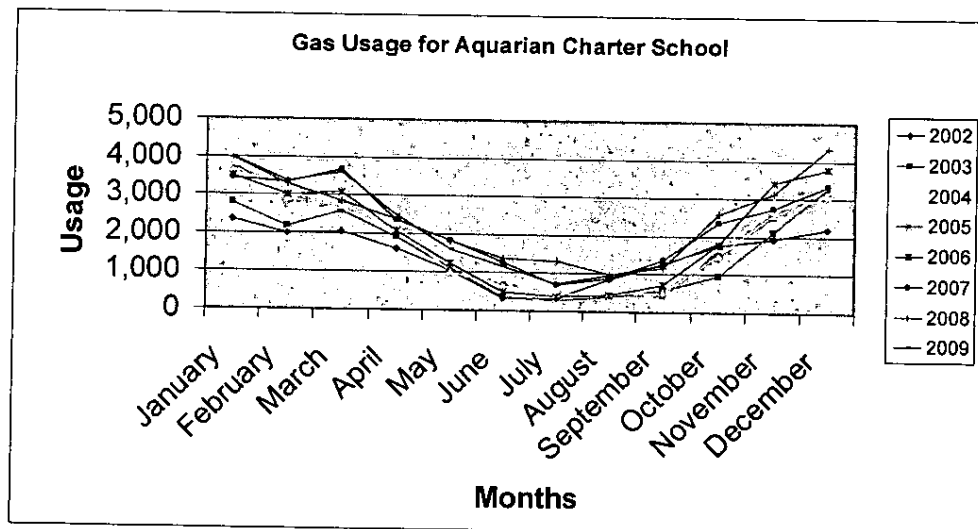
Aquarian Charter School the electrical usage shows a general decrease in usage over the three year span. Between the years of 2007 and 2008 there was an increase in electrical usage in the months of March, July, August, September, October, and December. January and August of 2009 have increase in the electrical usage compared to 2008. Comparing the 2007 and the current five year averages there is a decline in electrical usages except for July and August. The gas usage increased over the three years except in the months of June, July, and August there was a decline in the usage. There has been an increase in gas usage between the 2007 and the current five year

averages. The months with the highest usages are January and December for the electrical and the gas.

The electrical usage per square footage per degree days the percent difference of 2007 to 2008 and 2007 to 2009 there was improvement in January, March, April, November, and December. The months of July and August have the highest usage of electricity per square footage per degree days. The gas usage per square footage per degree days in comparing the percent difference of 2007 to 2008 and 2007 to 2009 the usage declined in four of the months. The months with the highest usage per square footage per degree days are July and August.



Graph XIII Electrical Usage for Aquarian Charter School

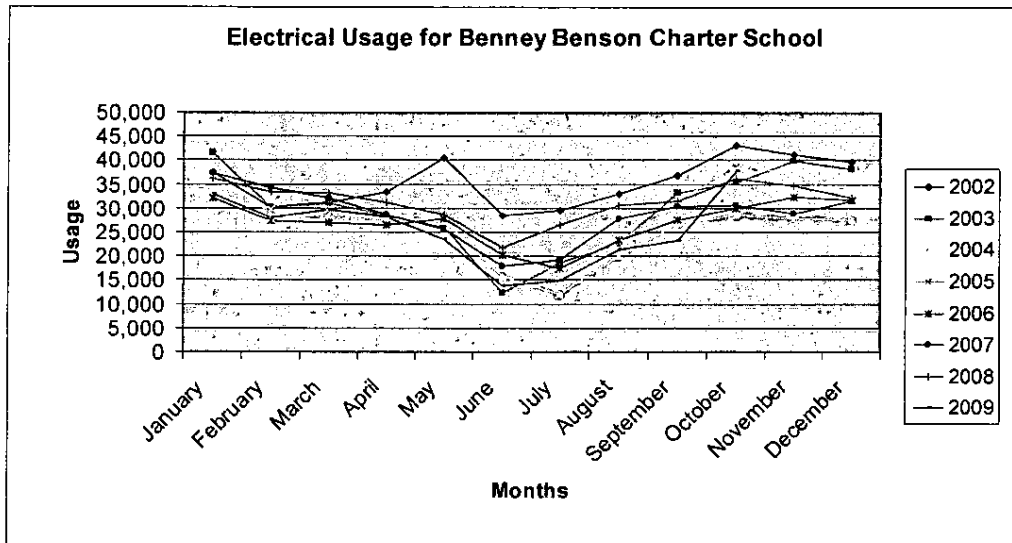


Graph XIV Gas Usage for Aquarian Charter School

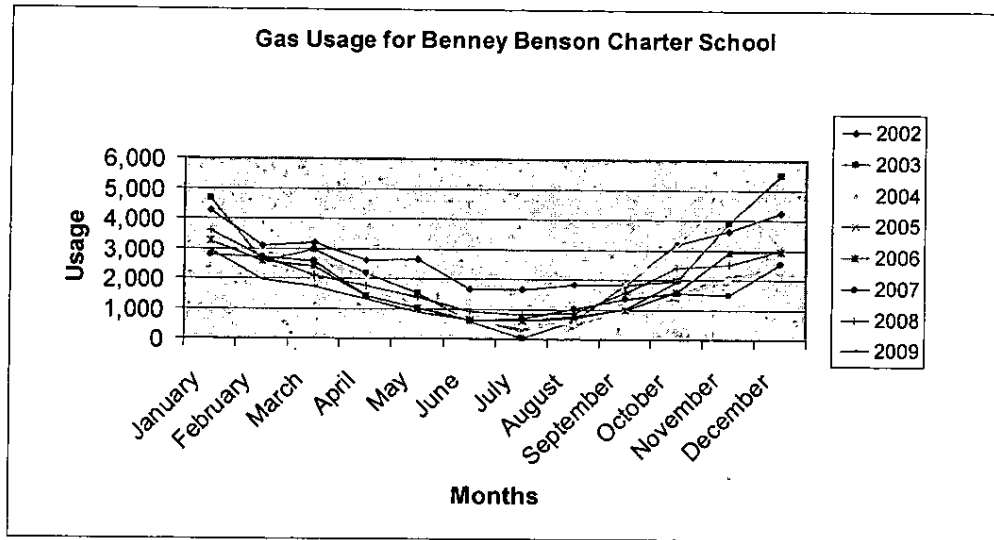
Benney Benson Charter

Benney Benson Charter School shows improvement in the electrical usage over the three years. In the months of October, November, and December there was an increase of the electrical usage. Comparing the 2007 and the current five year average a decrease in eight of the months. The months with the highest electrical usages are January and October. The usage in the gas also shows a decline with November and December showing an increase in the usage. Comparing the 2007 and the current five year averages show a decline except for June and July. The months have the highest usage of gas are November and December.

The electrical usage per square footage per degree day there is a decline in the usage. Analyzing the percent difference between 2007 to 2008 and 2007 to 2009 there is an improvement of the electrical usage. The months that have the highest usage per square footage per degree day are July and August. The gas usage per square footage per degree day there is decline in seven of the months. Comparing the percent difference between the years of 2007 to 2008 and 2007 to 2009 it show seven months having an improvement. The months with the highest usage per square footage per degree days are July and August.



Graph XV Electrical Usage for Benney Benson Charter School

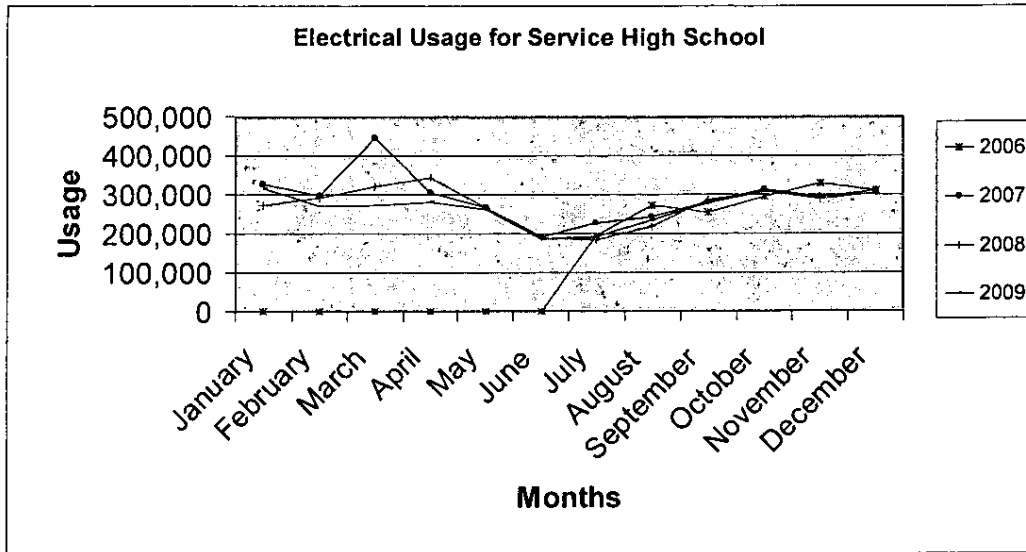


Graph XVI Gas Usage for Benney Benson Charter School

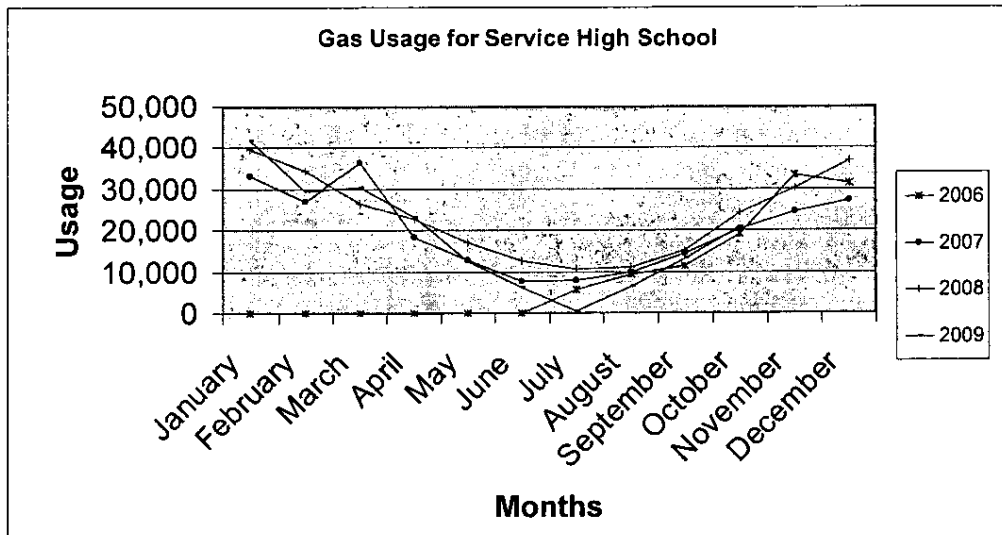
Service High

Service High School was renovated in 2006 there was an addition of square footage with this our usage analysis starts in July 2006. The energy usage of the pool was removed from the schools usages. The electrical usage has decreased in seven of the months. There was an increase in electrical usage in the months of January, July, August, October, and November. The gas usage shows improvement in seven of the months. There was an increase in usage in January, March, April, November, and December. The months with the highest electrical usages are March and April. The months of January and December had the highest gas usage.

The analysis with the usages per square footage per degree days also does not include the swimming pool in the usage or square footages. The electrical usage per square footage per degree days the comparison between the percent difference of 2007 to 2008 and 2007 to 2009 there was an increase in usage. Three months show an improvement over the percent difference of 2007 to 2008 in the 2007 to 2009. The months with the highest electrical usage per square footage per degree days are July and August. The gas usage per square footage per degree days shows improvement in the percent difference of 2007 to 2009 over the 2007 to 2008 percent difference in seven of the months. The months that have the highest usage of gas per square footage per degree days are September and October.



Graph XVII Electrical Usage for Service High School



Graph XVII Gas Usage for Service High School

Conclusion

The schools in the pilot program all show improvement in at least one of the energy usages. The schools that have improvement in both electricity and gas usages are Baxter, Benney Benson, Service, and Senic Park. Ptarmigan Elementary School improved in gas and for part of the year in electricity. Muldoon and Creekside Elementary Schools improved in natural gas usage. Aquarian and Taku improved in electrical usage. The school that did not have improvement in electrical is Taku Elementary. Aquarian Charter, Creekside, and Muldoon did not have improvement in the natural gas usage.

The month with the highest usage of electricity and gas is January. The month with the highest usage per square footage per degree days in electrical and gas is July. The degree days account for the variations in temperature. The square footage removes if the school was renovated during the analysis time period.

Emerging Energy Technology Grant

Highlights of the Denali Commission EETG

Overview

In June of 2008, the Denali Commission (Commission) released a unique public solicitation entitled the Emerging Energy Technology Grant (EETG). This competitive solicitation, with a total funding opportunity of \$4 million, targeted alternative and renewable emerging energy technology proposals from Alaskan applicants. In total, 50 applicants applied to the first round of the solicitation, requesting over \$29 million in funding. Of these proposals, 15 were selected for a second round review, with nine proposals eventually being selected for awards.

Highlights of the EETG

The Denali Commission

Introduced by Congress in 1998, the Denali Commission is an independent federal agency designed to provide critical utilities, infrastructure, and economic support throughout Alaska. With the creation of the Denali Commission, Congress acknowledged the need for increased inter-agency cooperation and focus on Alaska's remote communities. Since its first meeting in April 1999, the Commission is credited with providing numerous cost-shared infrastructure projects across the State that exemplify effective and efficient partnership between federal and state agencies, and the private sector.

Development of the EETG

The development of the EETG came from a host of identified needs and gaps in funding availability in Alaska. In particular, the Commission identified that:

- There is no established mechanism within Alaska to fund emerging energy technology projects.
- There is no established mechanism within Alaska to partner with national incentives for emerging energy technology.
- Emerging energy technology is a vital step to the future development of energy independence.
- Emerging energy technology and demonstration projects have a high associated risk of failure, limiting venture capital, loans, or other means of private investment.
- Alaska's bountiful renewable and alternative energy resources, combined with the acute energy needs of Alaskan communities and accompanying economics, provides a great opportunity for energy technology demonstration.

By nature, emerging energy technology carries must risk for investment. Much focus, therefore, was given to data analysis, collection, reporting, and "lessons learned" for each project, with results being made available to the public. This information will be invaluable for future energy project development, regardless of success or failure of a specific project.

It was intended that the Commission funding would provide seed funding, establishing partnerships, momentum, and a track record for future iterations of the solicitation, or similar funding opportunities.

Highlights of the Denali Commission EETG

SB150

On the State side, there is much movement towards the development of an emerging energy technology fund. Indeed, proposed legislation, Senate Bill 150 (SB150), provided much of the policy framework of the EETG. Specifically, SB150 "...creates a funding mechanism and designates an administrating agency for a competitive grant program aimed at funding projects designed to research and test new energy technologies. It establishes the Emerging Energy Technology Fund (EFTF) to be administered by the Alaska Center for Energy Power, the University of Alaska agency whose mission is to meet state, industry, and federal demand for applied energy research in order to lower the cost of energy throughout Alaska and develop economic opportunities for the state, its residents, and its industries."¹

As of 04/06/09, SB150 has been referred to the Senate Finance Committee, and awaits further action once the legislature resumes.

Eligibility

The intended focus of the EETG was on (1) research, development, or demonstration projects designed to (a) test new energy technologies or methods of conserving energy or (b) improve an existing energy technology; and (2) applied research projects that employ energy technology with a reasonable expectation that the technology will be commercially viable in Alaska in not more than five years. The EETG sought to develop emerging alternative and renewable energy technology that had the potential of widespread deployment in Alaska, and that had the potential to reduce energy costs for Alaskans.

The eligibility requirements of this solicitation were intentionally kept simple and included 1) applicants must meet Commission due diligence and reporting criteria², and follow Commission policies³, 2) eligible projects must primarily focus on alternative or renewable energy and meet the intended funding use, and 3) eligible applicants include: an electric utility holding a certificate of public convenience and necessity under AS 42.05; an independent power producer; a local government, quasi-governmental entity, or other governmental entity, including a tribal council or housing authority; a business holding an Alaska business license; or a nonprofit organization.

For the purposes of defining eligible project scopes, the following definitions were used:

- **"Energy Technology"** means technology that promotes, enhances, or expands the diversity of available energy supply sources or means of transmission, increases energy efficiency, or reduces negative energy-related environmental effects. "Energy Technology" includes technology related to renewable sources of energy, conservation of energy, enabling technologies, efficient and effective use of hydrocarbons, and integrated energy systems.
- **"Renewable Energy"** means energy derived from wind, solar, geothermal, hydrothermal, wave, tidal, river in-stream, or hydropower; low-emission nontoxic biomass based on solid or liquid

¹ Sponsor statement from of the office of Senator Lesil McGuire

² Required due diligence material included: a) Authorization to Request Federal Tax Information, b) Verification of the current business license (if applicable), c) Verification of insurance (if applicable), d) Verification of worker's compensation or occupational health and safety.

³ <http://www.denali.gov/images/announcements/denali20commission20policy20document2011-18-08.pdf>

Highlights of the Denali Commission EETG

organic fuels from wood, forest and field residues, or animal or fish products; dedicated energy crops available on a renewable basis; or landfill gas and digester gas.

- "Alternative Energy" refers to (1) energy derived from nontraditional sources or the utilization of traditional sources in a new or unconventional manner; (2) the supplementation, integration, or alteration of an energy system with a new or unconventional process that is not typically reliant on traditional fossil fuels.

Process

Project applications entered a competitive two-round selection process with a review committee of technical and industry experts making selection recommendations to the Commission. In the first round, applicants submitted an abbreviated four-page project proposal summary. The review committee reviewed the proposal summaries and created a short list of applicants for second round consideration. In the second round, selected applicants submitted a robust project proposal and were also required to give a 15 minute presentation, subject to a question-and-answer period by the review committee. Final project selections were made after the second round.⁴

Partnerships

The intent of this solicitation was cross-cutting and had wide appeal with various funding entities within Alaska and nationally. For this solicitation, the following were partner entities:

- Alaska Energy Authority
- Alaska Industrial Development and Export Authority
- Alaska Power Association
- Denali Commission Energy Advisory Committee
- Denali Commission Energy Program Staff
- National Energy Technology Laboratory
- National Renewable Energy Laboratory

The partners to this solicitation were intentionally selected for their 1) technical expertise in energy technology, 2) their programmatic or institutional interest in developing emerging energy technology, and 3) their institutional perspective. Due to the short time frame of program development and implementation, the Commission was the sole financial backer of this solicitation; the partner entities served as members of the review committee, providing technical advice and selection recommendations to the Commission.

Program Management

The Alaska Center for Energy and Power (ACEP), an energy research group housed under the Institute of Northern Engineering at the University of Alaska, Fairbanks, is serving as the program manager of the solicitation, and was not involved in the proposal review or selection process. As the project proposals deal with emerging energy technology and by nature are high risk, high reward, ACEP's technical

⁴ This selection process of multiple rounds and presentations is based on a process previously established by the Arctic Energy Technology Development Laboratory (AETDL)

Highlights of the Denali Commission EETG

knowledge and objective academic management of the projects, specifically for data collection, analysis, and reporting, is a vital component to the intent of the solicitation, i.e., providing lessons learned and recommendations.

EETG Results

Trends

One overall trend emerged from this solicitation: many of the proposals featured a technology area that has limited funding opportunity, and for other reasons than the technology being an emerging energy technology. Such areas included:

- Waste and energy (solid waste, biomass, other waste, etc.)
- Alaskan applications of proven international technology
- Electric vehicles for rural and Arctic applications

A similar trend was that several applicants, not the technologies, had limited opportunity for funding. For example, the Seward Sealife Center is an aquarium and is restricted from many federal grants, including federal stimulus opportunities.

First Round Results

Response to the solicitation was extremely positive, with 50 applicants submitting a first round proposal. The total requested funding from the first round was \$29.5 million. Of these 50 applicants, 16 were selected for the second round. One applicant withdrew their proposal just prior to the second round deadline, leaving 15 applicants for second round consideration.

Second Round Results

15 applicants submitted a robust project proposal for second round consideration. Total funding requested was \$8.5 million, with total project costs equaling \$17.9 million. The \$9.4 million in cost share was made up of in-kind, cash, and other grant contributions.

Of these 15 finalists, 9 were selected for grant awards. The results are as follows:

2009 EETG Grantee	Project Summary
Cordova Electric Cooperative	Psychrophiles for Generating Heating Gas
Kotzebue Electric Association	Feasibility of Solar Hot Water Systems
Kotzebue Electric Association	Flow Battery Energy Storage Systems
Kotzebue Electric Association	Wales Diesel-Off High Penetration Wind System
ORPC Alaska LLC	Nenana Hydrokinetic Turbine
Sealaska Corporation	Commercial Scale Wood Pellet Fired Boiler
Seward Sealife Center	Seawater Heat Pump Demonstration Project
Tanana Chiefs Conference	Organic Rankine Cycle Heat Recovery System
University of Alaska, Fairbanks	High Penetration Hybrid Power System

Emerging Energy Technology Grant

Lessons Learned from the Denali Commission EETG Solicitation

Emerging Energy Technology Grant

FAQs

How is the EETG different from the

Is the EETG just for renewable energy projects?

DRAFT

State

Energy Policy

and

Program

Recommendations



**This document was created by the chairs of the
Alaska State Senate Resources and Energy Committees,
Senator Bill Wielechowski and Senator Lesil McGuire.**

October 19, 2009

Dear Alaskans,

When oil hit \$147 a barrel, the state's coffers overflowed, but Alaskans felt the pain of the highest gasoline and heating oil costs in the nation. With all our tremendous resources, we're facing natural gas shortages in Southcentral, businesses are closing their doors because of the price of energy, and some rural Alaskans are leaving their communities because they can't afford to heat their homes and keep their lights on. Members of the Senate Resources and Energy Committees have heard the urgent calls of Alaskans for help, and we've been working this past summer to find long-term solutions to many of the energy issues that have plagued Alaska for years.

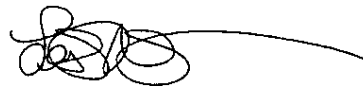
In May, we traveled to Ruby, where we saw an experimental turbine in the Yukon River that works like a fish wheel and generates electricity. In Tanana, we saw people gathering hundreds of cords of drift wood from the Yukon to burn in an ultra-clean and efficient boiler to heat water and public buildings. At Chena Hot Springs, we were inspired by owner Bernie Karl, who generates electricity from geothermal wells in a project experts said could never be built. And on Kodiak Island we saw fish waste turned into biodiesel and a village that has cut its fuel use in half by ensuring that its power generation systems are efficient.

Alaskans are innovative people. As we look for way to address our energy challenges, we'd like your input. What's the best way to solve our gas shortage in Cook Inlet? How can we lower energy costs in rural Alaska and the interior? How can we take better advantage of hydro and tidal resources in Southeast?

This draft report is a compilation of the ideas and recommendations we've heard to date. As we consider these ideas, we want to hear your views about the recommendations presented here and those we've missed. To make this easier, we've set up a web site at www.energy.aksenate.org to let you know about our progress and to take your comments. What is your vision for Alaska's energy future? And how can we get there? Working together we can ensure all Alaskans have affordable and reliable energy now and in the future.



Senator Bill Wielechowski
Co-chair, Senate Resources Committee
Member, Senate Energy Committee



Senator Lesil McGuire
Co-chair, Senate Resources Committee
Chair, Senate Energy Committee

Introduction

Alaska is blessed with abundant energy resources, including oil, natural gas, and coal. We also have considerable, largely untapped renewable energy resources -- from ocean, wind and solar energy to geothermal, hydro and biomass. Yet, despite this wealth in resources, we are a vast, largely undeveloped state with a relatively small population. Unlike most of the Lower 48, many of our communities are not connected by roads or electrical grids. Most communities generate their own power and fuel is transported to them at great expense. Lack of infrastructure and high cost impede Alaska's development, even as we enjoy vast energy reserves.

Alaska faces many challenges. We rank 1st among the 50 states in terms of our energy consumption per capita and the prices we pay for energy are among the highest in the nation. In July 2009, the mean price for gasoline in 99 Alaska communities surveyed was \$5.37 per gallon, with some communities paying up to \$10/gallon. Alaskans pay 50% more for electricity than the U.S. average. And heating fuel costs are more than double the national average. To make matters worse, these costs are growing. In 2000, low-income households in remote, rural communities spent 16% of their income on energy. By 2008, this had grown to 47%.

Ensuring that energy is supplied in a reliable fashion is also a challenge. If freeze-up comes early and barge travel is blocked, fuel may not be delivered to a village on the brink of running out. If the generators in a remote community fail, power can be out for days. Even Alaska's largest city faces the prospect of natural gas shortages this winter, which could result in rolling black-outs and the need to cut back on home heating.

Meeting these challenges will be expensive. Building a small diameter in-state gasline or "bullet line" to deliver North Slope natural gas to the Interior and Southcentral could cost in excess of \$4 billion. Constructing the proposed Susitna hydroelectric plant could cost \$16 billion or more. And ensuring that communities have adequate bulk fuel storage and efficient generators could cost hundreds of millions of dollars.

The purpose of this document is to lay out some ideas for how Alaska can move forward towards greater energy independence and more affordable, reliable energy supplies over the long-term. Progress in this arena is necessary for the survival of Alaska's remote villages and unique cultures, for the health of Alaska's larger, more urban communities, and for the economic well-being of the state as a whole. Alaskan businesses require affordable energy just as its families do. A robust economy with plentiful, well-paying jobs depends on reasonably priced power. Quality of life in the 21st century depends on being able to stay warm, get to one's job, and use modern appliances and technologies to their fullest extent.

The draft recommendations in this report come from many sources – from testimony given at legislative hearings around the state, from conversations with energy experts and average Alaskans, and from taking note of the energy innovations and achievements of Alaskans. In addition, we’ve reviewed the energy policies and programs of others states and countries and considered which would make sense in Alaska.

The ideas presented here are just that – ideas. This document is an initial compilation of what we’ve heard and learned from Alaskans. They are presented here for public review and comment.

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Statewide Summary of Utilities Expenditures

(in thousands)

	Statewide Costs		Electricity		Water & Sewage		Disposal		Natural Gas/Propane		Heating Oil		Total cost per year	
	FY09	FY10	FY09	FY10	FY09	FY10	FY09	FY10	FY09	FY10	FY09	FY10	FY09	FY10
Electricity	29,286.0	13,119.0												
Water & Sewage	3,626.0	1,527.0												
Disposal	2,418.0	1,165.0												
Natural Gas/Propane	8,439.0	3,449.0												
Heating Oil	11,998.0	5,317.0												
Utilities Total Cost	\$ 55,767.0	\$ 24,577.0												
Agencies														
Administration	1,670.0	847.0	78.0	58.0	137.0	67.0	25.0	11.0	789.0	456.0	2,699.0	1,439.0		
Commerce, Community & Economic Development	14.0	-	-	-	1.0	1.0	-	-	-	-	-	-	15.0	1.0
Corrections	6,259.0	1,578.0	1,675.0	420.0	579.0	160.0	2,265.0	522.0	3,620.0	1,123.0	14,398.0	3,803.0		
Education & Early Childhood Development	166.0	102.0	68.0	43.0	77.0	57.0	10.0	-	336.0	157.0	657.0	359.0		
Environmental Conservation	135.0	57.0	13.0	5.0	14.0	5.0	154.0	74.0	3.0	2.0	319.0	143.0		
Fish & Game	797.0	441.0	124.0	63.0	67.0	39.0	321.0	165.0	324.0	144.0	1,633.0	852.0		
Governor	26.0	11.0	1.0	1.0	22.0	2.0	1.0	1.0	24.0	12.0	74.0	27.0		
Health & Social Services	1,774.0	970.0	347.0	206.0	261.0	148.0	1,167.0	578.0	646.0	316.0	4,195.0	2,218.0		
Labor & Workforce Development	399.0	203.0	43.0	25.0	43.0	23.0	12.0	5.0	264.0	159.0	761.0	415.0		
Law	-	-	2.0	1.0	13.0	8.0	-	-	-	-	15.0	9.0		
Military & Veterans Affairs	2,390.0	1,032.0	229.0	97.0	192.0	43.0	1,629.0	615.0	797.0	396.0	5,237.0	2,183.0		
Natural Resources	374.0	220.0	108.0	115.0	162.0	115.0	182.0	83.0	117.0	56.0	943.0	589.0		
Public Safety	820.0	366.0	88.0	42.0	52.0	28.0	72.0	26.0	469.0	212.0	1,501.0	674.0		
Revenue	8.0	6.0	-	-	10.0	5.0	-	-	-	-	18.0	11.0		
Transportation	13,652.0	6,872.0	795.0	429.0	741.0	444.0	2,324.0	1,213.0	4,433.0	2,200.0	21,945.0	11,158.0		
Alaska Court System	664.0	356.0	36.0	13.0	13.0	5.0	275.0	155.0	0.0	0.0	988.0	529.0		
Legislature	139.0	59.0	17.0	9.0	34.0	16.0	1.0	0.0	174.0	83.0	365.0	167.0		
Total	29,287.0	13,120.0	3,624.0	1,527.0	2,418.0	1,166.0	8,438.0	3,448.0	11,996.0	5,316.0	55,763.0	24,577.0		
Data as of 2/11/10														

Energy Goals:

- Goal 1:** Ensure all Alaskans have access to reliable energy supplies at the lowest cost over the long-term.
- Goal 2:** Develop Alaska's energy resources in a responsible manner with the aim of providing for the economic sustainability and growth of Alaska's communities and industries.
- Goal 3:** Ensure continued responsible exploration and development of Alaska's oil and gas resources and manage these resources for the maximum long-term benefit of all Alaskans.
- Goal 4:** Reduce the dependence of Alaskan communities on fossil fuels for electricity and heat by developing our renewable and alternative energy resources and by promoting energy efficiency and conservation.
- Goal 5:** Strive to produce 50% renewable energy by 2025 and increase energy efficiency at the household and utility level by 10% by 2015.
- Goal 6:** Maintain a commitment to environmental stewardship and responsible resource development, including anticipating the environmental effects of and regulatory response to climate change.
- Goal 7:** Promote energy research at Alaska's universities, energy education in our public schools, and workforce development programs at our post-secondary institutions and vocational schools.

A. Powering Alaska

Alaska ranks sixth in the nation for electrical rates, with costs 50% higher than the U.S. average. Electrical costs in some Alaskan communities, such as Lime Village (\$1.17), exceed a dollar per kWh before Power Cost Equalization payments are factored in. In comparison, the average cost of electricity in the United States in 2008 was \$.11 per kWh. Alaska's higher costs are due, in part, to the fact that most electricity consumers outside of Alaska's major cities are not linked to large electric grids; they are instead connected to mini-grids powered by diesel generators. Statewide, about half of electricity is generated using natural gas; nearly a quarter with hydropower; 20% with diesel; less than 10% with coal; and less than 1% with other renewables. In the Railbelt, peak energy consumption is about 800MW, with power generated by six member-owned, co-op utilities. Electrical consumption is growing much faster in Alaska than in the United States as a whole.

- 1. Consolidate the six existing Railbelt utilities into a single entity for the purpose of planning, financing and building future electrical generation and transmission projects with maximum efficiency.**

Discussion: Much of the generation and transmission infrastructure in the Railbelt is aging and will need to be replaced in the near future. In a September 12, 2008, report, consultants Black and Veatch projected that "the Railbelt region will need to issue new debt between \$2.5 - \$8.1 billion over the next 30 years to build new generation and transmission facilities to reliably serve the electric needs of citizens and businesses in the region. This level of investment . . . represents a significant challenge for the Railbelt region given its small size. Having the good faith and credit of the State supporting the regional entity will minimize the financial risks and result in a lower cost for debt." Formation of such an entity could lower consumer costs, increase efficiency, and improve the reliability of power generation and transmission systems in the Railbelt.

Actions: Work with stakeholders to amend SB 143, "An Act establishing the Greater Railbelt Energy and Transmission Corporation," and pass a revised bill.

- 2. Fully evaluate the costs and benefits of a variety of new potential sources of power production for the Railbelt.**

Discussion: A Regional Integrated Resource Plan (RIRP) is currently being developed for the Railbelt, which will guide development of the region's power systems over the next 50 years. A draft report is due in November, with a final by December. This report will assess the cost and feasibility of numerous power production scenarios, including purchasing new gas-fired generators; constructing the Susitna hydro project;

constructing a hydro project at Lake Chakachamna; installing wind farms on Fire Island, at Eva Creek, and/or in Nikiski and Delta; producing power from the Healy Clean Coal Plant and/or using Chuitna coal; development of tidal energy in Cook Inlet; and development of geothermal energy from Mt. Spurr.

Actions: Schedule Senate Resource and Energy Committee hearings as soon as the legislative session convenes in January to review the findings of the RIRP and make recommendations.

- 3. Invest in those Railbelt projects that will provide the lowest cost, most reliable energy for the Railbelt over the long-term, giving due consideration to renewable energy.**

Discussion: Once the Regional Integrated Resource Plan is thoroughly reviewed, the Administration and legislature must make hard decisions about which projects to fund to ensure a reliable and affordable long-term power supply for the Railbelt. The cost will be great, but timely action is needed.

Actions: Add capital to the Railbelt Energy Fund and/or appropriate funding for specific projects, as needed.

- 4. Add capital to the state's Power Project Loan Fund.**

Discussion: The Power Project Fund provides loans to utilities, local governments and independent power producers for the development or upgrade of electric power facilities, including conservation, bulk fuel storage, and waste energy conservation. The loan term is related to the productive life of the project, but cannot exceed 50 years. Interest rates vary between tax-exempt rates at the high end and zero on the low end. Forty-seven loans for a total of \$26 million are currently out, with only one past due. The Fund balance is running low and more funding is necessary to respond to legitimate, cost-saving requests from applicants.

Action: Add a minimum of \$10 million to the Power Project Fund.

- 5. Improve the efficiency of diesel power generation through increased funding for the Alaska Energy Authority's Rural Power System Upgrade Program.**

Discussion: In the last decade, the Alaska Energy Authority has upgraded about 35 rural power systems, resulting in an average increase in efficiency of 26%. These upgrades have saved these communities more than \$1 million a year in fuel costs. About 25-30 community power systems still need to be upgraded. Since 2000, funding for these

upgrades has come predominantly from the Denali Commission. However, the Commission's budget is in sharp decline and the state will have to step in if it wishes to assist the 25-30 communities still in severe need of upgrades.

Action: Provide \$10 million in state funding for the Rural Power System Upgrade Program for the next four years.

6. Increase funding for the Rural Power Systems Technical Assistance Program, also known as the Circuit Rider Program.

Discussion: The Alaska Energy Authority (AEA) currently provides assistance to power system operators in more than 120 villages. The goal of this program is to enable local operators to become self-sufficient in running remote systems in an efficient and cost-effective manner. Unfortunately AEA staff are stretched thin and cannot respond to many requests for assistance.

Action: Increase funding annually to \$200,000 to enable AEA to provide technical assistance to more villages, cutting costs and increasing the reliability of power systems

7. Continue to fund the Power Cost Equalization (PCE) Program. Review its rules to ensure they are not a disincentive to developing local renewable energy sources and increasing energy efficiency.

Discussion: The PCE Program provides assistance to households in rural areas of Alaska, where the cost of electricity can be three to five times higher than in more urban areas. It improves the standard of living for more than 78,000 Alaskans by helping to pay for power costs that average \$.60/KWh, but can be as high as \$1. PCE pays a portion of about 30% of the power sold by participating utilities and has a total annual cost of about \$37 million. Some observers, however, believe the program provides a disincentive for utilities to achieve greater efficiency and use renewable energy. These concerns should be reviewed and appropriate programmatic changes made if necessary.

Action: Appropriate \$37 million for the PCE program in FY'11.

8. Continue to develop Southeast Alaska's hydroelectric potential to eliminate dependence on fossil fuels and provide affordable, renewable energy to make Southeast Alaska self-sufficient on its energy supplies.

Discussion: Projects under consideration or development include Reynolds Creek Hydro near Hydaburg, Falls Creek Hydro in Gustavus, Whitman Lake Hydro in Ketchikan, Ruth

Lake Hydro near Petersburg, Burro Creek Hydro near Skagway, Elfin Cove Hydro, Triangle Lake Hydro in Metlakatla, Takatz Lake and Blue Lake Hydro in Sitka, Thayer Creek in Angoon, Connelly Lake in Haines and the run of the river hydros proposed in Hoonah.

Actions: Complete an Integrated Resource Plan (IRP) for Southeast Alaska to assess regional needs, power production alternatives and their costs. The IRP will build on the current Southeast Alaska Electrical Intertie System Plan and create a sustainable and rational approach that will provide an economic pathway for prioritized state investment.

9. Develop regional electrical grids interconnecting adjacent Southeast communities and utilities with hydropower generation via economically rational transmission lines.

Discussion: Regional grid systems will allow for the development of local resources, displacing diesel dependence while dispatching cost-effective and environmentally preferred renewable energy resources throughout the region. Components underway include the Kate-Petersburg Intertie, Goffman Cove to Naukati Intertie, Metlakatla-Ketchikan Intertie, Swan-Tyee intertie, and Prince of Wales Intertie.

Actions: Where economically feasible, allow for regional and sub-regional development of electrical grid networks to allow for the efficient dispatch of renewable energy resources. Utility corridors should be developed to support multiple uses such as electrical transmission, transportation and telecommunication.

10. Broaden the scope of the Southeast Alaska Energy Fund and capitalize it.

Discussion: This fund would provide a mechanism to help pay for construction of power generation projects in Southeast and completion of appropriate electrical grids throughout the region. Many communities in the region are not on hydropower and still burn oil to generate electricity and heat. Communities now on hydro are facing capacity shortages and face supplemental use of diesel-generated power. While hydroelectric projects provide low-cost, renewable power over the long-term, they are extremely capital intensive. The state can play a critical role in helping to capitalize these projects on the front end. The completed IRP will guide expenditures of these funds.

Actions: Pass SB 132 and capitalize it once an Integrated Resource Plan has been completed.

11. Increase state funding for the Bulk Fuel Upgrade Program to ensure that communities have adequate storage to make cost-saving bulk fuel purchases.

Discussion: In the early 1990s, many rural communities faced the threat that they would no longer be allowed to take delivery of fuel in bulk quantities because of the condition of their bulk fuel storage tank farms. The Bulk Fuel Upgrade Program, which has been largely supported by the Denali Commission, provides funding for repairs to enable affected communities to continue to receive fuel. Sixty-four projects have been completed so far, seven are underway, and 33 remain. Unfortunately funding from the Denali Commission is in decline and the state will have to step in to complete this effort.

Action: Increase state funding for the Bulk Fuel Upgrade program to \$5 million a year for the next three years.

12. Revise the interest rates for the Bulk Fuel Revolving Loan Program and Bridge Fuel Loan Program to ensure that there is an incentive for communities to maintain good credit histories.

Discussion: There are two state loan programs designed to help communities purchase fuel in bulk at competitive rates. The first is the Bulk Fuel Loan Program, administered by the Alaska Energy Authority (AEA), which has an interest rate equal to the 12-month average of municipal revenue bonds for communities that have borrowed at least twice previously. The second is the Bridge Loan Program, administered by the Department of Commerce, which has a zero interest rate. The Bulk Fuel Loan Program is only available to communities that maintain a good credit history; the Bridge Loan Program is available to any community that has applied to the AEA and been rejected, usually because of poor credit history. These communities are rewarded with an interest rate that is better than what they could have gotten from AEA. This situation needs to be reviewed to remove this incentive for poor repayment and to ensure that all communities receive the technical assistance they need to maintain financial fitness.

Actions: Draft appropriate statutory changes.

13. Hold 5-10 training classes annually for power plant and bulk fuel operators at the Alaska Vocational Technical Center to teach operations, maintenance and management best practices.

Discussion: The Alaska Vocation Technical Center (AVTEC) has purchased high efficiency generators and switchgear on which power plant operators can be trained. In the past funding for this training has come from the Denali Commission; that funding, however,

is in sharp decline. Bringing power plant managers and well as bulk fuel operators to AVTEC is an effective way to train plant managers, improve reliability of service, and reduce ongoing operational costs.

Action: Invest \$250,000 in FY'11 to ensure adequate training for power plant and bulk fuel operators.

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B. Heating Our Homes

Alaska is one of the coldest states in the nation, and many Alaskans struggle to meet their most basic winter necessity – a warm and comfortable home. Not surprisingly, Alaska homes use more energy for space heat than their Lower 48 counterparts. According to the Institute of Social and Economic Research, the average annual cost for heating a home in Alaska was around \$4,500 in 2008. This accounts for about 45% of the total energy used to run a home.

The high cost of heating fuels and inefficiently designed homes in such a cold climate are the main contributing factors to this problem. When temperatures dip, Alaskans turn up the thermostat, but far too often much of that heat disappears through drafty windows and poorly insulated walls. For 30 years, the Weatherization program has helped low-income Alaskans identify and eliminate energy inefficiencies. The Home Energy Rebate program provides rebates to home owners who invest their own money in increasing the efficiency of their homes. Continued appropriations to these two programs will help Alaskans stay warm during the winter, while cutting fuel costs and reducing the future demand for energy assistance programs.

1. Provide additional funding for the state's weatherization program.

Discussion: According to a recent report prepared for the Alaska Housing Finance Corporation, more than 27,000 housing units statewide still need to be weatherized. One in five rural homes and nearly 8,000 homes in Anchorage cannot maintain a comfortable room temperature during winter. In addition, more than 115,000 homes statewide are said to be "drafty." Weatherization is a proven way to reduce energy costs over the long-term. Annual savings from weatherization average \$526/year or \$7,565 over the life of the improvements. Nationally, the Department of Energy (DOE) reports that weatherization saves the equivalent of 3 barrels of oil per dwelling a year or 60 barrels over 20 years. DOE reports that \$1.83 is saved for every dollar spent on weatherization. The \$200 million the state appropriated in 2008 for weatherization is likely to be fully encumbered by the end of FY'10.

Action: Invest an additional \$150 million in the state's weatherization program in FY'11.

2. Provide additional funding for the state's Home Energy Rebate program.

Discussion: This program assists homeowners in making energy efficiency improvements for their home. The program requires a home energy rater to evaluate homes before and after the improvements. The more a home's energy efficiency improves, the greater

the possible rebate. Participating homeowners have seen an average reduction of 45 percent in the energy used to run their space-heating appliances (e.g. furnace, stove, etc.) and an average reduction in energy costs of 30 percent. More than 15,000 Alaskan homeowners are currently participating in the program and 3,000 remain on the waitlist. In 2008 the legislature appropriated \$160 million for this program. This funding is likely to be fully encumbered by June 30, 2010.

Action: Invest an additional \$50 million in the state's Home Energy Rebate program in FY'11.

- 3. In years when oil averages over \$75/barrel and surplus funds are available, expand the state's heating assistance program to assist more Alaskan families.**

Discussion: The federal Low Income Heating Assistance Program pays a portion of the heating bills for about 9,500 Alaskan families that earn up to 150% of the poverty level. The new state Heating Assistance Program helps families earning up to 225% of the poverty level. However, when oil prices skyrocket, heating costs become a burden even for middle-income Alaskans. Consider expanding the program to include families up to 350% of the poverty level during times when the state is most able to afford it and Alaskans are most in need. Tier benefits by income level and other measures of need (e.g., local fuel costs).

Action: Draft legislation to expand the state's heating assistance program when surplus state funds are available.

C. Maximizing Energy Efficiency

Energy efficiency is a clean, cheap, abundant, and immediately available source of energy savings for Alaska and the nation. It helps to reduce carbon emissions, dependence on foreign oil, and the impact of debilitating energy costs. It is also a bargain. In contrast with conventional electrical generation, which nationally costs an average of \$.07-\$.15 a kilowatt hour, energy efficiency generally costs about \$.025 a kilowatt hour. It is also stably priced, in contrast with volatile fossil fuels, and beyond the reach of international disruptions.

The push for energy efficiency has been cast as an effort to “save negawatts” instead of generating more megawatts. It’s a way to meet energy needs without constructing costly new facilities. Most importantly, energy efficiency is not about sacrificing and deprivation. It’s about minimizing waste and doing the same or more with less. The cheapest form of energy is that which is not used.

The American Council for an Energy-Efficient Economy ranks Alaska 37th among the 50 states in terms of its energy efficiency policies. This provides Alaska with an opportunity. We can reduce our energy consumption and costs more easily than other states by harvesting the “low-hanging fruit” of energy efficiency.

1. Reduce demand for electricity and heating fuels by 10% by 2015.

Discussion: Fifteen states have adopted energy efficiency targets, known as Energy Efficiency Resource Standards. Texas began in 1999 with a goal of offsetting 10% of electric load growth with energy efficiency. With minimal cost, this goal was met and then increased to 15% by 2009 and 20% by 2010. Vermont achieved their 7% target in 7 years, with 1.5% more in 2007 and a goal of 2% per year thereafter. Since 2004, Hawaii has been meeting a 0.4-0.6% efficiency savings target each year, with a goal of 20% combined energy efficiency savings and renewable energy production by 2020. Nevada is shooting for a 20% decrease in electrical consumption by 2020 and an 18% decrease in natural gas use. After making energy efficiency upgrades to 8 public facilities, the State of Alaska reduced energy in those buildings by 24% in the first year alone.

Action: Establish an Energy Efficiency Resource Standard of 10% reduction in electricity and heating fuels by 2015.

2. Provide incentives to encourage Alaskans to replace inefficient appliances with more efficient ones.

Discussion: Several states (e.g., Oregon, Wisconsin, and Connecticut) provide rebates to homeowners who replace older energy-inefficient appliances (e.g., furnaces, clothes washers, dishwashers, refrigerators, and water heaters) with appliances that are substantially more efficient than federal standards. The Department of Energy reports that last year savings from Energy Star appliances were enough to power 10 million homes and avoid greenhouse gas emissions from 12 million cars. Consumers also saved a total of \$6 billion.

Action: Draft legislation to create an Alaska appliance rebate program and appropriate \$2 million to this program initially.

- 3. Provide technical assistance to businesses (e.g., through a commercial energy audit program) to help reduce overall energy demand and help businesses improve their profitability through energy efficiency.**

Discussion: The Alaska Energy Authority (AEA) plans to use federal stimulus funds to initiate a pilot technical assistance program. Such a program should be continued with state general funds.

Action: Appropriate \$100,000 to AEA for an ongoing technical assistance program to assist businesses with efficiency improvements.

- 4. Require Alaska's largest electric utilities to develop plans to increase their energy efficiency, including adoption of annual and 10-year energy savings targets, and annually report on their progress.**

Discussion: Setting measurable efficiency targets (known as Energy Efficiency Resource Standards) and looking at efficiency as a resource that must be attained will help utilities and the state to maximize energy efficiency. Annual reporting will provide consumers and the state with information that can be used to determine progress toward meeting statewide energy efficiency goals. It will also allow for a comparative analysis of actions designed to reduce energy consumption.

Action: Draft legislation requiring Alaska's largest utilities to develop and implement plans to increase energy efficiency and to provide annual progress reports to their customers.

- 5. Establish a pilot program to install building energy monitors in homes and small businesses to enable consumers to reduce their energy use in response to meter readings that reveal current energy usage and costs.**

Discussion: Building energy monitors help consumers determine how much energy they are consuming or a particular appliance is using. They have been shown to influence consumers to reduce consumption by 10-15%. The Alaska Energy Authority has \$75,000 to put towards a pilot building energy monitor program. States employing monitor technology by way of Smart Meters include Arizona, Idaho, and Missouri. California recently required utilities to provide Smart Meters to all customers. Some meters are available for Anchorage residents to rent at the Loussac and Anchorage School District libraries.

Action: Pending success of the Alaska Energy Authority's building energy monitor pilot program, appropriate an additional \$250,000 towards a more extensive building energy monitor program.

6. Implement a comprehensive public education campaign to increase energy efficiency and conservation to minimize the need for costly investments in additional energy infrastructure.

Discussion: Energy efficiency and conservation is typically 50-75% cheaper than building new power plants or buying energy on the open market. By setting efficiency goals and implementing a strong education campaign to meet those goals, the state and utilities can forecast anticipated energy efficiency gains over a set number of years and make appropriate infrastructure decisions to reduce the amount of energy produced by an equivalent amount, thereby saving energy and money.

Action: Task the Alaska Energy Authority and Alaska Housing Finance Corporation with conducting a statewide energy efficiency educational campaign and appropriate \$175,000 annually for this purpose.

7. Encourage the Department of Education to include energy efficiency lessons in K-12 curriculum.

Discussion: Educating children about energy efficiency helps them to develop energy efficiency habits which they will carry with them into adulthood. Children also inspire and influence the adults in their lives.

Action: Work with school districts and the state Department of Education to encourage integration of energy efficiency lessons into K-12 curriculum.

8. **Investigate the costs and benefits of requiring utilities to decouple revenues from sales to provide greater incentives for utilities to promote and invest in energy efficiency.**

Discussion: Decoupling separates utilities' revenue from their sales, thereby eliminating a disincentive for them to promote and invest in energy efficiency. Because most Alaska utilities are cooperatively rather than investor owned, decoupling in Alaska will require more research to ensure that it will not result in higher costs for ratepayers. According to the American Gas Association, 18 states had implemented revenue decoupling, with two states pending, including Nevada, Wyoming, Washington, and Oregon.

Action: Hold legislative hearings to better understand the pros and cons of decoupling utility revenues from sales in Alaska.

9. **Provide technical assistance to local governments interested in adopting energy efficiency standards for residential and commercial buildings.**

Discussion: Ninety-two percent of Alaskans live in communities with populations over 2,500; of those, 68% live in communities with building codes in place and 52% live in communities with energy codes in place. The Alaska Building Energy Efficiency Standard is already in place for residential energy efficiency through the Alaska Housing Finance Corporation. If we build new structures to be energy efficient, we won't need to weatherize as many structures, saving money in the long run.

Action: Provide assistance through the Alaska Housing Finance Corporation and Alaska Energy Authority in implementation, code enforcement, energy audits, and efficient building design to communities interested in establishing energy codes.

10. **Implement a voluntary Energy Efficiency Labeling Program for buildings.**

Discussion: Energy performance labeling supports increased energy efficiency by making the efficiency of buildings observable, in much the same way that the Energy Star labels provide information for consumers on appliance energy use. Labeling also supports other policies and programs, such as energy-efficient mortgages, promotion of energy efficiency by realtors and property inspectors, and incentives to promote energy efficiency upgrades of houses and buildings. This program could use the Alaska Housing Finance Corporation's AKWarm Energy Star rating system for new construction as well as the Weatherization program to rate retrofits. The American Society for Heating, Refrigerating and Air-Conditioning Engineers will release a building energy label in 2010.

Action: Hold legislative hearings to better understand the pros and cons of implementing an Energy Efficiency Labeling Program for buildings.

11. Make low-interest loans available to Alaska's commercial fishers for energy efficiency upgrades.

Discussion: Volatility in fuel costs continues to have an impact on Alaska's commercial fishing fleets, cutting into profits and threatening productivity. In recent years, advances have been made in diesel and outboard engine technologies, vastly improving fuel efficiency and performance. There have also been substantial developments in alternatives to traditional diesel and gasoline generator sets and modifications to vessel hulls, which significantly boost energy efficiency. Commercial fishers across the state are eager to take advantage of these and other new technologies that significantly lower operating costs.

Action: Consider HB 20, "An Act relating to commercial fishing loans for energy efficiency upgrades and increasing the maximum amount for certain loans under the Commercial Fishing Loan Act."

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D. Investing in Renewable Energy

While energy efficiency and conservation are the most immediate and cost-effective ways to address the high cost of energy in Alaskan communities, renewable energy development will play an important role in creating long-term solutions to Alaska's energy challenges. By providing a source of flat-priced, inexhaustible, and locally produced electricity, renewable energy offers many advantages over the unstably priced, finite, and logistically challenging fossil fuels that many communities rely upon for electricity, heat, and transportation. Hydroelectric, biomass, wind, geothermal, and solar power are all renewable energy sources that utilize proven and commercially available technologies.

Hydroelectric

Hydroelectric power is generated from the movement of water flowing from a higher to a lower elevation. It is Alaska's largest source of renewable energy, accounting for 24% of the state's electrical generation. Alaska has an estimated 40% of the U.S.'s untapped hydroelectric power. While most of Alaska's hydroelectric potential is in the Southeast region, there are two Southcentral projects currently being studied that could meet a significant portion of the Railbelt's annual energy needs: the Susitna Dam project, which would be located in the Mat-Su region and feature a system of two dams producing up to 1,800 MW, and the 330 MW Chakachamna Project, a proposed lake tap system that would be located 84 miles southwest of Anchorage.

Biomass

Biomass energy, which can be used for both heat and power, is generated through the combustion of biomass materials, including wood, agriculture products, solid waste, fish waste, biodiesel and other biofuels. Biomass, in the form of cordwood, has long been a staple for heat generation in Alaskan homes, but new technologies and high diesel prices are making wood, fish waste, solid waste, and other types of biomass a viable source of heat and even electricity. Alaska's potential for biomass development is high, with an estimated 10 times more unused biomass energy resource potential than needed to offset diesel fuel used for power production in rural Alaska.

Wind

Wind energy is generated by using turbines to harness the kinetic energy of the wind to generate electrical energy. Alaska has abundant wind resources suitable for development. The largest areas of class 7 "superior" wind power in the U.S. are located in Alaska and much of coastal Alaska has "good," "excellent," or "superior" wind resources. While some

rural communities in Western Alaska have been using wind energy to displace diesel fuel for over a decade, the installed capacity of wind energy in Alaska is comparatively small and was recently doubled with the completion of the 4.5MW Pillar Mountain Wind Project in Kodiak. Other wind energy projects being planned or developed include a 54MW project on Fire Island near Anchorage and the 25MW Eva Creek project north of Healy, which together could provide approximately 5% of the Railbelt's annual electrical energy.

Geothermal

Geothermal energy is derived from heat within the earth and is used to provide either direct heat or to produce electricity. While there is only one operating geothermal electric plant in Alaska, a 400kW plant at Chena Hot Springs near Fairbanks, the potential for the development of this resource is well documented, with vast resources along the Aleutian Islands and significant prospects in dispersed areas throughout the state. Sites that have significant potential for electrical generation and that are near enough to population centers to be developable include Akutan on the Aleutians Islands; Mt. Makushin, near Dutch Harbor; and Mt. Spurr, across Cook Inlet from Anchorage.

A form of heating/cooling technology called geothermal heat pumps or ground-source heat pumps utilize geothermal energy to extract heat from or disperse heat to the ground. These devices, despite their high installation costs, are becoming an increasingly cost-effective means to heat and cool buildings and may be particularly viable in areas where the only option for heating is costly diesel fuel.

Solar

Solar energy uses radiation from the sun for heating and electrical generation. Although somewhat limited by Alaska's long, dark winters, solar power is being used in a handful of Interior rural communities, including Lime Village, Stony River, and Tanana, to offset power otherwise produced through diesel generators.

Renewable Energy Policies

- 1. Incentivize the development of renewable energy sources by creating a state production tax credit for renewable energy generation.**

Discussion: In energy plans across the nation, production incentives are playing an increasingly important role in encouraging the development of renewable energy resources. Twenty-five states offer some sort of renewable energy corporate tax incentives and five states and the federal government offer production tax credits.

Because a production tax credit can only be claimed by a power producer that has made a significant investment in infrastructure and is already producing electricity, it allows the state to incentivize renewable energy development without requiring large state appropriations to unproven projects and technologies.

Action: Pass SB 31, "An Act relating to a geothermal electricity production tax credit under the Alaska Net Income Tax Act."

2. Provide low-cost financing for customer-owned renewable energy systems.

Discussion: Fifteen other states have programs that offer reduced-interest loans to businesses, residents, non-profits, and other sectors for installing renewable energy systems that generate energy for their own use or otherwise reduce the amount of electricity consumed. A state renewable energy loan program could provide an alternative to costly state grant programs while still assisting end-users with the high capital costs of purchasing and installing renewable energy systems.

Action: Draft legislation establishing a low-interest loan program for businesses, residents, and non-profits interested in investing in a renewable energy project.

3. Provide financial incentives to utilities to invest in renewable energy systems.

Discussion: Community- or utility-scale renewable energy production is generally more cost effective than smaller scale renewable energy projects. The Power Project Fund currently has \$5.2 million remaining for loans at a variable rate of 5.7%. Increasing the funding and relaxing the interest rate for renewable energy projects will help incentivize utilities to develop and expand renewable projects. These incentives will also help utilities meet renewable portfolio goals or standards.

Action: Lower the interest rates for Power Project Fund loans for renewable energy projects.

4. Continue to appropriate \$50 million a year to the Renewable Energy Fund through 2012.

Discussion: In 2008, the Legislature pledged \$300 million in funding over a five-year period for in-state renewable energy projects by creating the Renewable Energy Fund. The Renewable Energy Fund provides grants of up to \$4 million dollars to eligible renewable energy studies and projects including feasibility and reconnaissance studies, energy resource monitoring, and construction of renewable energy projects, natural gas

projects, or infrastructure for transmission or distribution. Continuing to support the Renewable Energy Fund through FY2012 will allow the Legislature to fulfill its five-year pledge to helping communities throughout the state develop their renewable energy resources and transition off of traditional fossil fuels sources.

Action: The Legislature should continue to appropriate \$50 million a year through 2012 to the Renewable Energy Fund.

5. Ensure utilities generate and/or purchase renewable energy by establishing a renewable portfolio standard or goal.

Discussion: Thirty-two states have some sort of renewable portfolio standard or goal in place. Despite having their own unique challenges to producing renewable energy, these 32 states realized the importance of increasing their renewable energy production capacity and the necessity of having a quantifiable goal to work towards. These states have taken varying approaches to crafting renewable portfolio standards or goals that take into account their own unique energy needs and individual challenges.

Action: Work with utilities and other stakeholder groups to draft legislation establishing renewable portfolio standards or goals for the state.

6. Institute a net-metering program.

Discussion: Net-metering is required by law in most US states. It is an important component in the efforts of other states to encourage businesses and individuals to invest in renewable energy systems and to generate their own power. As with renewable portfolio goals, there have been a wide range of approaches taken to adopting net-metering programs and Alaska should be able to develop a program that works for our unique energy needs and challenges.

Action: Consider SB 131, HB 31, and HB 66, "An Act relating to net energy metering for retail electricity suppliers and customers."

7. Require utilities to report annually to their retail customers their sources of electricity (i.e., their "fuel mix").

Discussion: Utilities in Washington, Oregon, and many other states regularly report the sources of the electricity sold to retail ratepayers to encourage investment in renewable energy. These initiatives, known as "fuel mix disclosures," are intended to educate

customers about the fuels that are used in producing the electricity they use in their homes and businesses.

Actions: Draft legislation requiring electric utilities to report their fuel mix to customers on an annual or semi-annual basis. Encourage utilities to offer renewable energy purchase plans in addition to the standard rate plans, This could be modeled after the Sustainable Natural Alternatives Program (SNAP) offered by Golden Valley Electric Association and Homer Electric Association.

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E. Ensuring that Energy is Affordable for Alaskans

The prices Alaskans pay for energy are among the highest in the nation. In July 2009, the mean price for gasoline in 99 Alaska communities was \$5.37 per gallon, with some communities (e.g., Arctic Village) paying up to \$10/gallon. Nationally, the average price for gasoline was \$2.46. During the same month, heating fuel averaged \$5.36 a gallon in Alaska, with some communities (e.g., Wainwright) charging nearly \$8/gallon to commercial customers. Nationally the average price for heating fuel during 2009 averaged \$2.51.

Unfortunately, these costs are growing, especially as a percentage of household income. In 2000, remote households with the lowest incomes spent an estimated 16% of their income on home energy. By 2008, this had ballooned to 47%, according to the Institute for Social and Economic Research. For many Alaskans, help is needed.

1. Ensure Alaskans pay a fair price for the energy they consume.

Discussion: Alaskans pay significantly more for energy than residents of other states. For example, gasoline prices are significantly higher in Alaska than in other western states, even when transportation costs are included. Heating fuel costs are also exceptionally high, particularly in rural areas, burdening families and crippling businesses. One tool other states have employed to control costs is to prohibit sellers from charging excessive and exorbitant prices for products consumers rely on and to require them to justify those prices when they're necessary.

Action: Consider price gouging legislation, including amended versions of SB 54 and HB 68.

2. Evaluate whether the State of Alaska should help to lower heating fuel prices or smooth out price volatility and if so, how this can be accomplished in a way that minimizes unintended consequences.

Discussion: Implementation of a program to subsidize fuel costs or smooth out price volatility is complicated and requires thorough consideration and input from a wide range of stakeholders. However, it could have substantial benefits for Alaskan households and businesses and deserves further study.

Action: Consider SB 162, "An Act relating to a heating fuel energy relief program," SB 91, "An Act relating to the emergency energy relief program of the Alaska Energy Authority," and related proposals.

3. **Encourage the Regulatory Commission of Alaska (RCA) to come up with a predictable pricing methodology for Cook Inlet gas in collaboration with utilities, gas producers and consumers.**

Discussion: Review and approval of gas supply contracts is a time-consuming and expensive process for all parties. Achieving agreement early on about an acceptable pricing methodology will facilitate future reviews, reducing costs and delays.

Action: Consider legislation that would either establish a pricing methodology or require the RCA, in concert with stakeholders, to develop one.

4. **Develop a statewide fuel buying cooperative to cut the costs of heating fuel for Alaskans.**

Discussion: In many communities, fuel purchases are made independently by the utility, school, and other entities. Communities don't attain the benefits of buying fuel in as large a quantity as possible. If purchasers within communities and between communities were able to join together and purchase fuel through a regional or statewide cooperative, they should be able to secure lower prices and better terms.

Action: Draft legislation mandating the Alaska Energy Authority to assess interest in developing such a cooperative and assist in its development, if warranted.

F. Developing Alaska's Energy Resources

Alaska's natural resources are vast and impressive. We are the second largest oil producer among the 50 states, having produced almost 17 billion barrels of oil since statehood. Prudhoe Bay is the largest oil field in the United States, and the North Slope contains 14 of the 100 largest oil fields in the country. Alaska also contains huge reserves of natural gas. The Department of Energy estimates that there may be up to 124 trillion cubic feet of recoverable natural gas on Alaska's North Slope alone. We also have roughly half of the coal reserves in the U.S. and nearly 1/8 of the world's reserves. With the potential for 5,500 billion short tons of coal, Alaska has been referred to as the "Saudi Arabia of Coal."

Yet, resource development in Alaska, with its rough conditions and vast distances, is challenging and expensive. North Slope oil production peaked at over 2 million barrels a day in 1998 and has declined to about 662,000 barrels per day in 2009 -- a 66% reduction. Currently, Alaska accounts for about 13% of the nation's domestic oil production, while for years it averaged 20%. Alaska has only one operating coal mine, and natural gas production in Cook Inlet is declining rapidly, threatening businesses and households with the prospect of rolling back-outs and the need to turn down thermostats.

Alaska must act with purpose and resolve if we wish to maintain a robust economy with high paying jobs and a state government capable of providing needed services to its citizens. About 42% of current state revenue comes from oil production. This revenue stream must be enhanced and diversified if Alaska is to have the resources to build new infrastructure to meet its energy needs over the next fifty years.

1. Fully support efforts to bring Alaska's North Slope natural gas to market, maximizing benefits to Alaskans.

Discussion: More than 35 trillion cubic feet of natural gas are known to exist on Alaska's North Slope, and geologists estimate that an additional 150 trillion cubic feet will likely be discovered. As oil production on the North Slope declines, these vast reserves of gas can provide clean-burning affordable gas to Alaskans and the Lower 48, jobs for Alaskans, and a steady source of income to the state to pay for state services. Construction of a pipeline to bring Alaska's gas to market is one of Alaska's highest energy priorities.

Actions: Stay the present course and await the results of the competing "open seasons" scheduled for 2010, one by TransCanada Alaska and ExxonMobil and the other by

ConocoPhillips and British Petroleum. During open seasons, pipeline builders solicit interest from gas producers and others in shipping their gas. Prepare for negotiations with gas producers by ensuring that the state has the technical and commercial expertise to carry out effective negotiations.

- 2. Evaluate Alaska's natural gas tax regime to ensure it maximizes returns to the state for its gas resources, while providing a reasonable incentive to monetize Alaska's gas.**

Discussion: When oil prices are high and gas prices are low, Alaska's current production tax may not adequately compensate Alaska for its valuable gas resources. The legislature should thoroughly evaluate the current tax system to ensure that Alaskans receive a fair return for their gas under all price scenarios.

Actions: Following conclusion of the two "open seasons" and once there is greater alignment between gas producers and pipeline companies and more data available about the economics of the various proposals, undertake a review of Alaska's gas tax regime to determine whether modifications are necessary.

- 3. Pursue environmentally responsible drilling off Alaska's coast with significant sharing of associated revenues between the state and federal government.**

Discussion: Responsible oil and gas development in federal waters off Alaska's coast will provide jobs for Alaskans, extend the life of the Trans-Alaska Pipeline, and move Alaska and the nation towards energy independence and security. This must be accompanied by significant sharing of revenue from offshore development between the federal government and affected coastal states, including Alaska. These states support offshore development with infrastructure, such as roads, docks and pipelines, and bear the responsibility for dealing with impacts from offshore development. Persistent leadership from the legislature and executive branch and close coordination with Alaska's congressional delegation will be needed to ensure that drilling is allowed and revenue shared in a fair manner.

Actions: Actively promote oil and gas development off Alaska's coast and a system of revenue sharing that fairly compensates coastal states for their support of offshore development. Work closely with Alaska's congressional delegation and Secretary of the Interior Salazar.

- 4. Support the development and extraction of Alaska's heavy and viscous oil resources and pursue opportunities to make Alaska a worldwide center for heavy and viscous oil research and development.**

Discussion: Heavy oil, a type of crude oil which is very viscous and does not flow easily, is far more difficult and costly to extract, transport, and refine than the medium grade Alaska North Slope crude traditionally extracted from the North Slope. However, heavy oil is also far more abundant: there are over 20 billion barrels of known heavy oil reserves on Alaska's North Slope, with the potential for another estimated 100 billion barrels yet to be discovered. The State of Alaska should encourage and support the development and use of new technologies to develop these heavy oil resources. The State of Alaska should also take the lead in viscous oil research by creating an Arctic Resource Research Center that could serve as a central research facility for heavy and viscous oil development worldwide. By engaging partners with heavy oil resources from around the world, Alaska could facilitate research and provide insights into viscous oil development and environmental issues that could be exported to northern climate countries and other regions with abundant viscous oil resources. (Source: DOR 2006 Fall Revenue Sources Book.)

Action: Maintain support for Alaska's net profits tax, which enables producers to deduct expenditures and receive tax credits for costly capital investments, making it more economic to develop more challenging oil fields.

5. Urge Congress to pass legislation to open the coastal plain of the Arctic National Wildlife Refuge to responsible oil and gas exploration and production.

Discussion: The oil industry, the state, and the United States Department of the Interior consider the Arctic coastal plain to have the highest potential for discovery of very large oil and gas accumulations on the continent of North America, estimated to be as much as 10.4 billion barrels of recoverable oil. Opening the Arctic coastal plain to oil and gas exploration and development could strengthen the nation's energy security while ensuring a long-term revenue source for the state and creating jobs for Alaskans. Furthermore, new technologies and drilling practices have greatly reduced the impact of oil and gas exploration and development on the environment, allowing for a smaller environmental footprint than previously possible.

Action: Maintain pressure on Congress and President to authorize oil and gas development in the Arctic coastal plain.

6. Support efforts to open the National Petroleum Reserve, Alaska to responsible oil and gas development.

Discussion: The National Petroleum Reserve, Alaska is a 23-million acre area on the North Slope set aside in 1923 to provide an emergency oil supply for the nation. It contains an estimated 9.3 billion barrels of oil and 59.7 trillion cubic feet of natural gas. Environmentally responsible development of this area, which considers local subsistence activities and critical wildlife needs, would extend the life of the Trans-Alaska Pipeline, provide jobs for Alaskans, and help support construction of a natural gas pipeline.

Actions: Advocate for regularly scheduled lease sales within NPRA and streamlined permitting.

7. Ensure and expedite the development of oil and gas resources in the Pt. Thomson area of Alaska's North Slope.

Discussion: The Pt. Thomson Oil Field, about 60 miles east of Prudhoe Bay, is believed to hold 200 million barrels of liquid hydrocarbons and 8 trillion cubic feet of gas. This vast gas reserve is equal to about a quarter of the known gas reserves on the North Slope and is critical to construction of a large diameter gas pipeline from the Slope. For several decades, the gas at Pt. Thomson has not been developed, despite repeated assurances from North Slope producers that the area would be developed. As a result, the Department of Natural Resources terminated the Pt. Thomson unit and revoked leases within it, citing breach of contract. This summer, in keeping with an agreement with the state, ExxonMobil and its partners drilled the first exploratory wells in the area since 1982. The state must be vigilant to ensure that work continues and this resource is developed for the benefit of all Alaskans.

Action: Support the Administration's efforts to ensure that oil and gas exploration and development activities proceed at Pt. Thomson.

8. Closely monitor all state oil and gas leases to ensure that leasees actively explore for and produce oil and gas wherever economically practicable.

Discussion: Alaska's oil and gas is a public resource that Alaskans rely on to fuel our economy and support critical state services. Alaskans deserve the assurance that when we lease land to an exploration or development company, exploration and production will proceed if economically feasible. Close monitoring will help assure that.

Action: Ensure that the Department of Natural Resources has adequate staffing to monitor lease activity, using the best available information on reservoir engineering and production costs.

9. **Evaluate the costs and benefits of constructing an instate pipeline (bullet line) to transport North Slope or Foothills gas to the Railbelt, including associated transportation tariffs.**

Discussion: No decision should be made about state support or financial incentives for an in-state gas line until policy makers and the public know the cost of transporting gas to the Railbelt. Those costs will depend in great part on anticipated demand for gas; volume and construction cost will determine the pipeline tariff.

Actions: Review the results of economic analyses, due in June 2010, which will estimate pipeline costs and tariffs. Determine private sector interest in the project and determine whether state participation is needed.

10. **Support efforts to develop additional storage capacity for natural gas in Southcentral Alaska to meet peak winter demand.**

Discussion: Regardless of where the Railbelt gets its natural gas in the decades ahead, the region will need additional storage capacity to enable utilities to buy gas in the spring, summer and fall and hold it for use during peak-demand winter months. Developing large-volume storage capacity in the Railbelt will be costly and must be initiated soon to meet anticipated need.

Action: Analyze whether incentives are needed to encourage private developers to develop Cook Inlet storage capacity open to all gas producers for a reasonable fee.

11. **Provide incentives for new oil and gas development in Cook Inlet.**

Discussion: Alaska's largest population center, Anchorage, along with the Kenai Peninsula and Mat-Su Valley, relies on natural gas from Cook Inlet to generate power and heat homes. However, production in the Inlet is rapidly declining and Railbelt utilities lack sufficient gas under contract starting in 2011. Without new exploration and gas production from Cook Inlet, consumers could face electricity and gas shortages, higher rates and/or forced conversion to other power-generating fuels such as diesel. It is imperative that the state consider a range of incentives and strategies to increase exploration and production in Cook Inlet, where the Department of Natural Resources estimates 7-8 trillion cubic feet of gas likely remain.

Actions: Evaluate a range of incentives to stimulate additional investment in Cook Inlet, including providing a state subsidy or matching grant for exploration; paying to mobilize

or demobilize a jack-up rig; creating state/private sector partnerships to explore outside of existing units; conditioning state support for a renewed liquefied natural gas (LNG) export license on development of new reserves in exchange for export license; and creating a more functional market for Cook Inlet gas through posting of gas prices and flexible pricing. Complete updated gas reserve estimates for Cook Inlet. Ensure that gas explorers and producers have access to the non-wilderness areas of Kenai National Wildlife Refuge. Improve the pipeline system to ensure gas can flow wherever needed. Encourage development of storage facilities that are open to all producers. Require the Regulatory Commission of Alaska to consider supply as well as price. Require companies doing business in Cook Inlet to share subsurface information, including engineering data, reservoir characteristics, and seismic mapping in exchange for the unusually low tax rates in the Inlet.

12. Identify and evaluate all potential sources of natural gas for the Railbelt.

Discussion: In addition to increased production from Cook Inlet and pipeline gas from the North Slope or the Foothills, the other two options for a gas supply for the Railbelt are Doyon's gas prospects in the Nenana Basin and imported liquefied natural gas delivered by tanker to Cook Inlet. Either option would require substantial capital investment and thorough economic evaluation to determine their economic feasibility as a temporary source of gas for the Railbelt.

Action: Evaluate the findings and recommendations of the Regional Integrated Resource Plan for Southcentral, once the plan is completed in December 2009.

13. Ensure the continued viability of Alaska's largest refinery.

Discussion: The Flint Hills North Pole Refinery is the state's largest refinery, with a crude oil processing capacity of about 220,000 barrels per day. It supplies gasoline, jet fuel, heating oil, and diesel to Alaska markets. Due to decreased demand for jet fuel, the refinery has shut down one of its three processing units. In addition, when oil prices skyrocketed in 2008, the refinery experienced financial difficulties and managers said they were considering whether to shut down, sell or significantly alter the refinery. Current cuts in production have already affected the state's economy, causing the Alaska Railroad to lay off employees and reduce service. State policymakers have suggested various strategies to help sustain the refinery, including possible transfer of ownership to a state corporation and/or breaks in royalty prices paid on state oil used by the refinery. At current oil prices this may not be necessary, but future oil price spikes could threaten the viability of the refinery.

Action: Ask the Department of Natural Resources to prepare an action plan for maintaining the viability of this refinery, including possible transfer to a state corporation.

14. Support responsible exploration and development of Alaska's coalbed gas resources and continue to study the potential for coalbed methane to serve as a local energy source for rural Alaskan communities.

Discussion: Coalbed methane or coalbed gas is a form of natural gas extracted from coal beds. Alaska's hypothetical coal resources exceed 5.5 trillion short tons and may contain up to 1,000 trillion cubic feet of coalbed methane and other coalbed gases. Coalbed methane could be an attractive alternative to diesel fuel, particularly in rural Alaska. The Division of Geological and Geophysical Surveys, in cooperation with the U.S. Geological Survey, is currently developing a drilling program that will assess the coalbed gas potential for identified sites in western North Slope, the Yukon, and Alaska Peninsula. The State should continue to support these efforts and others like it to access the potential for coalbed gas as an energy source.

Actions: Offer shallow gas leases as interest is expressed and ensure that local input is fully considered. Gather data on coalbed methane resources.

15. Support the development of underground coal gasification (UCG) technology in Alaska.

Discussion: Cook Inlet Region Inc. (CIRI) is proposing to develop an innovative underground coal gasification project in Cook Inlet to fuel a new 100 MW power plant. The coal would be turned into a synthetic gas, similar to natural gas, underground, leaving ash and other hazardous byproducts far below the surface. This technology, which does not require any mining, has been used in other countries for over 50 years. The CIRI project would also capture and sequester carbon emissions and use them to enhance oil recovery in the Inlet. CIRI believes they have enough coal on their land to produce power for the Railbelt for 10,000 years. Because the process for underground coal gasification is new to Alaska, there currently is no regulatory structure or permitting process appropriate for this form of development.

Action: Work with the Department of Natural Resources to draft legislation to craft a regulatory structure and permitting process appropriate for underground coal gasification.

16. Support efforts to separate propane from North Slope natural gas and transport it to communities around the state.

Discussion: About 2% of North Slope natural gas is propane, which could be separated from the rest of the gas stream and trucked or barged to communities around the state for heating, cooking, and electrical generation. Such a plan would require construction of a propane processing plant on the North Slope. Propane could serve as a bridge fuel until a gas pipeline is built and could support a value-added export industry in the long-term.

Actions: Evaluate storage and distribution needs within communities if this project is shown to be economically viable. Make appropriate investments.

17. Support efforts to explore for natural gas in the Nenana Basin, Gubik Field, and other promising areas.

Discussion: Rather than place all hopes on a North Slope pipeline or increased Cook Inlet discoveries, the state should support efforts to search for gas in the Nenana Basin and Gubik fields. Diversifying gas sources and evaluating multiple options will help ensure a stable source of gas supply for the Railbelt.

Action: Thoroughly evaluate oil and resource potential on state lands. Maintain a robust and easily accessible database of this information for new explorers. Provide predictable land access.

18. Address Alaska's marine infrastructure deficit in the Arctic.

Discussion: As arctic marine shipping increases to support the State's on-shore and off-shore oil and gas development, Alaska must improve its arctic marine infrastructure. Examples of needed infrastructure include communications systems, port facilities, ice information centers, places of refuge, icebreakers, and equipment to assist in emergency response and oil spill clean-up.

Action: Request the Governor's Administration to develop cost estimates and timelines for making needed infrastructure improvements.

19. Support efforts to ratify the United Nations Convention on the Law of the Sea to enable greater oil and gas development off Alaska's coast.

Discussion: The U.N. Convention on the Law of the Sea permits member nations to claim an exclusive economic zone out to 200 nautical miles from shore, with an exclusive sovereign right to explore, manage, and develop all living and nonliving resources, including deep sea mining, within that exclusive economic zone. The U.S. Arctic Research Commission estimates that the Law of the Sea Treaty would permit the U.S. to lay claim beyond the present 200-mile exclusive economic zone to an area of the northern seabed off Alaska that is equal in size to California. This area is likely rich in oil and gas resources. In order for the U.S. to exercise greater control over the Arctic and exercise jurisdiction over an extended area of the continental shelf, the U.S. must ratify the Law of the Sea Treaty, which has been pending since 1994.

Action: Advocate for U.S. Senate ratification of the Law of the Sea Treaty.

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G. Leading by Example: State Government Initiatives

State government is one of the largest energy consumers in Alaska. There are nearly 1,800 state owned buildings and facilities, 24,500 state employees, and 6,291 vehicles in the state fleet. In just 12 of its buildings, the state spent nearly \$1.9 million on electricity and \$1.2 million on heat last year. In addition, more than \$4.3 million was spent on transportation fuels. By committing to reducing the amount of energy used in public buildings and fuel consumed by state vehicles, not only can the State of Alaska save money and reduce environmental impacts, but it can also serve as an example to local governments, businesses, nonprofits, and citizens that energy efficiency and conservation measures work.

Committing state funding toward energy efficiency in state operations could also have the secondary benefit of providing the business to attract performance contractors, energy auditors, and retailers that sell efficient appliances, vehicles, and other products to Alaska. Additionally, by committing to purchasing electricity produced from renewable energy sources like wind, hydro, and geothermal and to using alternative and renewable energy fuels like biodiesel, compressed natural gas, and synfuels in state vehicles, the state could encourage the further development of those technologies.

1. Adopt energy savings targets for state agencies.

Discussion: In addition to retrofitting public facilities to meet energy efficiency standards, setting energy efficiency targets within state agencies can help reduce energy consumption. Idaho and Kentucky are among the states that have set efficiency targets for state agencies.

Action: Draft legislation requiring the Department of Administration to set energy savings targets for state agencies.

2. Set standards of efficiency for construction of new public facilities and complete energy audits and efficiency retrofits for existing public facilities.

Discussion: As the owner of nearly 1,800 public facilities, the easiest way for the state to reduce energy costs is to maximize the energy efficiency of these facilities. Efficiency measures put in place in eight state buildings cut electricity usage by 22%, natural gas by 15%, and fuel oil by 36%. The total reduction in energy use for these eight facilities in the first year was 24%.

Performance contracts, under which contractors pay for energy assessments and building retrofits upfront and then are reimbursed incrementally through annual energy savings, allow the state to retrofit many more buildings than could be funded normally. To help the state identify which facilities consume the most energy and prioritize energy retrofit projects accordingly, an energy use index database containing energy use data for each public facility should be established using utility bills. By prioritizing retrofit projects and using performance contracts, the state, school districts and the University can begin saving energy right away and save in operating costs for years to come.

Actions: Draft legislation directing the Department of Transportation and Public Facilities to adopt energy efficiency standards for new public facilities and to retrofit as many existing facilities as possible, using cost-effective performance contracting. Pass SB 121, "An Act relating to energy efficiency for public facilities with the intent to reduce state operating costs."

- 3. Establish standards favoring the procurement of appliances, equipment, lighting and other devices that bear the "Energy Star" label or meet other requirements prescribed by federal or state law, whenever cost-effective.**

Discussion: Energy Star appliances can save upwards of 60% in energy consumption. Compact fluorescent lights use 75% less energy and last 10 times as long as incandescent bulbs. These more efficient products save in energy, replacement and operating costs.

Action: Draft legislation requiring the Department of Administration to adopt regulations establishing standards favoring the procurement of equipment that bears the "Energy Star" label or meets other requirements prescribed by federal or state law, whenever cost-effective.

- 4. Use the most cost-effective, safe and energy efficient broad spectrum lights on roadways.**

Discussion: There are approximately 31,000-36,000 roadway lights in Alaska. Current maintenance costs are \$200/hr and replacements occur every 2.5 years. The per lamp cost for energy efficient LED lights is about \$268. These energy efficient bulbs last 15-20 years with no maintenance required. Payback is approximately 7 years. The Municipality of Anchorage has replaced most of the bulbs throughout the municipality. Unfortunately, because many arterial roadways are state roadways, the Municipality has been unable to replace the bulbs at those intersections. A state requirement for efficient lighting at these arterial intersections is estimated to achieve an additional 20%

in efficiency. As of early September 2009, the Municipality of Anchorage had already realized approximately \$150,000 in savings from replacement of 4,200 roadway fixtures in Anchorage.

Action: Draft legislation requiring the Department of Transportation and Public facilities to use energy efficient broad spectrum lights on roadways, where safe and cost-effective.

5. Update state vehicle fleets to be more fuel efficient.

Discussion: Last year the state spent roughly \$4.3 million on transportation fuel. If state fleets were even 10% more efficient, savings would exceed \$400,000 annually. Replacement of inefficient vehicles with vehicles that meet the EPA's fuel economy guide will save costs and reduce greenhouse gases. Montana, Maine, Washington and Utah are among the states that require state agencies to manage transportation fuel consumption and promote the use of clean domestic alternative fuels.

Action: Draft legislation requiring the Department of Administration to adopt a policy that favors purchase of high-efficiency vehicles.

6. Purchase renewable energy, where available and affordable, to account for a certain percentage of state agency electrical consumption.

Discussion: Renewable energy purchase programs support renewable energy generation by providing a consistent, reliable consumer that is willing to pay a premium for electricity from renewable energy sources. By guaranteeing that the government will purchase a certain amount of renewable energy, purchase programs provide a degree of security that makes investment in renewable energy projects more attractive to utilities. Purchase programs also help utilities meet renewable energy portfolio standards and goals, providing a guaranteed payback on a certain portion of renewable energy production. Nine other states have green or renewable energy purchase programs established on the state level.

Action: Draft legislation requiring the Department of Administration to adopt a policy requiring state facilities to purchase renewable energy, wherever available and affordable.

7. Incorporate viable renewable energy sources into the planning, construction, and operation of new public works projects.

Discussion: By incorporating viable renewable energy systems (ground and water source heat pumps, solar, micro-hydro, etc.) into new public works projects, the state could offset considerable long-term operating costs for a relatively small, if any, increase in capital costs for new public works projects.

Action: Pass SB 71, "An act relating to alternative energy systems for public works."

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H. Moving Forward: Transportation in the 21st Century

Transportation accounts for 33% of all energy consumed in Alaska, which makes it the second largest energy-consuming sector of the state economy. As with other types of energy, transportation fuels are also more expensive in Alaska than elsewhere. In July 2009, the average price for gasoline in 99 Alaska communities was \$5.37 per gallon, with some communities paying up to \$10/gallon. Nationally, the average price for gasoline in July was \$2.46.

Moving Alaska forward in the 21st century will require using more efficient vehicles and providing a greater variety of transportation options. Improving public transportation and pedestrian and bike trails will help to reduce fuel consumption, congestion and greenhouse gases. Nationwide, only 2.5% of trips are made using public transit. If that percentage were increased to 10%, research shows that our nation's dependence on foreign oil could be reduced by more than 40%.

1. Support the development of community transit systems and plans to provide alternatives to private passenger vehicles for transportation.

Discussion: On-road vehicles account for approximately 18% of household energy budgets and a similar proportion of greenhouse gas emissions. Community transportation systems provide accessibility to underserved members of the public, including senior citizens, low income workers, the physically handicapped and students, and facilitate their ability to get to jobs, school, and medical facilities. Alaska currently has 11 land-based community transit systems and is one of only three states that do not invest any general funds in public transit operations.

In 2008, Anchorage's People Mover transported over 4.2 million riders an average of 4.5 miles per rider, displacing approximately 1 million gallons of gasoline and 20 million pounds of CO₂. Although ridership has increased on People Mover, lack of public transit funds has led to service cuts. Other local governments (e.g., the Mat-Su Borough and Kenai Peninsula Borough) are also struggling to raise sufficient local matching funds to secure federal funds and have had to leave federal funds on the table.

Actions: Appropriate up to \$3 million annually to help communities match up to \$9 million in federal public transit dollars. In addition, create a Community Transportation Trust Fund to provide long-term support for public transit programs and consider SB 152, "An Act relating to municipal transportation systems and to regional transit authorities."

2. Remove from law limits on the percentage of State Transportation Improvement Program (STIP) funds that can be spent on alternative transportation infrastructure.

Discussion: Such decisions should be left to local government and transportation experts, so they have the flexibility to make decisions which will help reduce congestion and save energy. Funding decisions should be made on a case by case basis.

Action: Draft legislation to modify state law so that State Transportation Improvement Program funds can be spent on alternative transportation infrastructure.

3. Support legislation that encourages the expanded use of electric cars.

Discussion: Electric cars have the potential to reduce energy costs in Alaska communities, in some cases with excess electricity from renewable sources. Electric cars and potentially four-wheelers are well suited for off-highway use and are a natural fit for rural Alaskan communities. Every 1,000 miles driven in a low-speed electric vehicle saves 39 gallons of gasoline, which requires two 55-gallon barrels of crude oil to produce.

Action: Consider SB 59 "An Act relating to the operation of low-speed vehicles" and consider establishing a grant fund to help local governments to install electric car recharging stations and to incentivize the purchase of electric cars.

4. Encourage drivers to minimize unnecessary idling through a public education campaign.

Discussion: Idling an engine for more than 10 seconds wastes more fuel and produces more carbon dioxide than restarting an engine. Twenty-two states plus the District of Columbia have enacted some form of anti-idling regulations. Idling in temperatures below freezing and of emergency, repair and safety vehicles can be exempted. With technology that is now available, buses can be automatically switched off if left idling for over five minutes.

Action: Consider initiating a public education campaign to minimize unnecessary vehicle idling when temperatures permit. Investigate adoption of idling regulations for state fleets, buses and heavy equipment.

I. Supporting Emerging Energy Technologies

Alaska is fortunate to have ample energy resources from both renewable sources like hydro, geothermal, and wind as well as nonrenewable sources, including oil, gas, and coal. While the state has been investing in state of the art technology that capitalizes on both types of resources for decades, those investments have tended toward proven, "off-the-shelf" technologies. It is equally important that the state also support and encourage the research and development of emerging and pre-commercial energy technologies.

New energy technologies will be key not only in getting the most out of Alaska's known energy resources, but also in encouraging the discovery and development of new and untapped sources of energy. Liquefaction technologies that turn coal and gas into liquid fuels, gas hydrates trapped beneath the permafrost of the North Slope, electricity generated from the energy potential of ocean tides and waves – each of these new energy technologies could provide promising solutions to some of Alaska's energy challenges.

Alaska, because of its extreme landscapes, varied climates, and, most importantly, because of its high energy costs, has the advantage of being one of the most promising places to develop pre-commercial energy technologies. With many places in the state paying over \$1/kWh for electricity and \$8/gallon of diesel, research and development projects can prove financially viable here where they would no place else in the United States.

- 1. Create and fund a grant program targeted toward the development of "pre-commercial" energy technologies that have a reasonable expectation of commercial viability within five years.**

Discussion: Currently, there is little or no state funding available for the research and development of new energy technologies. Although the state generously funds renewable energy development through the Renewable Energy Fund, projects funded through the Renewable Energy Fund are limited to proven, "off the shelf" technologies. In order to encourage innovation and exploration of new sources of renewable energy, the state should fund a competitive grant program targeted toward emerging energy research and development projects.

Action: Pass SB 150, "An Act establishing an emerging energy technology fund."

- 2. Support efforts to utilize solid waste and landfill products, including landfill gasses and waste paper, cardboard, and other biomass products, to generate electricity and heat.**

Discussion: Alaskans produce roughly 650,000 tons of garbage annually, most of which is deposited in landfills. Landfills generate methane gas, which can be captured and burned in a boiler to produce heat or in a gas turbine or engine-generator to produce electricity. Capturing and using methane can not only generate heat and/or electricity, but it also helps reduce greenhouse gas emissions caused by landfill off-gassing.

Waste paper and other combustible waste products can also be used to generate heat and electricity. The Eielson Air Force Base near Fairbanks co-burns densified waste paper with coal to generate up to 1.5% of the base's heat and power and Chena Power plans to build a power plant in Fairbanks that would generate 400 kWh by burning 5,000 tons of waste paper, cardboard, and other landfill waste annually.

Action: Ask the Alaska Energy Authority to assess Alaska's largest landfills to determine the feasibility of capturing landfill gas and other waste products to generate heat and/or electricity.

- 3. Support projects that employ liquefaction technologies, including gas-to-liquids and coal-to-liquids, to convert Alaska's natural gas and coal resources into synthetic fuels.**

Discussion: Gas-to-liquids (GTL) and coal-to-liquids (CTL) are both proven technologies that could provide an alternative to transportation fuels derived from costly crude oil. However, full commercialization of these technologies has been hampered by high capital and operations costs and by significant environmental concerns. In particular, the commercial viability of GTL technology is limited by the fact that nearly 30-40% of the natural gas feedstock is used in the process of converting natural gas to a synfuel; the viability of CTL is undermined by the amount of greenhouse gas emissions generated during the life cycle of a coal-based synfuel, which is nearly double that of a traditional diesel fuel product.

However, companies worldwide are engaged in research and development of new technology to reduce the amount of gas consumed in the GTL process and to reduce or sequester emissions produced in the CTL process. Given technological breakthroughs, GTL could prove a valuable option for commercializing North Slope natural gas if the proposed gas pipeline fails to proceed and CTL could play an important role in the development of Alaska's vast coal resources. As such, the state should look for opportunities to support the research and development of improved GTL and CLT technologies.

Action: Pass SB 150, "An Act establishing an emerging energy technology fund."

4. **Support resource assessment, feasibility studies, and the research and development of hydrokinetic and wave energy technologies in order to encourage the development of Alaska's vast in-river, tidal, ocean current, and wave energy resources.**

Discussion: Hydrokinetic devices generate electricity from the kinetic energy of moving water. They differ from traditional hydropower, which uses a dam or diversion structure to channel water to a turbine to generate power, in that they are placed directly in a river, ocean, or tidal current. Wave energy devices take several different forms, including devices that utilize the ebb and flow of waves to push and pull air out of a cylinder to move an air powered turbine, and devices that use the motion of waves to power a piston attached to a generator.

Alaska has significant potential for hydrokinetic development in both rivers and tidal basins and wave energy development in offshore ocean basins near coastal communities. Most inland communities in Alaska are situated along navigable rivers that could host hydrokinetic installations, and Alaska, with an estimated 90% of the total U.S. tidal energy resources, has vast potential for tidal energy development. Alaska also has an estimated 60% of the total U.S. potential for ocean wave energy development.

Action: Pass SB 150, "An Act establishing an emerging energy technology fund."

5. **Support the assessment and study of North Slope gas hydrates and the research and development of gas hydrate extraction technologies.**

Discussion: Gas hydrates are naturally occurring, ice-like solids in which water molecules trap gas molecules in a lattice-like structure. Although many gases form hydrates in nature, methane hydrate is by far the most common. In 2008, the U.S. Geological Survey (USGS) completed the first assessment of gas hydrate resources on the North Slope of Alaska. The USGS estimates that there are about 85 trillion cubic feet of undiscovered, technically recoverable gas resources within gas hydrates in northern Alaska.

However, gas hydrates are a traditionally unconventional resource with no confirmed production history. In order to learn more about this potentially promising resource, the State of Alaska should support further assessment and study of North Slope gas hydrates and, should they prove a viable resource, encourage the research and development of technologies to extract and utilize gas hydrates.

Action: Pass SB 150, "An Act establishing an emerging energy technology fund."

6. Develop and maintain baseline data needed for conducting applied energy research.

Discussion: Collection of baseline data enables policy makers to assess current energy needs, identify potential strategies to meet those needs, and evaluate retrospectively whether a particular strategy has achieved its objective. This type of data collection and analysis are necessary to ensure that Alaska uses its limited financial resources optimally to meet Alaskans' energy needs.

Action: Request the Alaska Energy Authority to work with the Alaska Center for Energy and Power, the Institute for Social and Economic Research and others to identify baseline data needs as well as data gathering and storage protocols.

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J. Providing Jobs for Alaskans

Maintaining a steady supply of energy for Alaskans requires a skilled and well-trained workforce. While there are numerous job training programs around the state that support energy-related resource development and energy system operations, many are grant-funded and subject to the whims of granting agencies. In addition, funding provided by the Denali Commission for energy training programs is declining, leaving Alaska at risk of losing programs that are helping to ensure that Alaskans are qualified for high-paying jobs and prepared to meet the needs of industry and utilities for skilled labor.

1. Ensure adequate, on-going funding for energy-related job training programs.

Discussion: The Alaska Vocational Technical Center (AVTEC) is one of many centers around the state that offer energy-related training programs. Courses in Diesel/Heavy Equipment Technologies, Welding, Industrial Electricity, Renewable Energy, Bulk Fuel, and Power Plant Operations are helping to build a skilled workforce, capable of supporting energy systems throughout the state. Funding for these programs needs to be sustained at a consistent and adequate level.

Action: Ask the Department of Labor to review training program budgets and funding sources and report back to the legislature by February 2010.

2. Encourage the University of Alaska to strengthen energy-related education programs to help train a skilled workforce.

Discussion: Achieving energy independence will require a trained workforce and will generate high-paying jobs for Alaskans in the process. The University can play an important role in teaching Alaskans the skills they will need to get jobs in energy resource development and operations, renewable energy and energy efficiency.

Action: Ask the University to assess its programs and report back to the legislature by February 2010.

K. Safeguarding Our Environment

1. Address and mitigate the root causes of global climate change.

Discussion: Alaska is warming at more than twice the rate of the rest of the United States. Average annual temperatures rose by 3.4 degrees Fahrenheit in the past 50 years, while winter temperatures increased by 6.3 degrees. Precipitation also increased by 30% between 1988 and 1990 over much of the state. These changes have led to thawing of permafrost, causing damage to roads, buildings, and other infrastructure. Warming has also caused thinning of sea ice, exposing Alaska's coastal communities to more severe storm surges and coastal erosion. Three communities (Shishmaref, Kivalina and Newtok) have already initiated costly relocation efforts. Thinning of sea ice and changes in ocean temperature also threaten populations of ice-dependent marine mammals, such as walrus and polar bears, subsistence activities, and the state's billion-dollar commercial fisheries. In the Interior, warming has increased the risk of wild fires and destructive insect infestations, such as the spruce bark beetle.

Action: Schedule legislative hearings to consider the recommendations of the Alaska Climate Change Sub-Cabinet and related recommendations.

2. Ensure that Alaska's interests are fully considered in energy and climate change legislation being debated by Congress.

Discussion: In June, the U.S. House of Representatives passed the Waxman-Markey climate change bill, which includes a cap-and-trade program designed to curb global warming by imposing strict limits on the emission of six greenhouse gases. This bill requires emitters to acquire federally created permits (or "allowances") for each ton of greenhouse gas emitted, particularly CO₂. Because Alaska relies on energy production for a significant share of its revenues and for thousands of high-paying jobs, climate change legislation needs to be closely monitored to ensure that it does not have an adverse effect on our economy. Well-crafted legislation could enhance prospects for construction of a natural gas pipeline, while poorly drafted legislation could harm the state's interests.

Action: Actively monitor the status of federal climate change legislation and coordinate with Alaska's congressional delegation to ensure Alaska's interests are fully considered.

3. Establish policies and measures to reduce industrial greenhouse gas emissions.

Discussion: Alaska industries with the highest greenhouse gas emission estimates are those engaged in the energy production and delivery business, accounting for approximately 36% of greenhouse gas air emissions. The Governor's Sub-Cabinet for Climate Change identified several steps that could be taken by the oil and gas industry to minimize its potential impact on climate change. They include reducing fugitive methane emissions; electrifying oil and gas operations; improving the efficiency of fuel-burning equipment; using renewable energy; and capturing and sequestering carbon (<http://www.akclimatechange.us/ewebeditpro/items/O97F21715.pdf>).

Action: Work with the Sub-Cabinet for Climate Change to prioritize and implement its recommendations.

4. Encourage recycling and reduction of garbage to landfills.

Discussion: Recycling reduces the need for energy intensive manufacturing processes. The Environmental Protection Agency reports that in 2005 recycling in the U.S. saved 900 quadrillion BTUs, which would have been used in manufacturing products from raw materials. This is enough to power nearly 11 million homes for a year. The energy saved from recycling just one aluminum can provides enough electricity to run a 100-watt bulb for 3.5 hours, and recycling one pound of steel saves enough energy to light a 60-watt bulb for more than 26 hours. Likewise, recycling paper cuts manufacturing energy costs by 50 percent and recycling a ton of glass saves the equivalent of nine gallons of fuel oil.

Action: Initiate a public education campaign to encourage recycling and re-use. Assist local governments with recycling programs and demonstrate leadership and commitment at the state level to recycling.

5. Encourage use of sawmill residues, logging debris and beetle-killed timber for space heating and electricity generation to help mitigate impacts from bark beetle infestation.

Discussion: The spruce bark beetle outbreak in Southcentral Alaska has affected 2 to 3 million acres in the past 10 years. In heavily affected stands, often all spruce trees greater than 10 cm are killed. The area affected by tree death is one of the largest ever documented from an insect outbreak in North America. Using this biomass for energy will reduce fire danger while restoring damaged forests and lowering energy costs.

Action: Support pilot projects to use waste wood to generate heat and power. Encourage the Alaska departments of Natural Resources and Fish and Game to coordinate with the U.S. Forest Service and U.S. Fish and Wildlife Service to inventory and make readily available spruce bark beetle killed timber for use in biomass projects.

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L. Ensuring a Bright Energy Future for Alaska

Ensuring that these recommendations are thoroughly considered and those with merit are implemented will require great focus and dedication. The state has many needs; energy is just one. If we hope to move forward as a state and improve our quality of life as well as our economic health and competitiveness, we will have to hold our feet to the fire, make hard decisions, and invest considerable sums in energy infrastructure. The pay off promises to be great, but the costs will be as well. Creating the governance structures needed to carry these recommendations forward will be critical. Collaboration between both houses of the legislature and the Administration will be essential.

1. **Evaluate the administration of state energy programs and the desirability of centralizing energy offices to increase efficiency and sharpen the focus on meeting the state's energy needs.**

Discussion: State energy programs and duties are currently distributed among a number of state and quasi-state entities, including the Alaska Energy Authority, the Alaska Housing Finance Corporation, the Department of Natural Resources, the Alaska Natural Gas Development Authority, and the University of Alaska, among others. In order to minimize duplication of efforts, increase efficiencies and the sharing of information, reduce the burden to businesses, and improve public access to information and programs, the state should consider options for centralization of energy offices and programs, including creating a Department of Energy.

Actions: Consider HB 218, SB 185 and related proposals. Ensure that there are adequate staff within the Alaska Energy Authority to effectively fulfill its mission and responsibilities.

Denali Commission Emerging Energy Technology Grant: Final Project Descriptions

Alaska Sealife Center: Seawater Heat Pump Demonstration Project

The Alaska SeaLife Center's overall goal for this project is to demonstrate a heat pump system that will "lift" latent heat from raw seawater and transfer the energy into building heat.

Cordova Electric Cooperative: Psychrophiles for Generating Heating Gas

This research and application project will deploy the use of psychrophiles (cold loving microbes) to improve efficiency in biogas digestors for generating cooking and heating gas for Alaskan households. The first phase will compare the efficiencies of mesophiles (conventional digester microbes) and psychrophiles on common household and rural Alaska feedstock at various temperatures. The second phase will deploy digester(s) in practical household scale project(s) to operate appliance and an electrical generator to evaluate feasibility and sustainability in an applied setting for widespread use in Alaska.

Kotzebue Electric Association: Feasibility of Solar Hot Water Systems

Assess the feasibility of solar hot water heating systems on residential units in the NANA region.

Kotzebue Electric Association: Flow Battery Energy Storage Systems

Analyze and demonstrate flow battery systems and their potential for energy storage in rural wind systems.

Kotzebue Electric Association: Wales Diesel-Off High Penetration Wind System

Retrofit the Wales Wind-Diesel Hybrid Power System by adding remote web access monitoring and control systems, getting the two Entegriity turbines back online and allowing for increased data logging capabilities and developing long term operations and maintenance strategies for replicating diesel-off configurations in other communities. Kotzebue Electric Association's overall goal for this project is to demonstrate diesel-off configuration for a remote wind-diesel hybrid power system through the retrofit of existing equipment and controls.

Ocean Renewable Power Corporation: Nenana Hydrokinetic Turbine

Build, install and test the RivGen™ Power System, a hydrokinetic energy unit, at the Nenana hydrokinetic test bed, and analyze resource and technology results.

Sealaska Corporation: Commercial Scale Wood Pellet Fired Boiler

This project will convert Sealaska's corporate headquarters building from a diesel fired boiler to a wood pellet fired boiler. The overall goal of this project is to demonstrate that wood heat can be cost effective and feasible for larger commercial, industrial, and municipal buildings, and has the potential to effect demand for Southeast Alaska second growth wood fiber.

Tanana Chiefs Conference: Organic Rankine Cycle Heat Recovery System

Tanana Chiefs Conference's goal for this project is to demonstrate the potential improved fuel efficiency of the diesel power plant in a village in the TCC region through the use of an Organic Rankine Cycle (ORC) system for heat recovery from engine jacket water and exhaust.

University of Alaska Fairbanks, WIDAC: High Penetration Hybrid Power System

The Wind Diesel Application Center will analyze state of the art power electronics to assess options for wind-diesel hybrid power systems to operate in a diesel-off mode.

EMERGING ENERGY TECHNOLOGY: A GLOBAL OPPORTUNITY FOR ALASKA

Alaska has the opportunity to be a world leader in developing, optimizing and exporting renewable energy technology. The state is uniquely situated to capitalize on the growing market for new energy technologies, particularly clean energy technologies for the developing world. Because energy prices are so high in rural Alaska, we can *both* demonstrate technology *and* begin to save money for local residents immediately. Recognizing that Alaska can be a laboratory for testing new energy technology will lead to outside investments in our state and keep Alaska competitive in the increasingly competitive world economy.

More than 150 of Alaska's 350 communities are in remote rural areas without roads or grid-connected power, and suffer from high energy prices that handicap their economies.

LET'S CONNECT THE DOTS

Nearly 1.6 billion people, about 25% of the world's population, live without access to electricity, and are looking for ways to energize their communities.

Investment in clean energy worldwide is currently about a \$155 billion a year business that is projected to grow exponentially in the coming years. Alaska's high energy costs, abundant renewable energy resources, remote locations and challenging climate make it ideal for researching and developing emerging energy technologies that can help stabilize energy costs for Alaskans *and* be exported to communities in the developing world that lack electricity.



EMERGING TECHNOLOGY FOR ALASKA'S FUTURE

There is currently no state program dedicated to supporting emerging energy technologies. Alaska has the Renewable Energy Grant Fund, but it is directed at mature technologies. Emerging technologies such as tidal power and biomass gasification need more testing and development in order to become commercially available. Strategically investing in an Emerging Energy Technology Fund today will position Alaska to:

- Provide relief for communities in rural Alaska crippled by high energy prices
- Attract innovative technology companies to the state
- Create high-tech jobs
- Develop Alaska's university programs through private partnerships
- Give Alaska an advantage when competing with other states for federal funding programs for green industry and job development
- Capitalize on growing worldwide demand for energy, particularly clean energy which in 2008 was estimated at \$155 billion/year business
- Become a leader in developing energy technologies, particularly small-scale technologies that can be exported to remote communities around the developing world

Legislation currently pending would establish an Emerging Energy Technology Fund to be administered by the Alaska Energy Authority. The fund would be financed by appropriations from the state legislature, federal appropriations, and contributions from other sources and would be available to utilities, independent power producers, local and tribal governments, Alaskan businesses, and non-profits. In order to receive grants from the fund, the benefiting project would need to be for the research, development, or demonstration of a new energy or conservation technology or for the improvement of an existing technology, with the reasonable expectation the technology would be commercially viable within 5 years.

Examples of Emerging Technology in Alaska

- Tidal power
- Wave power
- Biomass gasification
- High-penetration wind-diesel systems
- In-river hydrokinetics
- Next generation energy storage technology

ALASKA MARKET FOR EMERGING TECHNOLOGY

In 2009, the Denali Commission solicited proposals for emerging energy technology projects. Fifty proposals totaling \$29 million were submitted, from which nine were selected to receive \$4 million in grants. The Commission's goal was to develop emerging energy technology that has the potential of widespread deployment in Alaska and has the long-term goal of reducing energy costs for Alaskans. The robust response to the Commission's request for proposals highlights the need for an emerging energy technology fund. The projects listed below were among those selected by the Commission and are examples of types of technology that could benefit Alaskans.

ALASKA SEALIFE CENTER: SEAWATER HEAT PUMP DEMONSTRATION PROJECT

The Alaska SeaLife Center proposes to employ a heat pump system that will "lift" latent heat from raw seawater at temperatures ranging from 35F to 55F, and transfer this heat energy into building heat at a temperature of 120F. Sea water would first be pumped through a heat exchanger containing propylene glycol, an antifreeze commonly used in northern latitude commercial and residential heating systems. The glycol, warmed by the seawater, will boil a refrigerant that would go to an electric-powered compressor. In the compressor, the refrigerant vapor will be heated through pressurization. The refrigerant will then be condensed by giving up this heat to a second glycol loop that circulates to the building's heating system at 120F. While this technology has been successfully deployed in Norway and Sweden, this innovative process of removing latent heat from seawater and using it to heat buildings has not yet been tested in Alaska.

CORDOVA ELECTRIC COOPERATIVE: PSYCHROPHILES FOR GENERATING HEATING GAS

This research and application project will deploy the use of psychrophiles (cold-loving microbes) to improve efficiency in biogas digestors for generating cooking and heating gas for Alaskan households. Biogas digester technology is proven and in widespread implementation in India and China, with emerging efforts in Africa, California, and Europe. The technology is based on the biological production of methane by archeal microbes called methanogens, which naturally break down organic feedstock to produce methane. In Alaska, deployment of *cold-region* digestors could be used as a local, renewable energy source for home cooking and heating.

KOTZEBUE ELECTRIC ASSOCIATION (KEA): FLOW BATTERY ENERGY STORAGE SYSTEMS

KEA's goal for this project is to analyze and demonstrate flow battery systems and their potential for energy storage in rural wind-diesel systems. Efficient storage remains a barrier to the optimal deployment of some renewable energy technology in remote areas. Large-scale batteries for wind-diesel systems that could provide village utility grid stabilization and load shifting are currently being developed by several suppliers. If these batteries become commercial products at the price points currently being anticipated, they would provide even more diesel fuel savings in communities with wind resources.

OCEAN RENEWABLE POWER COMPANY (ORPC): NENANA HYDROKINETIC TURBINE

ORPC proposes to build, install and test the RivGen™ Power System, a hydrokinetic energy unit, at the Nenana hydrokinetic test bed and then analyze the resource and technology results. Hydrokinetic devices are placed directly in a river, ocean or tidal current, and generate power from the kinetic energy of moving water. Alaska has significant potential for hydrokinetic development in both rivers and tidal basins. Indeed, most inland communities in Alaska are situated along navigable waterways like the Yukon and Kuskokwim rivers that could host hydrokinetic installations.

WORLDWIDE MARKET

Examples of Emerging Energy Technology Worldwide

Salt Water Power (Osmotic Power): In November 2009, Norway opened the world's first osmotic power generator prototype. The prototype employs a semi-permeable membrane that uses the same principle of osmosis that governs how leaves absorb moisture. The membrane separates fresh water provided by a nearby river from saltwater from the sea. The saltwater molecules in the sea water pull the fresh water through the membrane, increasing the pressure on the sea water side to a level where it is high enough to drive a turbine to generate power. The Norwegian energy company, Statkraft, estimates global potential for osmotic power at more than 1,600 GWh per year. Alaska's freshwater streams and extensive coastline offer great potential for researching and developing osmotic power.

Storing Renewable Energy with Hydrogen: In 2009, Greenland's national energy company, Nukissiofiit, announced a plan to establish a demonstration hydrogen and fuel cell plant for storing energy created by hydro and wind turbines. With numerous villages relying on diesel generators not connected to a main utility grid, Greenland is similar to Alaska in that in order to implement high-penetration renewable systems, advancement in energy storage technologies is needed.

Thermoelectric-Chalcogenide Based Chips (Heat to Electricity): As a direct result of Texas' Emerging Technology Fund, Texas State University is partnering with MicroPower Global to develop thermoelectric-chalcogenide based chips. The chips take heat from an engine and convert it directly to electricity. Ultimately, development of this technology will capture heat from jet engines and convert that waste heat into electricity. This technology could have widespread application in Alaska.

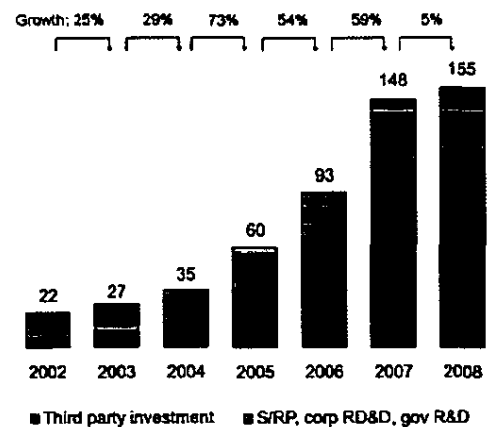
Snow Cooling Plant: Sweden's Sundsvall Regional Hospital was built in 2000 and now meets over 90% of its cooling needs by circulating melted snow. Snow is collected during the winter at Sundsvall, then covered and insulated. As the snow melts, the runoff water is filtered and pumped via a heat exchanger through pipes to hospital buildings where it provides cooling. The warmed water is then routed back to the snow bank to be chilled again. Japan is in the process of constructing a similar plant for the New Chitose Airport in Hokkaido and expects it to be operational by 2010.

Demand for Clean Energy

In 2008, about \$155 billion was invested in clean energy companies and projects around the world. That money was spent on renewable energy projects that tapped wind, solar, micro-hydro, biomass, and geothermal resources. Countries and international banks around the world are making investments in clean energy industries. Some examples of investments made in clean energy in 2009 include:

- A \$9 billion *a month* investment by China on the development of renewable energy.
- A \$250 million award to the Philippines from the Clean Technology Fund (CTF) to invest in energy efficiency and renewable energy. The CTF is made up of the Asian Development Bank and the World Bank.
- A \$72.2 million pledge by South Korea to spur renewable energy production. South Korean manufacturing companies are also expected to spend \$3.4 billion in 2010 for clean tech, including research and development, and manufacturing facilities related to solar cells, wind power, and hydrogen fuel cells.
- \$16.8 billion allocated to U.S. Department of Energy's office of Energy Efficiency and Renewable Energy.
- \$350 million pledged by the United States to developing countries for clean energy.

Figure 1: New Investment in Sustainable Energy, 2002-2008
\$ billion



S/RP = small/residential projects. New investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals

EXISTING EMERGING TECHNOLOGY FUNDS

Emerging Technology Funds have helped other states, provinces, and countries attract private investment, create jobs, and develop cutting-edge renewable energy technologies. These funds serve as examples of how government investment in innovative research and development creates jobs, fosters entrepreneurship, and increases the quality of life for the community.

NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY

The authority's aim is to help New York meet its energy goals: reducing energy consumption, promoting the use of renewable energy sources, and protecting the environment. A research and development program supports the development and commercialization of innovative energy and environmental products, technologies, and processes that improve the quality of life for New York's citizens and help New York businesses to compete and grow in the global economy.

CALIFORNIA ENERGY COMMISSION'S PUBLIC INTEREST ENERGY RESEARCH (PIER) PROGRAM

This program supports public interest energy research, development, and demonstration, including in the areas of building efficiency, renewable energy technologies and advance grid technology. The program is funded through surcharges on electricity and natural gas rates and has invested a total of more than \$587 million in innovative energy technologies since inception.

TEXAS EMERGING TECHNOLOGY FUND

Created by legislation in 2005, the \$200 million Texas Emerging Technology Fund (ETF) is designed to create high-tech jobs, and attract private businesses to Texas. The ETF has funded projects from cancer research to developing energy efficient and renewable energy technologies. In 2009, the Small Business and Entrepreneurial Council ranked Texas in the top three states for small business and entrepreneurship.

MICHIGAN EMERGING TECHNOLOGY FUND

The Michigan Emerging Technology Fund is designed to expand funding opportunities for Michigan-based technology companies in the innovation research and development arena.

MASSACHUSETTS EMERGING TECHNOLOGY FUND

The Massachusetts Emerging Technology Fund offers loans to technology companies in the state to finance manufacturing facilities and equipment.

SUSTAINABLE DEVELOPMENT TECHNOLOGY CANADA'S TECH FUND

Established by the government of Canada, this \$550 million fund is one of two aimed at the development and demonstration of innovative technological solutions. It supports projects that address climate change, air quality, clean water and clean soil.

ONTARIO EMERGING TECHNOLOGIES FUND

In 2009, the Canadian Province of Ontario committed \$250 million to the development of an Emerging Technologies Fund for the development of green technologies.

WORLD BANK CLEAN TECHNOLOGY FUND

The fund is one of two Climate Investment Funds that promote scaled-up financing for demonstration, deployment and transfer of low-carbon technologies, including renewable energy, with significant potential for long-term greenhouse gas emissions savings. As of January 2009, twelve countries including the United States had pledged \$5.7 billion to the fund.

LINKS

Senate Bill 150 http://www.legis.state.ak.us/basis/get_bill_text.asp?hsid=SB0150A&session=26

Senate Bill 220 http://www.legis.state.ak.us/basis/get_bill.asp?bill=SB%20220&session=26

House Bill 305 http://www.legis.state.ak.us/basis/get_bill.asp?bill=HB%20305&session=26

Existing Emerging Technology Funds

Texas - http://txed.convio.net/site/PageServer?pagename=tetf_homepage

Michigan - <http://www.mietf.org/Default.aspx>

Massachusetts - www.massdevelopment.com/financing/specialty-loan-programs/emerging-technology-fund/

Ontario - <http://www.ocgc.gov.on.ca/site/en>

Sustainable Development Technology Canada Tech Fund - <http://www.sdtc.ca/en/SOInfo.htm>

Masdar Clean Technology Fund - <http://www.masdarctf.com/default.htm>

World Bank Clean Technology Fund - <http://www.climateinvestmentfunds.org/cif/>

Google.org - <http://www.google.org/projects.html>

Denali Commission Emerging Technology Grants

http://www.denali.gov/index.php?option=com_content&view=category&id=1:energy&layout=blog&Itemid=13

World Market for Renewables

General Trends:

<http://sefi.unep.org/english/globaltrends2009.html>

<http://www1.eere.energy.gov/recovery/>

<http://energy.gov/news2009/8391.htm>

China - <http://www.csmonitor.com/Commentary/the-monitors-view/2009/1204/p08s01-comv.html>

Philippines - <http://businessmirror.com.ph/home/economy/19354-multilateral-lenders-endorse-p250m-for-clean-technology-fund-to-doe.html>

South Korea - <http://cleantech.com/news/4113/s-korea-plans-72m-renewable-energy>

Examples of Emerging Technology Worldwide

Osmotic Power - <http://news.bbc.co.uk/2/hi/europe/8377186.stm>

Storing RE with Hydrogen - http://www.newenergy.is/newenergy/upload/files/naha/h2kt_info-sheet-eng.pdf

Thermo-Chalcogenide Based Chips - <http://crc.mse.txstate.edu/newsrelease.html>

Snow Cooling Plant -Sweden - <http://advantage-environment.com/byggnader/stored-snow-for-summer-cooling/>

Snow Cooling Plant - Japan - <http://cleantechnica.com/2008/10/16/airport-will-use-snow-for-30-of-cooling-needs/>