ALASKA LEGISLATURE COMMITTEE FILES 1981-1982 8672

1912 SRES SB 608

191

ALASKA POWER ADMINISTRATION
FINANCIAL ANALYSIS PROGRAM

PROJECT COSTS UNDER
7% INFLATION

YEAR	PROJECT NAME	CONSTRUCTION COST ($1000)	ANNUAL OM&R\1 ($1000)
1982	SOLOMON GULCH	49,500	280
1983	SWAN LAKE	90,000	738
1984	TYEE	99,000	1,202
	RAILBELT INTERTIE	135,507	5,381
	KAKE/PETERSBURG INTERTIE	2,560	32
	WEST CREEK	57,500	859
	PRESSURE REDUCING TURB.	11,663	258
1985	TERROR LAKE	179,987	1,017
1986	KENAI PENINSULA T/LINE	96,778	1,114
	JUNEAU-HOONAH INTERTIE	25,726	767
	TAZIMINA I	67,091	134
	CORDOVA INTERTIE	15,681	184
1988	BRADLEY LAKE	445,426	1,238
1990	TAKATZ	229,612	5,155
	BLACK BEAR	46,523	229
	ALLISON CREEK	57,628	385
	TAZIMINA II	79,239	220
1993	SUSITNA - WATANA	6,357,289	21,049
2002	SUSITNA - DEVIL CANYON	4,738,223	20,896

\1 - OM&R will continue to increase at inflation rate

APA - 2/82

ALASKA POWER ADMINISTRATION
FINANCIAL ANALYSIS PROGRAM

FUTURE INFLATION - 7%

ANNUAL REVENUE REQUIREMENTS:
0% ANNUAL RETURN ON INVESTMENT
ANNUAL OM&R COSTS

YEAR	INVESTMENT PAYMENT ($1000)	OM&R ($1000)	ANNUAL REVENUE REQUIREMENT\1 ($1000)	FIRM ENERGY (MWH)	FIRM ENERGY COST\2 (c/kWh)
1982	0	280	280	40,780	.7
1983	0	1,038	1,038	125,780	.8
1984	0	8,642	8,842	331,320	2.7
1985	0	10,478	10,478	460,320	2.3
1986	0	13,409	13,409	538,320	2.5
1987	0	14,348	14,348	538,320	2.7
1988	0	16,591	16,591	855,820	1.9
1989	0	17,752	17,752	855,820	2.1
1990	0	24,982	24,982	1,119,970	2.2
1991	0	26,731	26,731	1,119,970	2.4
1992	0	28,602	28,602	1,119,970	2.6
1993	0	51,653	51,653	1,652,970	3.1
1994	0	55,269	55,269	2,286,970	2.4
1995	0	59,138	59,138	2,998,970	2.0
1996	0	63,277	63,277	3,539,970	1.8
1997	0	67,707	67,707	3,539,970	1.9
1998	0	72,446	72,446	3,539,970	2.0
1999	0	77,517	77,517	3,539,970	2.2
2000	0	82,944	82,944	3,539,970	2.3
2001	0	88,750	88,750	3,539,970	2.5
2002	0	115,858	115,858	4,098,970	2.8
2003	0	123,968	123,968	4,763,970	2.6
2004	0	132,646	132,646	5,510,970	2.4
2005	0	141,931	141,931	6,079,970	2.3
			1,296,158	55,739,000	2.3

\1 - Excludes Administrative and overhead costs
\2 - If energy sales are less than firm energy available cost will be higher

APA - 2/82

ALASKA POWER ADMINISTRATION
FINANCIAL ANALYSIS PROGRAM

FUTURE INFLATION - 7%

ANNUAL REVENUE REQUIREMENTS:
THE GREATER OF:
10% ANNUAL RETURN ON INVESTMENT
OR ANNUAL OM&R COSTS

YEAR	INVESTMENT PAYMENT ($1000)	OM&R ($1000)	ANNUAL REVENUE REQUIREMENT\1 ($1000)	FIRM ENERGY (MWH)	FIRM ENERGY COST\2 (c/kWh)
1982	4,950	280	4,950	40,780	12.1
1983	13,950	1,038	13,950	125,780	11.1
1984	45,173	8,842	45,173	331,320	13.6
1985	63,172	10,478	63,172	460,320	13.7
1986	83,699	13,409	83,699	538,320	15.5
1987	83,699	14,348	83,699	538,320	15.5
1988	128,242	16,591	128,242	855,820	15.0
1989	128,242	17,752	128,242	855,820	15.0
1990	169,542	24,982	169,542	1,119,970	15.1
1991	169,542	26,731	169,542	1,119,970	15.1
1992	169,542	28,602	169,542	1,119,970	15.1
1993	805,271	51,663	805,271	1,652,970	48.7
1994	805,271	55,269	805,271	2,286,970	35.2
1995	805,271	59,138	805,271	2,998,970	26.9
1996	805,271	63,277	805,271	3,539,970	22.7
1997	805,271	67,707	805,271	3,539,970	22.7
1998	805,271	72,446	805,271	3,539,970	22.7
1999	805,271	77,517	805,271	3,539,970	22.7
2000	805,271	82,944	805,271	3,539,970	22.7
2001	805,271	88,750	805,271	3,539,970	22.7
2002	1,279,093	115,858	1,279,093	4,098,970	31.2
2003	1,279,093	123,968	1,279,093	4,763,970	26.8
2004	1,279,093	132,646	1,279,093	5,510,970	23.2
2005	1,279,093	141,931	1,279,093	6,079,970	21.0
			13,423,564	55,739,000	24.1

\1 - Excludes Administrative and overhead costs
\2 - If energy sales are less than firm energy available cost will be higher

APA - 2/82

Corrected 4g.

ALASKA POWER ADMINISTRATION
FINANCIAL ANALYSIS PROGRAM

FUTURE INFLATION - 7%

ANNUAL REVENUE REQUIREMENTS:
REPAYMENT OF INVESTMENT ONLY IN 33.33 Years
(Adjusted for Inflation)
ANNUAL OM&R COSTS

YEAR	INVESTMENT PAYMENT ($1000)	OM&R ($1000)	ANNUAL REVENUE REQUIREMENT\1 ($1000)	FIRM ENERGY (MWH)	FIRM ENERGY COST\2 (c/kWh)
1982	1,485	280	1,765	40,780	4.3
1983	4,251	1,038	5,289	125,780	4.2
1984	13,807	8,842	22,649	331,320	6.8
1985	19,825	10,478	30,302	460,320	6.6
1986	26,872	13,409	40,282	538,320	7.5
1987	28,090	14,348	42,439	538,320	7.9
1988	42,728	16,591	59,319	855,820	6.9
1989	44,744	17,752	62,496	855,820	7.3
1990	59,247	24,982	84,230	1,119,970	7.5
1991	62,135	26,731	88,866	1,119,970	7.9
1992	65,193	28,602	93,795	1,119,970	8.4
1993	259,198	51,653	310,851	1,652,970	18.8
1994	274,101	55,269	329,370	2,286,970	14.4
1995	290,005	59,138	349,143	2,998,970	11.6
1996	306,996	63,277	370,273	3,539,970	10.5
1997	324,984	67,707	392,690	3,539,970	11.1
1998	344,375	72,446	416,821	3,539,970	11.8
1999	364,925	77,517	442,442	3,539,970	12.5
2000	387,023	82,944	469,967	3,539,970	13.3
2001	410,463	88,750	499,213	3,539,970	14.1
2002	577,546	115,858	693,405	4,098,970	16.9
2003	618,741	123,968	742,709	4,763,970	15.6
2004	663,191	132,646	795,837	5,510,970	14.4
2005	711,008	141,931	852,940	6,079,970	14.0
			7,197,091	55,739,000	12.9

\1 - Excludes Administrative and overhead costs
\2 - If energy sales are less than firm energy available cost will be higher

AFA - 2/82

ALASKA POWER ADMINISTRATION
FINANCIAL ANALYSIS PROGRAM

FUTURE INFLATION - 7%

ANNUAL REVENUE REQUIREMENTS:
STANDARD FINANCING For 40 Years at 7%
ANNUAL OM&R COSTS

YEAR	INVESTMENT PAYMENT ($1000)	OM&R ($1000)	ANNUAL REVENUE REQUIREMENT\1 ($1000)	FIRM ENERGY (MWH)	FIRM ENERGY COST\2 (c/kWh)
1982	3,713	280	3,993	40,780	9.8
1983	10,464	1,038	11,502	125,760	9.1
1984	33,884	8,842	42,726	331,320	12.9
1985	47,385	10,478	57,862	460,320	12.6
1986	62,782	13,409	76,192	538,320	14.2
1987	62,782	14,348	77,130	538,320	14.3
1988	96,193	16,591	112,784	855,820	13.2
1989	96,193	17,752	113,945	855,820	13.3
1990	127,172	24,982	152,154	1,119,970	13.6
1991	127,172	26,731	153,903	1,119,970	13.7
1992	127,172	28,502	155,774	1,119,970	13.9
1993	604,027	51,653	655,680	1,652,970	39.7
1994	604,027	55,269	659,296	2,206,970	28.8
1995	604,027	59,138	663,164	2,998,970	22.1
1996	604,027	63,277	667,304	3,539,970	18.9
1997	604,027	67,707	671,733	3,539,970	19.0
1998	604,027	72,446	676,473	3,539,970	19.1
1999	604,027	77,517	681,544	3,539,970	19.3
2000	604,027	82,944	686,970	3,539,970	19.4
2001	604,027	88,750	692,776	3,539,970	19.6
2002	959,437	115,858	1,075,295	4,098,970	26.2
2003	959,437	123,968	1,083,405	4,763,970	22.7
2004	959,437	132,646	1,092,083	5,510,970	19.8
2005	959,437	141,931	1,101,368	6,079,970	18.1
			11,365,058	55,739,000	20.4

\1 - Excludes Administrative and overhead costs
\2 - If energy sales are less than firm energy available cost will be higher

APA - 2/82

LEGISLATIVE SUMMARY

CSSSSB 608(Res) "An Act making special appropriations to the Alaska Power Authority for power projects; and providing for an effective date."

Sec. 1 Appropriates $25,600,000 from the general fund to the Alaska Power Authority for the Susitna River Hydroelectric Project.

Sec. 2 Appropriates $500,000 from the general fund to the Alaska Power Authority for design and right-of-way activities for a possible Kake-Petersburg intertie.

Sec. 3 Appropriates $2,000,000 from the general fund to the Alaska Power Authority for installation of waste heat facilities in rural villages.

Sec. 4 Appropriates $2,000,000 from the general fund to the Alaska Power Authority for the Lower Kuskokwim power plan.

Sec. 5 Appropriates $4,000,000 from the general fund to the Alaska Power Authority for feasibility studies in rural villages.

Sec. 6 Appropriates $300,000 from the general fund to the Alaska Power Authority for feasibility analysis of alternatives to lower the cost of power for Angoon.

Sec. 7 Appropriates $2,500,000 from the general fund to the Alaska Power Authority for an electric generation unit for Cordova.

Sec. 8 These are capital projects.

Sec. 9 Effective date: Immediately.

ALASKA POWER AUTHORITY

334 WEST 5th AVENUE - ANCHORAGE, ALASKA 99501

Phone: (907) 277-7641
(907) 276-0001

March 12, 1982

The Honorable Vic Fischer
Alaska State Legislature
Pouch V
Juneau, Alaska 99811

Dear Senator Fischer:

In a recent letter you asked for clarification of the timing of legislative review with regard to the proposed Susitna Hydroelectric Project. Specifically, you voiced concern about the implication of delaying the application for license until September 30, 1982.

In approaching the issue, it is important to clearly distinguish between two aspects of the developmental process: the feasibility study and report on the one hand, and the license application on the other. The former is essential, and sufficient, for a responsible decision on continuing developmental activities (ie, initiation of design and continuation of environmental studies) and on filing a license application. The draft feasibility report will be delivered to you during the week of March 15. Appendices and supporting documents will be available in Juneau if you desire to delve into great detail. I firmly believe that the information contained in the feasibility report will be sufficient for a prudent person to reach a conclusion on the economic viability of the Susitna project, on the soundness of its design, on the general magnitude of environmental and socioeconomic impact and on the implications for financing the project. I believe you and your fellow legislators will have ample information to decide whether to file the license application and initiate design work. At the same time, I believe you would be prudent to stop short of any irrevocable decision to construct the project. That decision should be reviewed as continuing site investigations give us increased confidence in the project's estimated cost and as environmental impact predictions are confirmed.

Extensive public and agency review and comment are programmed between March 15 and April 22 to insure that the issues are fully aired before the Power Authority Board of Directors provides the Legislature and the Governor a recommendation on submitting a license application. The Board's intent is to meet the April 30, 1982 legislatively mandated deadline for that recommendation.

The decision to defer submitting the license application is unrelated to the April decision. The additional refinement of mitigation plans and additional opportunity for agency consultation on those plans are not essential to the Legislatures's decision on project feasibility. The feasibility report will identify impacts and present a menu of mitigation options available to avoid or compensate for those impacts. The precise combination of mitigation measures to be employed is a matter that will be negotiated during the FERC licensing process

and, in my opinion, would simply be a distraction to the Legislature in attempting to grapple with the key issues of technical, economic, environmental and financial feasibility.

Thus, from the point of view of the Legislature's decision on the project, the program remains precisely on schedule, and the delayed submittal of a license application is not pertinent.

In response to your specific request for a suggestion on the appropriate timing and process for "legislative review and determination", I suggest the following:

1) Legislative review of the draft feasibility reports beginning the week of March 15; this would be concurrent with Power Authority, public, agency, and administration review;

2) A briefing by the consultant on feasibility study results in Juneau for interested legislators and staff on March 26;

3) Attendance by interested legislators and staff at selected public participation events and Power Authority meetings, especially (a) the oral report by the Susitna External Review Panel to the Board of Directors on April 15 and (b) advice and comment by utilities and resource agencies to the board on April 16. Both sessions will be held in Anchorage; and

4) Passage of legislation prior to adjournment either in response to the Power Authority's recommendation or, if adjournment promises to precede April 30, authorization for design and license application submittal, subject to a favorable Power Authority recommendation.

It would be my hope that your review of the feasibility report and your observation of the Power Authority's decision making process would instill enough confidence in the ultimate Power Authority recommendation that the latter course would be acceptable in the event of early adjournment.

Thank you for the opportunity to express my views on this matter.

Sincerely,

Eric P. Yould
Executive Director

cc: Senator Jalmar Kerttula, Senate President
Senator Bettye Fahrenkamp
Senator Ed Dankworth
Representative Joe Hayes, Speaker of the House
Charles Conway, Chairman, Alaska Power Authority
Ron Lehr
Ernst Mueller

LEGISLATION SUMMARY

SSSB 608: "An Act making a special appropriation to the power development fund of the Alaska Power Authority for the Susitna River hydroelectric project and other hydroelectric projects; and providing for an effective date."

PRIME SPONSOR: Kerttula

CO-SPONSOR(S): Dankworth

Sec. 1: Appropriates $1 billion from the general fund to the APA power development fund for planning, design and construction of the Susitna River and other hydroelectric projects (the 'other projects' are not specified).

Sec. 2: Immediate effective date.

SB 608

LEGISLATION SUMMARY

SB 608: "An Act making a special appropriation to the Alaska Power Authority for the Susitna River hydroelectric project; and providing for an effective date."

Sec. 1: Appropriates $1,000,000,000 from the general fund to the APA power development fund for planning, design and construction of the Susitna River hydroelectric project.

Sec. 2: Effective date--immediately.

PRIME SPONSOR: Kerttula

CO-SPONSOR(S): Dankworth

file 608
passed out

Alaska State Legislature

POUCH V
STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3834
(907) 465-3835

Senate

Committee on Resources

March 24, 1982

To: Senator Don Bennett, Co-Chairman
Senator Ed Dankworth, Co-Chairman
Senate Finance Committee Members

From: Senator Vic Fischer

Re: Resources Committee Substitute for SB 608 - Backup information

The Senate Resources Committee passed Senate Bill 608 out last week after a significant change from the original legislation. It is currently before you in the Senate Finance Committee. Being out of town, I didn't have a chance to provide background information on the changes made to the bill. This information is provided here.

The Resources Committee substitute on SB608 appropriates $92.2 million for specific energy projects and programs. Originally appropriating $1 billion for Susitna hydroelectric projects only, the bill now addresses a wide range of statewide energy needs.

Enclosed is a sectional analysis of the Resources substitute on SB 608. Reference documents explaining each appropriation are attached for your information and review. They include:

Document #1 - Explanation of scope and intent of appropriations not requested through the Governors Capital Budget. (Misc.)

Document #2 - Letters from Perry Lovett, City Manager of Cordova, Cordova Electric Cooperative, Stone & Webster Engineering Corporation and constituent letters. (Sec.10).

Document #3 - Amendment from Senator Gilman regarding the Bradley Lake hydroelectric project. (Sec. 13).

Document #4 - Amendment from Senator Eliason for a new power distribution system in Tenakee Springs. (Sec. 14).

Document #5 - Letter from Rural Alaska Community Action Program, Inc. regarding feasibility and reconnaissance studies, weatherization and regional energy planning and education. (misc.)

Document #6 - Letter from Eric Yould of the Alaska Power Authority outlining need for appropriations to continue, finish or initiate various statewide power projects. (misc.) (Sec. 11).

Document #7 - Letter from Ahtna, Inc. outlining the need to obtain funds for construction of a substation and distribution system for the community of Cantwell. (Sec. 11).

I have not commented on all sections of the bill. Individual sponsors of portions of this legislation may wish to provide you with their own information. If you have any questions, I would be glad to provide additional information, where I have it, or to direct you to other sources.

CC Senator Bettye Fahrenkamp
Chairman, Senate Resources Committee

Section	Project Description	Amount	To	Cap. Budget Gov.Request	Reference Documents
SEC.1	Ongoing-Susitna River Hydro Project	$25,600,000.	A.P.A.	YES	Doc. #6 (14)
SEC.2	Assessment/Susitna Fisheries Enhancement	200,000.	A.D.F.&G.		Doc. #1
SEC.3	Study-Alternative energy sources	600,000.	Gov/Office		Doc. #1
SEC.4	Study-Railbelt windpower development	200,000.	A.P.A.		Battelle * &Doc.#1
SEC.5	Ongoing-Chakachama fisheries and habitat study	500,000.	A.P.A.		Doc. # 1 & 6 (19)
SEC.6	Assessment-Economic and Engineering feasibility/gas-fired power from the North Slope.	1,200,000.	Gov/Office		DOE Rep. & Doc. #1
SEC.7	Design-Kake/Petersburg Intertie	500,000.	A.P.A.	YES	Doc. #6 (9)
SEC.8	Study/Design-Hoohah Intertie	1,100,000.	A.P.A.		Doc. #6 (21)
SEC.9	Analysis-Lower Power costs/Angoon	300,000.	A.P.A.	YES	Governor's Req.
SEC.10	Grant payment-Cordova Electric Power Generation Unit	2,500,000.	Cordova		Doc. #2
SEC.11	Construction-Substation and Distribution system/Cantwell	1,250,000.	A.P.A.		Doc. #
SEC.12	Planning-Lower Kuskokwim Power Plan	2,000,000.	A.P.A.	YES	Doc. #6 (18)
SEC.13	Construction-Bradley Lake Project	35,000,000.	A.P.A.		Doc. #2&6 (3)
SEC.14	Construction-New power distribution project/Tenakee springs	200,000.	A.P.A.		Doc. #4
SEC.15	Installation-Waste heat facilities	2,000,000.	A.P.A.	YES	Doc. #6 (13)
SEC.16	Feasibility studies/rural villages	2,000,000.	A.P.A.	YES	Doc. #6 (20)
SEC.17	Reconnaissance studies/rural villages	1,600,000.	D.E.P.D.	YES	Doc. #1
SEC.18	Residential energy conservation and weatherization programs	14,000,000.	D.E.P.D.	YES	Doc. #5
SEC.19	Village Energy planning and education	1,200,000.	D.E.P.D.		Doc. #5
SEC.20	Cost Benefit Analysis of energy conservation and weatherization	100,000.	Gov/Office		Doc. #1
SEC.21	Ongoing-Long term energy planning	150,000.	D.E.P.D.	YES	Doc. #1
SEC.22	Appropriations in Section 10 and 19 shall be disbursed in accordance with AS37.05.315-37.05.319				
SEC.23	Appropriations in Sections 1-9,11-18, and 20-21 are capital projects or related and do not lapse in accordance with AS 37.25.010.				
SEC.24	Effective Date AS01.10.070(c).				

*Battelle Study (1980) "Preliminary Evaluation of Wind Energy Potential in Cook Inlet".
**"Update of 1972 study of North Slope Transportation Study",February 1982,U.S.D.O.E.(for Ak.Power Admin.)

Alaska State Legislature

BETTYE FAHRENKAMP, CHAIRMAN
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Senate

Committee on Resources

March 24, 1982

To: Finance Committee Members

From: Senator Vic Fischer

Re: SB608 (Resources) background information

The following is a brief explanation of the purpose of specific appropriations included in the Resources Committee substitute for SB 608 that are not included in the Governor's Capital budget.

Section 2 - Provides funding for the Alaska Department of Fish and Game to assess the fisheries enhancement potential of the entire Susitna River system. Fisheries studies conducted by Acres America included existing fisheries only -- not the enhancement potential of the whole system. The $200,000 appropriation is at minimal level and assumes that data and support services currently available to ADF&G and the Susitna fisheries study team would be extended for this additional purpose. This appropriation is of high interest to commercial, sport and subsistence fishermen in Cook Inlet.

Section 3 - This section appropriates $600,000 to the Governor's office to contract for work in addition to that previously done by Battelle. Identified areas include: (1) a review of recent information about Cook Inlet oil and gas, (2) preparation of price and availability projections of oil and gas as a power source, (3) an evaluation of energy demand in the commercial sector, (4) consideration of cogeneration and waste heat, (5) quantified resource assessment of energy alternatives, (6) consideration of waste oil as a supplementary fuel and (7) an assessment of incremental timing.

Section 4 - Appropriates $200,000 to build on preliminary work in identifying wind potential in the Cook Inlet region. By funding site-specific studies of wind electrical generation at seven sites along the railbelt, this one-year study would allow a detailed analysis necessary to precede wind farm generation at production levels. This appropriation would include purchase and installation of test equipment, maintenance of monitoring stations, data analysis, and final reporting .

Section 5 - Provides funding to continue feasibility work on the Chakachamna hydro project. $500,000 would purchase an additional season of habitat and fisheries study, keeping the project on-track instead of halting it in the middle.

Section 6 - Provides for assessing the economic and engineering feasibility of providing gas-fired power from the North Slope to the railbelt. An earlier study by the Alaska Power Administration would provide a useful base to build on, but is flawed by severely outdated information and unrealistic assumptions. New developments -- economically, politically, and technologically -- suggest that this possibility should be carefully re-evaluated. It may involve transmission of gas to Fairbanks, and generation of power there to supply the railbelt; or, generation on the North Slope and transmission of electricity south. Feasibility will depend on non-construction of ANGTS.

Section 17 - In accordance with the Governor's budget, the $1.6 million appropriation provides funding to complete reconnaissance studies in rural Alaska, leading to determining feasibility of specific energy projects and then implementing the best choices. D.E.P.D. should involve local residents to the greatest extent possible in this last round of studies, including an initial village visit by the study contractor and at least one follow-up visit after release of the study draft to educate local people about energy options and to solicit input. These visits should be done with assistance from peopole familiar with local energy situations and able to assist the educational portion of the visit. In addition, D.E.P.D. should require all study contractors to address all sources of energy, including energy conservation.

Section 20 - Provides $100,000 to perform a cost/benefit analysis of on-going energy conservation programs. This analysis could determine how large a role conservation plays in <u>immediately</u> affecting the high cost of energy throughout the state.

Section 21 - provides $150,000, instead of the requested $350,000, to continue work on the long-term energy plan. By law, the plan must be updated yearly. D.E.P.D. should begin to develop an in-house capability for doing so and for responding to local and regional energy planning needs.

Phase II Feasibility study ...

Phase I done on 21 June, will result in best alternative

1 million left for Phase II

26 $ previous appropriations

GRANT or LOAN / COOP

DOCUMENT #2

d Avenue
99574
3237
3238

March 4, 1982

Donna M. Sherby,
Clerk / Treasurer

Council Members
...n Nattanee
...y Bynum
...rhard Groff
...J. Kopchak
...rry Purvis
...e Gunderson

RE: Cordova Alternate Energy

Dear Mr. Kerttula:

The purpose of this letter is to provide you with additional backup for Cordova's number one priority - lower cost power. Enclosed is a copy of the letter from Stone and Webster discussing the Palmer/Glennallen/Valdez/Cordova Intertie. The funding requirements estimated for FY 83 is $4.5 million and $3 to 4 million for FY 84. It is imperative to our community and seafood industry that these funds be made available to continue the design of this vital project. We are aware of your sensitivity to our power problem, so I won't dwell on the urgency of our request to have these funds included in the Alaska Power Authority budget.

A second attachment is a copy of a letter in your files from Doug Bechtel, General Manager, Cordova Electric Cooperative, supporting the need for a standby generator and building in the amount of $2,400,000 which is a part of the overall plan outlined by Stone and Webster. The combination of engineering and standby generator funding for FY 83 is $7.9 million.

We request your support for a funding level sufficient to provide the design for an alternate energy source for Cordova.

Very truly yours,

Perry D. Lovett
City Manager

Attachment: Stone & Webster letter dated 2/22/82
D. Bechtel letter dated 3/2/82

cc: Representative B. Cato
Senator Ed Dankworth
Senator Don Bennett
Representative Al Adams

CORDOVA ELECTRIC COOPERATIVE

Box 20 • Cordova, Alaska 99574 • 424-3131

March 2, 1982

Mr. Perry Lovett
City Manager
Box 1210
Cordova, AK 99574

Dear Perry:

Here are the cost estimates for our immediate generation needs. These generators must be on line by the 1983 fishing season (May 15, 1983). The figures have been checked with Stone & Webster Engineering Corporation and are in substantial agreement with their figures.

Item	Cost
2500 KW Unit	$1,300,000.
Building	575,000.
Tanks, Mechanical	100,000.
Engineering	100,000.
Administrative	112,000.
Contingency	213,000.
TOTAL	$2,400,000.

I realize that $575,000. appears to be very expensive for a building. As I am sure you are aware, our power house is currently full of generators and does not have the room to expand. At one end we have the sub-station, at the other end we have the City Shops. Due to the road on one side and Eyak Lake on the other side, we cannot expand in that direction either. The funds provided in this letter for a building are to provide equivalent space for the City at another location so that we may take over the City Shop space or to build a new facility for us at Ocean Dock which would house this one engine.

The building costs are for either the existing or the Ocean Dock site. There are some advantages to the Ocean Dock site, but EPA Air Quality Sandards may not permit it.

Sincerely,

W. D. Bechtel
General Manager

WDB:vjc

STONE & WEBSTER ENGINEERING CORPORATION
DENVER OPERATIONS CENTER
GREENWOOD PLAZA, DENVER, COLORADO
ADDRESS ALL CORRESPONDENCE TO P.O. BOX 5406, DENVER, COLORADO 80217

BOSTON
NEW YORK
CHERRY HILL, N.J.
DENVER
CHICAGO
HOUSTON
PORTLAND, OREGON
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WASHINGTON, D.C.

DESIGN
CONSTRUCTION
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EXAMINATIONS
CONSULTING
ENGINEERING

City of Cordova
Mr. Perry Lovett
City Manager
P.O. Box 1210
Cordova, Alaska 99574

February 22, 1982

J. O. No. 14101
Letter No. SWEC/CC-01

Dear Mr. Lovett:

PALMER-GLENNALLEN INTERTIE
CORDOVA FEASIBILITY STUDY - PHASE I
ALASKA POWER AUTHORITY

This is in response to your comments and questions concerning the data provided in our letter report of February 10, 1982, and confirms the information provided you in our telephone conversation of February 19.

While our analysis of alternative solutions to meet Cordova's power needs is far from complete, you are correct in noting that, at this stage of our investigations, two specific alternatives appear to offer the most promise. These are hydroelectric development at Silver Lake (near Valdez) and a transmission intertie between Palmer and Glennallen.

Preliminary conceptual design of Silver Lake is complete and we estimate that construction costs including the requisite transmission line to Cordova would be approximately $78 million. Using Power Authority economic analysis guidelines, the life cycle cost (present worth) for this alternative would be in the order of $110 million. This would be reduced to less than $100 million if the life of transmission lines were increased from the present guideline of 20 years to 40 years. Our major concern with the Silver Lake alternative is the lack of definitive hydrologic, geotechnical and environmental data. Certainly, a comprehensive field investigation and data collection program would have to be undertaken before a final decision could be made on development of Silver Lake. Such an effort is not scheduled to be accomplished during this phase of our study.

Since investigation of the Palmer-Glennallen intertie has only recently been added to the scope of our study, our analysis has not progressed sufficiently to allow a detailed comparison of this alternative with others under investigation. Development of life cycle costs will require our quantifying both the amount and cost of power available for purchase in the Anchorage area and the regional demands for that power over the next 20

years. While we have proposed a scope change which would allow us to develop that data by mid-April, the Power Authority has not had ample opportunity to approve the initiation of that effort. Further, we have not attempted to quantify the costs of real estate acquisition associated with this line, nor would we be in a position to do so until Phase II of our study. Not withstanding the early stage of our investigation, we do expect the construction cost of the Palmer-Glennallen intertie to be less than $70 million for a line sized to meet our initial estimates of total regional needs.

At your request, we have calculated the life cycle cost (present worth) of a transmission system running from Palmer to Glennallen, then over CVEA lines to Valdez, and finally to Cordova over the proposed coastal route. The total new construction cost of this system would be about $97 million. The life cycle cost (exclusive of real estate) would be less than $110 million based on your estimate of purchased power costs in the Anchorage area of 1.6 cents per kWhr, a fourty year system life and an assumed 30 percent Cordova share of Palmer-Glennallen capital costs. Of course, all these assumptions will need to be confirmed as proposed in our Phase I scope revisions.

At this stage of our analysis, both Silver Lake and the Palmer-Glennallen intertie appear to be competitive and need to be pursued. Unquestionably, given the availability of inexpensive purchased power in the Anchorage area, the Palmer-Glennallen intertie has the added advantage of providing regional benefits to consumers in both the MEA and CVEA service areas.

Finally, you asked several questions concerning schedules and costs for design of the Palmer-Glennallen - Valdez-Cordova transmission system. Assuming we do not conduct a formal Phase II study, our analysis indicates that with a July 1, 1982 start on preparation of license/permit applications, Environmental Impact Statements, field data collection and preliminary designs, we could begin construction in July 1984 and the system would be operable by December 1985. Meeting that schedule would require engineering expenditures of about $4.5 million in FY 83 and 3-4 million in FY 84.

I apologize for the preliminary nature of this information, but hope it meets your immediate needs. We will keep you informed as our study progresses and we validate these initial estimates. In the interim, please do not hesitate to contact me if I can be of further service.

Very truly yours,

NK Whitcomb

N. K. Whitcomb
Project Manager

BJR/NKW/jam

Document #3

SENATE AMENDMENT

By Senator Gilman

To: CSSS SENATE BILL No. 608 (Resources)

To: _____ HOUSE BILL No. _____

PAGE: 1 LINE 27

Sec. 7. The sum of $35,000,000 is appropriated from the general fund to Alaska Power Authority for construction of Bradley Lake hydroelectric project.

Document #7

SENATE AMENDMENT

By Senator Dick Eliason

To: Senate Resources Committee SENATE BILL No. CSSSSB 606

To: _____ HOUSE BILL No. _____

PAGE:	LINE:	
1	27	Add new Section 7

The sum of $200,000 is appropriated from the general fund to the Alaska Power Authority for a new power distribution system in Tenakee Springs.

Renumber subsequent sections accordingly.

+ #21 Hoonah

+ #3 Bradley Lake

Continuation of ongoing or initiated

Document #5

Rural Alaska Community Action Program, In

March 16, 1982

Honorable Vic Fischer
Alaska State Senate
Pouch V
Juneau, Alaska 99811

Dear Senator Fischer:

We have prepared a summary sheet on two energy proposals which could be incorporated into SB 608. It is our opinion that the State should have a Comprehensive Rural Energy Policy. This Policy would contain at least four components:

1. Conservation (Weatherization)

2. Regional Energy Planning and Education

3. Reconnaissance to include weatherization

4. Feasibility Studies and appropriate projects.

For the purposes of this immediate bill, SB 608, we recommend that two of these components be included, Conservation and Regional Energy planners. The total funding would be $6.2 million (see attached). We believe the proposed financial commitments are not unreasonable in light of the State's changed revenue picture and the past geographical imbalances in state spending on energy.

We appreciate your interest in these issues

Sincerely,

James R. Ayers
Executive Director

Enclosures: (1) Proposal for Comprehensive Statewide Low-Income Weatherization

(2) Proposal for Rural Energy Planning and Education

PROPOSAL FOR COMPREHENSIVE STATEWIDE LOW-INCOME WEATHERIZATION

The Need

Nowhere is the need for help with the energy crisis more desperate than in rural Alaskan villages. Heating fuel prices are between one-and-a-half and three times the cost in Anchorage. Unemployment hovers around 50%. Poorly constructed, drafty houses require large amounts of fuel to provide minimal comfort against the bitter climate. Residents spend over 30% of their income on heating fuel and electricity.

Nearly every village energy reconnaissance study by the Alaska Power Authority has recommended weatherization to reduce heating fuel use. Yet the existing state audit/grant program and the federal low-income weatherization program offer too little money to too few people to make more than a slight dent in the problem for either rural or urban low-income residents.

The Program

The program would offer grants to any municipality or non-profit corporation in the State for installing cost-effective weatherization and energy conservation improvements in residential units. Eligible units would be those which are occupied by low-income persons or which are located in a community which as a population of less than 700, which does not have year-round surface transportation and which lacks the goods and services necessary to install weatherization and energy conservation improvements. The program-wide average grant per unit should not exceed $3,000. A reasonable per unit maximum which allows major necessary conservation improvements should be established. The primary factor in determining the grant per unit should be the cost-effectiveness of the improvement. Other factors should include the cost of materials and transportation, local energy costs, severity of climate, and availability of other financial resources for non-low-income households. Income standards should be based on Federal Office of Management and Budget guidelines adjusted to Alaska's state and regional variations by cost of living indices.

Proposed FY83 funding is $5 million, with 50% reserved for villages of less than 700 and the remainder split equally between urban areas and regional centers.

The Results

Energy cost savings should average 30-40%, up to $900 per year for a typical rural unit, depending on its condition and local fuel costs, for a payback within 4 or 5 years. Each house would require just over 4 person days of labor, which often can (and should) be locally provided.

The Results - Continued

A typical village of 300 would save about $54,000/year, which would stimulate the village economy. Direct labor for the project would create over 12 weeks' work for a four-man crew as well as a local supervisor/administrator.

With 15% miscellaneous costs beyond direct labor, freight and materials, each $1 million spent would do an average of 290 houses, for a savings of over $250,000 each year, creating full-time summer construction jobs for 23 local residents and an additional half-year supervisory job in each village.

Urban units will generally require smaller expenditures to gain similar energy savings (30%). Since urban energy costs are lower, annual dollar savings would be lower and payback would be somewhat longer. Because materials and transportation costs are lower in urban areas, each dollar spent in urban areas would create even more local construction jobs.

The Request

$5,000,000.

RURAL ENERGY PLANNING AND EDUCATION

The Need

The benefits of oil for heating and electricity, and resulting economic crisis are recent phenomena in rural areas. Fuel oil use generally dates back less than 30 years. In those areas that do have electricity, it has come within the last 5-10 years. The shocks of the recent escalations in fuel prices are still shaking depressed village economies. Local residents are unfamiliar with contemporary energy technologies and strategies, including techniques of more efficient energy use. Imported bureaucrats and contractors mean well but often fail to appreciate cultural barriers to educate and serve local residents on energy matters and to involve local people in solving their own energy problems. The result is a reliance on outside experts to try to run complex projects and programs in villages. They often fail.

The Program

To allow regional non-profit corporations to hire an energy educator/coordinator who is familiar with energy strategies and local conditions, the educator/coordinator would conduct village workshops on village energy strategies and help residents decide what they can do about their energy problem. The Program would involve a thorough local evaluation of village energy reconnaissance studies and would produce energy recommendations determined by the village instead of by bureaucrats and outside consultants. A budget of $100,000 per region would allow adequate travel and technical materials for each village, for a total FY83 cost of $1.2 million.

The Results

Results would include an educational workshop (in conjunction with village-wide weatherization where possible) in each village on efficient energy use and other fuel-saving local energy projects. This education, with continuing technical help from the regional coordinator, would lead to local proposals for village-based or multi-village energy projects or programs. Energy use will fall as education on energy conservation takes effect. Villages begin to work toward their own solutions to energy problems.

The Request

$1,200,000.

Document #8

ALASKA POWER AUTHORITY

334 WEST 5th AVENUE · ANCHORAGE, ALASKA 99501

March 5, 1982

The Honorable Bettye Fahrenkamp
Alaska State Legislature
Pouch V
Juneau, Alaska 99811

Dear Senator Fahrenkamp:

At your 3 March 1982 Senate Resources Committee hearing on SB-608, you requested that I identify the minimum funding requirements needed to insure that the energy development program proceeds unimpeded. Last year the Legislature appropriated both funds and interest to be earned on those funds to construct a number of projects. The Attorney General has made a preliminary funding that interest was improperly appropriated and thus is not available. In addition, construction costs of some of the projects have risen while the cost of others decreased.

The Power Authority has provided tax exempt interim financing for two of the projects and is prepared to do the same for others if necessary. This technique must be construed only as a temporary solution, however, as it will ultimately be necessary to provide long term financing through state appropriations or Revenue Bonds. Please also be aware that this is my perceptions of funding needs that would maintain the current program, but it has not been endorsed by Governor Hammond or his staff. The Governor's Budget Review Committee has a much broader view of the state's program priorities and should be consulted when reviewing this input. Finally, I have identified for Senator Dankworth those funds previously appropriated which are excessive to specific project needs and thus are available for reappropriation. Following is the information which you requested:

1. Swan Lake - It appears that it will cost up to $16 million to complete the acquisition and construction of this project through December 1983. However, interim financing is in place. Therefore it is possible to defer subsequent appropriations of these amounts to the future, or long term bonds could be issued sometime prior to the maturity of the interim financing. Therefore the appropriation request could be reduced to zero for the current fiscal year.

2. Lake Tyee - Interim financing has also been accomplished for this project, however, $40 million in state funding may be necessary to complete the construction financing of this project if the state is going to directly fund the full costs of this project. It is possible that the FY 83 appropriation for this project could be deferred to FY 84.

3. Bradley Lake - The Power Authority is currently preparing its recommendations to the Governor and the Legislature for this project. $15 million has been appropriated to date for the project and it has been indicated by the Corps of Engineers that in order to enter into an agreement to proceed with construction of the project in FY 83, it would be necessary for an additional $35 million to be appropriated in FY 83. In addition, the Legislature must authorize the Power Authority to proceed with design and construction of the project.

4. Anchorage/Fairbanks Intertie - Since interest earnings may not be available, unless the law is changed for funds appropriated for projects to be financed from the Power Development Fund, it would be necessary to appropriate $57 million to complete construction of the project through FY 84. The Power Authority would need authorization to issue bonds to complete construction of the project if appropriations were not available in FY 83. For this project it is also necessary to amend or repeal Sec. 14, Ch. 118, SLA 1981, which is special legislation which could jeopardize efforts of the Power Authority to proceed with construction of the project.

5. Terror Lake - The estimated cost to complete construction of this project for the low dam scheme is $174 million. The Power Authority will receive bids in mid-April for the major Civil Construction Contract associated with this project. It will only be at that time that we'll have a more definitive cost to complete construction of this project. The Power Authority can interim finance this project with the existing bond authorization of $120 million and the $81.5 million in appropriated funds if the civil construction bids come in reasonably close to the estimated cost of the project. The reason the existing $120 million bond authorization would be insufficient, if the construction cost increase by from $5 to $15 million, is because the interim financing mechanism requires that all interest during construction be capitalized out of note proceeds. Therefore it would be advisable to obtain an approximately $20 million appropriation in FY 83 for the Terror Lake project or receive an increased authorization to issue bonds for the project of $20 million.

6. Rural Electrificaton Loan Fund - This appropriation request could be reduced to zero for FY 83 since no utility has applied to date for our FY 82 funds. However restructuring of the fund may generate instant demands for existing funds.

7. Power Cost Assistance Fund - This capital appropriation was shifted into the operating budget request of the Power Authority by the Budget Review Committee and by knowledge has been included in the Governor's request for funding.

8. Black Bear Lake - The Power Authority does not have to initiate construction with funds to be appropriated in FY 83 and the Power Authority could be prepared to proceed with construction in FY 84 if $3 million was appropriated in the current fiscal year to proceed with design of the project. It would also be advisable to authorize the Power Authority to issue bonds in the amount not to exceed $60 million for the project which would also include capitalized interest. The actual present pay cost of the project is roughly $35 million.

9. Kake/Petersburg Transmission Line Intertie - The Power Authority is still studying the feasibility of this project and there will not be a determination for approximately another 4 months. If the project is feasible, approximately $500,000 would be necessary in FY 83 to proceed with design and right-of-way activities.

10. Kotzebue District Heating Project - Funding request of $2.5 million would be necessary in FY 83 to proceed with the detailed engineering and design of the project. Feasibility study results may not be available for at least 2 months.

11. Chester Lake Hydroelectric Project - The Power Authority recommendations are currently being prepared on the feasibility of this project. If the project is authorized for construction approximately $14 million would be necessary in FY 83. A FERC license will not be required to initiate construction of this project. The Legislature would have to authorize the Power Authority to proceed with design and construction of the project, in addition to a bond authorization of $20 million if the project is not state funded.

12. Rural Small Hydro Construction - The $27 million request for this program represents $5 million in FY 83 and only the best of the projects currently being investigated would proceed with design and construction. Construction could begin this summer on some of the small projects.

13. Rural Waste Heat Construction - The full funding request of $2 million is necessary for FY 83 because the assessments demonstrate that waste heat recapture is very attractive for many rural communities.

14. Susitna Hydroelectric Project - The budget request of $25.6 million is what will be necessary to proceed with the detailed design and continued processing of the FERC license during FY 83. Authorization to proceed with engineering and design of the project is necessary.

15. West Creek Hydroelectric Project - The budget request of $2 million is what would be necessary to initiate the detailed design of this project if the determination of feasibility is made within the next 2 months. If the Power Authority is going to be appropriated funds and to proceed with design of this project once the determination of feasibility is made it would be necessary to receive an authorization to proceed with design of the project from the Legislature.

16. Grant Lake - The Power Authority is currently completing the feasibility study for this project. If the Power Authority were going to proceed with design of this project at least $2 million would have to be appropriated in FY 83. In addition, legislative authorization f construction would be required.

17. Bristol Bay Project L censing and Final Design - The feasibility study is still proceeding, however, there will not be a final determination of feasibility of a project before the end of the legislative session. If the capital intensive alternative is determined to be feasible in the region it would cost approximately $4 million to complete the detailed design of the project. In addition the Power Authority would have to be authorized to proceed with detailed design in accordance with our statutes.

18. Lower Kuskokwim Power Plan - $2 million is necessary in FY 83 to complete the detailed feasibility study of the preferred alternatives which will be identified as a result of the studies currently underway. The $1 million in funding in FY 82 was sufficient to complete Phase I of the detailed feasibility study of the Lower Kuskokwim Region.

19. Chakachamna Hydroelectric Project - $2.2 million is necessary in FY 83 in order to complete the Chakachamna feasibility study which was funded for $1 million in FY 82.

20. Rural Village Feasibility Study - The budget request of $4 million for this project is necessary to address the severe problems in rural Alaska and to establish the feasibility of those alternatives which are identified in FY 81 as a result of the rural recon studies currently underway. If funding is reduced below $4 million, then feasibility studies will only be undertaken on the alternatives that showed the greatest potential as a result of the FY 82 reconnaissance studies in rural Alaska.

21. Hoonah Intertie - If a detailed feasibility study and initiation of design of this project is going to be initiated, Appropriation necessary in FY 83 will be $1.1 million.

22. Reynolds Creek Hydroelectric Project - Funding for the initial environmental studies associated with this project could be deferred to a later year since the Black Bear Lake Hydroelectric Project will be capable of addressing the near to mid term needs of the communities on Prince of Wales Island.

23. Emergency Maintenance Fund - This fund will be capitalized out of program receipts received from revenues from the sale of power. Since consumers will be paying in their rates the revenues derived to capitalize this fund, and since it is not known specifically when the emergency maintenance fund may be drawn on, it is requested that the $500,000 for this appropriation be appropriated with interest earnings so that the value of the revenues collected from consumers is not diminished overtime.

24. Renewal and Replacement Fund - The $750,000 requested in FY 83 would be again program receipts derived from revenues from the sale of power. The appropriation of these program receipts should be with interest earnings so that the value of the revenues collected from consumers will not be diminished from the period of time they are collected until they are actually utilized for renewal and replacement of components of the project.

If you have any questions or would like any additional information, please call upon me.

Sincerely,

Eric P. Yould
Executive Director

Attachment: As stated

cc: Chuck [illegible]y
Ron Lehr
Jerry Reinwand
Commissioner Mueller

ALASKA POWER AUTHORITY

334 WEST 5th AVENUE - ANCHORAGE, ALASKA 99501

Phone: (907) 277-7641
(907) 276-0001

March 5, 1982

SB 65

The Honorable M. E. Dankworth
Alaska State Legislature
Pouch V
Juneau, Alaska 99811

Dear Senator Dankworth:

You have requested information on funds which have been appropriated to the Power Authority in recent years which may be available for reappropriation. I understand that this is necessary due to the fact that the state's revenue projections for FY 83 have been considerably reduced. In addition preliminary indications from the Attorney General's office on the law suit of the Trustees for Alaska are that interest earnings, which were appropriated with funds appropriated in FY 82 for the Power Development Fund, may not have been properly appropriated and may not accrue to the projects for which they are appropriated. The following is a listing of those appropriations which we feel are available for reappropriation for other projects and purposes.

1. Angoon Title - Original appropriation was for $250,000 in Ch. 120 SLA 1980. This project does not appear that it will proceed in any form and the total amount of the appropriation could be used for other purposes.

2. Akutan - Ch. 54 SLA 1980 appropriated $1.1 million for a small hydroelectric project at Akutan. $126,000 was loaned to the City of Akutan for the purchase of a turbine for the project. The balance of this appropriation or $974,000 could be used for other purposes. I recommend that the appropriated amount be reduced to $126,000, since the project will not proceed to construction.

3. Bethel - $2 million was appropriated in Ch. 54 SLA 1980. The purpose of the appropriation was for a loan to the City of Bethel to purchase the Bethel Utilities Corporation. $2 million is insufficient to purchase the utility and the effective interest rate for loans from the power project loan fund is unacceptable to the City of Bethel. The City of Bethel does not appear to be interested in pursuing an application for the loan of these funds for this purpose. These funds could be made available for reappropriation for other purposes.

4. Green Lake - Ch. 90 SLA 1981 appropriated $60 million for the Green Lake Project. Ch. 92 SLA 981 repealed and reenacted

Section 1 of Ch. 90 SLA 1981 to appropriate $50 million for Green Lake in FY 82 and $10 million in FY 83. If the City and Borough of Sitka determines that they want to participate in the Energy Program for Alaska, the Power Authority would have to acquire the Green Lake project with the appropriated funds. It is not clear as yet what the definitive cost would be for acquisition since the resolution of construction claims, and the method of defeasance of bonds issued by the City of Sitka to finance the construction of the project have not as yet been determined. If funds were to be made available for reappropriation I would advise that the FY 83 appropriation contained in Ch. 92 SLA 1981 be reduced from $10 million to $2 million. Remaining funds would be sufficient to acquire the project with no impact to Sitka.

5. Solomon Gulch - $68 million was appropriated in Ch. 90 SLA 1981 for the acquisition of this project. Ch. 92 SLA 1981 deferred $10 million of the $68 million appropriation to FY 83. The cost of acquisition of this project should be more definitively defined within the next 3 weeks. At that time it will be clearly established what the necessary costs will be to pay off certain loans from the Federal Financing Bank which had been made to the Copper Valley Electric Association and what it will cost to defease certain low interest loans from the Rural Electrification Administration. In addition, there are approximately $6 million in outstanding construction contract claims which will have to be resolved. It appears that it is possible to designate up to $15 million of the $68 million which had been appropriated for the project for reappropriation for other projects. I would suggest that the FY 83 appropriation contained in Ch. 92 SLA 1981 be reduced to zero and the FY 82 appropriation be reduced to $53 million.

6. Lake Elva - Ch. 90 SLA 1981, Sec. 11 appropriated $4.5 million for the Lake Elva project. The Power Authority is not going to proceed with this project and is still investigating the Lake Tazimina project and other alternatives for this region. Some funds have been expended or obligated from the original appropriation, therefore I recommend that the appropriated amount be reduced to $50,000. The funds should be reappropriated to the Bristol Bay project as funds will be needed there.

7. Petersburg - Ch. 90 SLA 1981, Sec. 20 appropriated $1.5 million for a loan to the City of Petersburg for local transmission and distribution lines. It does not appear that the City of Petersburg is prepared to borrow the funds for the specified purposes at the current interest rate which is available for loans from the power project loan fund. It is possible that these funds are available for reappropriation

for other projects including the Lake Tyee Hyroelectric Project.

8. Wrangell - Ch. 90 SLA 1981, Sec. 21 appropriated $1.5 million to the City of Wrangell for the same purposes as described in number 7 above. For the same reasons it is possible that the funds would be available for reappropriation for other projects, including the Lake Tyee project.

9. Akutan - Ch. 90 SLA 1981, Sec. 34 appropriated $127,000 for a loan to the City of Akutan for electrification. As indicated in item 2 above, the loan had been made prior to the appropriation referenced in this section from a prior appropriation. Therefore, the funds appropriated in section 34 of this act could be reappropriated for other purposes.

10. Ouzinkie - Ch. 90 SLA 1981, Sec. 46 appropriated $700,000 for the Ouzinkie Waste Heat Project. This appropriation could be reduced to the amount of $250,000 since it is possible to complete the project for that cost.

You also asked me to specify and justify for you what would be the minimum appropriations which may be necessary for FY 83 for the power development program. I was also asked this question by Senator Fahrenkamp at a recent Senate Resources Committee hearing on SB-608. Attached is my response to Senator Fahrenkamp.

If you have any questions or would like additional information, please call upon me.

Sincerely,

Eric P. Yould

Eric P. Yould
Executive Director

Attachment: as stated

cc: Chuck Conway
Ron Lehr
Jerry Reinwand
Commissioner Mueller

Document # 7

Ahtna, Inc.

DRAWER G
COPPER CENTER, AK. 99573

907-822-3476

February 5, 1982

Alaska State Legislature
Senate
Pouch V
Juneau, AK 99811

Attention: Honorable Vic Fischer

Dear Senator Fischer:

Ahtna, Inc. is requesting your support and assistance for obtaining funds for a reliable source of electrical power to one of our small rural communities and villages. The State is providing funds for the construction of an electrical intertie between two of our large cities, Fairbanks and Anchorage, that would enable the cities to share power. This transmission line is also capable of providing power to the cities when Devels Canyon Dam is on line.

Ahtna feels that these resources should be made available to rural areas when feasible as in this instance with the intertie passing through the rural community of Cantwell. There are no plans to construct a substation or distribution system for Cantwell residents. Ahtna feels that there is a need for reliable electrical power to this expanding community. Last year, 12 new houses were completed at Cantwell through the Copper River Basin Housing Authority. All these homes were wired for electricity in the expectation of community electrical power. Many of the homes in Cantwell run their individual power plants that are expensive to operate because of the high cost of fuel and repairs.

Ahtna believes now is the time to provide funds for the construction of a substation and distribution system for the community of Cantwell. At the last Ahtna, Inc. Board Meeting held on January 30, 1982, the Board of Directors passed a resolution in support of this important project. (Copy enclosed.)

It is Ahtna's hope that you will support this project for the community of Cantwell. It is estimated that the amount that is required for the substation and distribution system would be $1,250,000. Also enclosed is a copy of a supportive letter from Golden Valley Electric Association and a current listing of residents and business establishments that would benefit from this project.

Sincerely,

Herbert Smelcer
General Manager

HS/sh

Enclosure

Ahtna, Inc.

DRAWER G
COPPER CENTER, AK. 99573

PHONE 907-822-3476

RESOLUTION 82-2

WHEREAS, the State of Alaska has funded the Alaska Power Authority to construct an electrical intertie transmission line between Fairbanks and Anchorage and,

WHEREAS, this intertie will pass through rural communities that presently have no reliable source of electrical power and,

WHEREAS, the intertie will cross over lands owned by Cantwell and Ahtna, Inc. and,

WHEREAS, Cantwell is in need of a reliable source of electrical power for their expanding community and,

WHEREAS, a reliable source of electricial power could be provided by this intertie through a substation at Cantwell, Alaska, and by a local electrical distribution system

THEREFORE, BE IT RESOLVED by the Ahtna, Inc. Board of Directors at their regular meeting on January 30, 1982 that it supports and strongly recommends that the State provides funding for the construction of a substation at Cantwell, Alaska, with facilities for distribution of electrical power and,

BE IT FURTHER RESOLVED, that Ahtna, Inc. requests the State to provide funding for a local electrical distribution system for Cantwell.

Dated this 30th day of January 1982.

Evelyn Beeter
Secretary

Nicholas Jackson
President

Seal

LDEN VALLEY ELECTRIC ASSOCIATION INC. Box 1249, Fairbanks, Alaska 99707 Phone 907-452-1151

November 23, 1981

Mr. Jim Wright
P.O. Box 9
Cantwell, AK 99729

Dear Jim,

We pledge our assistance in obtaining a tie-line substation for the community of Cantwell. Our chief lobbyist, Mr. Dave Hutchens, Executive Director of the Alaska Rural Electric Cooperative Association has placed this project on his list as one of high priority for this legislative session. In addition, Mr. Eric Yould, Executive Director of the Alaska Power Authority, assures me that his agency stands ready to assist your community in its attempt to receive central station service via the tie-line. You are welcome to contact both Dave and Eric for additional information.

You can help by supplying both of these gentlemen with the following data: population of general area, number of residences, number of business establishments, number of individual generation units now in service, cost of fuel, growth and development trends-both historical and projected, and other items that may be of significance.

Further, I would suggest that you form a Citizen Action Committee that would be willing to write individual letters, call, or send telegrams to legislators and the administration. These efforts should be coordinated through Dave Hutchens.

I personally will assist you with this project and with the distribution facilities required once the substation is secured. As stated previously, GVEA is willing to accommodate Cantwell with a relinquishment of our APUC Certificate as it applies to that area should this be desired. We will also assist with formation of your own utility or any other approach that is determined to be in your best interests.

Best regards,

Bob Hufman

R. L. Hufman
General Manager

RLH:es

6

cc: D. Hutchens
ARECA
6000 C Street, Suite C
Anchorage, AK 99502
276-3235

E. Yould
APA
334 W. 5th Street - 2nd Floor
Anchorage, AK 99501
276-0001

Vern Wickham
Cantwell Lodge

		1 ns / n home	2 wer / home	3 her / urce	4 r / ize of / enerato	5 per / nth	6 ced / month	7 month / 1.30 pe / gallon	8	9	10
Atkins, Ray	1	4			3.5KW	183	1830	$[illegible] 238			
Burney, Russ	2	5	X								
Bulard	3	4			8.8/12	293	2928	$ 381			
Bondurant, Jock	4	1		X							
Caress, Marty	5	2			4.4	108	1080	$ 140			
Carlson, Bud	6	4		X	5						
Cotter, Herman	7	5			5 gen 5,10,15	1000	10,000	$ 1,300			
Davis, Bernie	8	1		X							
Drashner, Dave	9	2	X								
Drashner, Everett	10	5			2/3.5 3.5	305	3050	$ 397			
Drashner, John	11	1	X								
Dementi, Gil	12	5	X								HUD
Ewan, Margie	13	5	X								HUD
Ellis, Roger	14	2		X							Tro
Flanigan, Roland (Griz)	15	4	X								
Folger, Gary	16	1	X								HUD
Gallentine, Walt	17	2			12/3.5	180	1800	$ 234			
Gilbertson, Bob	18	2		X	4.0						
Goble, George	19	3			.10	76	366	$ 99			Par lim 5 mo
Gore, Ken	20	2			2.5/2.5	150	1500	$ 195			
Goldsworthy, John	21	1	X								
Herman, Nick	22	3		X							
Hollinrake, Jim	23	2			5.0/4.0	107	1068	$ 139			
Isern, Kurt	24	1	X								
Jamison, Lee	25	2	X								HUD
John, Alec	26	4	X								HUD
Kingsbury, Jim	27	3	X								
Lawson, Jack	28	5		X	20/35						
Loper, Butch	29	1			3.0	18	183	$ 23			3 Hr 7 da
Laughman, Al	30	5		X							Troo
Mayo, Leonard	31	5	X								HUD
Mayo, Scott	32	4	X								
Miller, Jim	33	4			7.0/7.0	243	2430	$ 316			
Miller Mike	34	4			5.0	18	183	$ 24			
Moberg, Jerry	35	2	X								
Nicholas, Jane	36	2	X								HUD
Nicklie, David	37	2	X								HUD

	#	1 of ersons in home	2 p ower n home	3 ower other source	4 n wer. size of generator	5 el ed per Month	6 H oduced r month	7 st r month $1.30 per gallon	8	9	10
Nicklie, Elsie Brenda	1	3	X								HUD
Nicklie, Rene	2	3	X								HUD
Nicklie, Tammany	3	1	X					0			HUD
Nord, Dale,	4	2		X							
Osborne, Don	5	1	X								
Pedro, Ron	6	3	X								
Peters, Jenny	7	1	X								
Peters, Henry	8	1	X								
Secondchief, Frank	9	1	X								
Sheldon, Bea	10	1	X		4.4						
Smith, Jessie	11	4		X							
Stadler, Gordon	12	2	X								
Sperry, Rachel	13	1	X								
Squire, Myrna	14	2	X								
Steinbrecher, Frank	15	4	X								
Stickivan, Nome	16	2	X								
Skravanek, Stacy	17	3	X								
Tansy, Jake	18	1		X							
Tyone, Sharon	19	2	X								HU
Wickham, Vern	20	2		X							
Wiebe, Ray	21	2			3/5/15	344	3435	$ 447			
Wright, James	22	3			4/12	177	1,764	$ 229			
Whittemore, Gary	23	2	X								
	24										
	25				33 GEN						
RESIDENTIAL	26	158	34	12	18 FAMILY	3202	31,617	4,162			
	27										
	28										
BUSINESS	29	30	1	18	18	12,709	127,092	16,455			
	30										
TOTAL	31	188	35	30	57	15,911	158,709	20,620			
	32										
	33										
	34										
	35										
	36										
	37										

	1 business	2 persons in home or	3	4	5	6	7	8	9	10
Alaska Railroad	2		X							
Atkins Guide Service	1		X							
ALASCOM	1		X	15KW						
Bobs Welding & Repair	1		X							
Cantwell Chevron	3		X							
Cantwell Lodge				2ea 250 2ea 90	3546	33,460	$ 4350			7 residential accts 4 commercial accts.
Cantwell Trading Post	2		X							
Cantwell Bible Church	3			4.4	214	2140	$ 214			
Cantwell Native Village				4.0	250	2500	$ 325			Native Council Health Clinic
Drashner bus Service			X							
Dept. of Public Safety	3		X							
Golden North Air Service	?		X							
H & b Equipment	3		X							
Jack River Inn	13			55.0	1891	18910	$ 2458			
Longhorn Saloon	2		X							
Matanuska Telephone	1			(2) 7.5	293	2930	$ 381			
Nordic Air Maintenance	?			7.0	36	360	$ 47			
Penticostal Church	2	X								
Railbelt School Distr.				2ea 90 KW	2635	26352	$ 3426			
Reindeer Research			X							
State Highway Dept.				50 KW	1525	15250	$ 1983			
Tsesyu Service	3			50 KW	1464	14640	$ 1903			2 residential 1 business
U.S. Post Office	2			8.8	158	1580	$ 205			
Wind & Sun Enterprises	2		X							
M.O. Wright & Son	3		X							
CEA Inc			X							
Copper Acre Kennels	1		X							
Denali Kennels	1		X							
Designs by Pam	1		X							
National Weather Serv Federal Aviation Agcy		1	18	(2) 18 18	897 12,709	8970 127,092	1,166 16,458			

PRIME SPONSOR: Resources

LEGISLATION SUMMARY

CSSSSB 608: "An Act making special appropriations for various power projects and energy-related purposes; and providing for an effective date."

Sec. 1: Appropriates $25,600,000 to the power development fund of the Alaska Power Authority (APA) for the Susitna River hydroelectric project.

Sec. 2: Appropriates $200,000 to the Department of Fish and Game for fisheries enhancement potential assessment of the Susitna River system.

Sec. 3: Appropriates $600,000 to the Governor's office to complete Susitna River hydroelectric project alternatives studies and necessary additional work for key decisions on construction.

Sec. 4: Appropriates $200,000 to the APA for railbelt windpower feasibility studies.

Sec. 5: Appropriates $500,000 to the APA to continue Chakachamna fisheries and habitat studies.

Sec. 6: Appropriates $1,200,000 to the Governor's office for economic and engineering feasibility assessment of generating and transmitting gas-fired power from the North Slope to the railbelt.

Sec. 7: Appropriates $500,000 to the APA for design and right-of-way activities for a possible Kake-Petersburg intertie.

Sec. 8: Appropriates $300,000 to the APA for feasibility analysis of alternatives to lower the cost of power for Angoon.

Sec. 9: Appropriates $2,500,000 as a grant to Cordova for an eletric generation unit.

Sec. 10: Appropriates $1,250,000 to the APA for a substation and distribution system for Cantwell.

Sec. 11: Appropriates $2,000,000 to the APA for the Lower Kuskokwim power plan.

Sec. 12: Appropriates $2,000,000 to the APA for installation of waste heat facilites in rural villages.

Sec. 13: Appropriates $2,000,000 to the APA for feasibility studies in rural villages.

Sec. 14: Appropriates $1,600,000 to the division of energy and power development (DCED) for reconnaissance studies in rural villages.

Sec. 15: Appropriates $14,000,000 to the division of energy and power development (DCED) for residential energy conservation and weatherization programs.

Sec. 16: Appropriatea $1,200,000 to the division to energy and power development (DCED) for grants to regional nonprofit corporations for village energy planning and education.

Sec. 17: Appropriates $100,000 to the Governor's office for a longitudinal cost-benefit analysis of energy conservation and weatherization programs.

Sec. 18: Appropraites $150,000 to the division of energy and power developemnt (DCED) to continue work on the long-term energy plan.

Sec. 19: The appropriations made in secs. 9 and 16 shall be disbursed in accordance with state law regarding state grants (AS 37.05.315 - 37.05.319).

Sec. 20: The appropriations made in secs. 1 - 8, 10 - 15, and 17 - 18 are for or related to capital projects.

Sec. 21: Immediate effective date.

Alaska State Legislature

Senate

Office of the President

Official Business

Pouch V
State Capitol
Juneau, Alaska 99811

MEMORANDUM

TO : Senate Resources Committee
Attention Tom Johnson

FROM : Senator Jay Kerttula

SUBJECT : Committee request for a statement of sponsor intent on SB 608

DATE : February 7, 1982

This bill is intended to provide continued funding to the Alaska Power Authority for those projects that come under the power development fund. The bill provides the money necessary for this year for the Susitna River hydroelectric project and other APA projects.

cc: Senator Dankworth

ALASKA STATE LEGISLATURE
HOUSE OF REPRESENTATIVES
RESEARCH AGENCY

Pouch Y, State Capitol
Juneau, Alaska 99811
(907) 465-3991

February 9, 1982

MEMORANDUM

TO: Representative Brian Rogers
Attn: Nancy Lord

FROM: Jack Kreinheder JK
Research Staff

RE: Comparison of Hydro Power Costs Under Present Law and HB 655
Research Request 82-13

Nancy Lord of your staff requested that we provide information on power costs and other aspects of the following hydro projects: Black Bear Lake, Bradley Lake, Solomon Gulch, Susitna, Swan Lake, Terror Lake, and Lake Tyee. The specific information requested (with some modifications) was:

(1) Planned power generation capacity in megawatts and annual kilowatt hours.
(2) Estimated construction costs (1982 dollars);
(3) Current annual electric sales for area to be served;
(4) Current electric rate in area served;
(5) Expected power rate in area served, under three alternatives:
   A. Present law (AS 44.83.490) -- payment of operation and maintenance costs only.
   B. Present law, if $5 billion is not appropriated to power development fund by 1986 -- annual repayment of 10 percent of state investment in project.
   C. HB 655 -- annual repayment of 3 percent of state investment, adjusted for inflation.
(6) Expected power rate under (A), (B) and (C) based on low and high growth rates for power consumption in area served.

Table 1 summarizes the information for each project on power capacity, construction costs, and 1980 electric sales. The question on current electric rates is fairly complex, because of the need to determine wholesale rates or cost of power production, rather than retail rates. We will forward this information to you as soon as it is complete.

Table 2 compares estimated power costs under the six scenarios listed in (5) and (6) above. Because detailed design and feasibility studies have

not been completed for all of these hydro projects, it was necessary to use general estimates for some of the important factors, including the costs for construction and operation and maintenance of the projects. Therefore, the figures in Table 2 should be viewed as general approximations of the likely power costs for these projects, rather than as specific projections. This caveat is most important for the Susitna project, because of its size and the large effect of minor changes in assumptions.

The power cost estimates for HB 655, except for Susitna, are from the hydroelectric project model developed by the Division of Budget and Management in the Office of the Governor. We have attached the Budget and Management model runs for HB 655, as they contain additional information on this alternative. The estimates for present law power costs were made by this agency, based on data from Budget and Management. An estimate of power costs for the Susitna project was not prepared by the Division of Budget and Management because of the uncertainties in construction and operation costs, the timing of development, and other factors. Nancy Lord asked that we make at least a general or "ballpark" estimate of Susitna power costs. We have done so, but it is important to bear in mind that the Susitna estimates are very sensitive to changes in the assumptions used, which are explained later in the memo.

Comparison of Power Costs

Table 2 displays estimated power costs for the six alternatives for the sample years 1986, 1990, 1995, 2000, 2010, and 2015. As shown by the table, wholesale power rates for all of the projects would be lowest under case (6)(A), that is present law as enacted last session by SB 25, assuming that the power rate would be based only on the payment of operations and maintenance expenses. Although we have listed power rates for each project for your information, under present law the Alaska Power Authority (APA) would establish a single statewide rate for all power projects under its administration. Additional costs which could increase power rates would be safety inspections by the Alaska Power Authority (APA) and the payment of debt service on power projects. At the present time, both the Swan and Tyee projects have interim construction financing which must either be converted to long-term debt or paid through appropriation by the legislature. Any debt service costs would increase the statewide power rate for all projects under the APA power program.

The estimated individual power costs under present law in 1986 (low demand case) range from 1.4 cents/KWH for Terror Lake to 8.5 cents for Swan Lake. The statewide wholesale power rate in that year is estimated at 3.2 cents/KWH. Under the high demand case, the statewide rate would drop to 2.6 cents per KWH.

The highest power costs would be under present law, if $5 billion is not appropriated to the power development fund by July 1, 1986, and 10 percent

of the State's investment in each power project were required to be returned each year. Under this alternative, power costs for the 1986 low demand case would range from 15.9 cents per KWH for Solomon Gulch to 77.2 cents for Black Bear Lake. The statwide power rate is estimated at 27.0 cents per KWH.

The Governor's proposed legislation, HB 655, would result in power rates between the two possible extremes under present law. Again for the 1986 low demand case, rates are estimated to range from 7 cents/KWH for Terror Lake to 26 cents for Black Bear Lake. Under HB 655, a separate power rate would be determined for each project, so there is no statewide rate as with present law.

Estimated power rates generally decline between 1986 and 1990 under both present law and HB 655, as more of the hydro generation capacity is used. After 1990, power rates under HB 655 and the O&M basis for present law increase because of inflation in O&M costs and the utilization of full capacity for some hydro projects. Under the 10 percent return present law alternative, power costs would continue to decrease through 2015, because the return is not affected by inflation and electric power consumption would continue to increase.

All of the power cost figures cited above are wholesale or busbar costs, that is, what local utilities would pay the APA for electric power where it enters the utility's distribution system. Retail or consumer rates would be considerably higher, and for most communities depend on the type of consumer (residential, business, industrial), and the amount of electricity used. For example, the Alaska Electric Light and Power Company (AEL&P) in Juneau pays about 1.56 cents per KWH to the Alaska Power Administration for power produced at the Snettisham hydro plant. AEL&P's retail rates range from 4.9 to 6.6 cents per KWH depending on the factors mentioned above.

Assumptions

The assumptions used in the calculation of the power cost estimates in Table 2 are as follows. Operation and maintenance expenses are inflated at 7 percent per year. The rate of inflation used in the estimates for HB 655, which involves a 33.3 year floating average, is 4 percent. The growth rates for electric demand are based on a combination of feasibility study estimates and historical growth rates from 1976 to 1980. The specific sources for the high and low demand projections are listed on the Budget and Management model run for each project.

The operating and maintenance (O&M) cost estimates for Black Bear Lake, Terror Lake, and Lake Tyee are from the feasibility studies for these

projects. O&M costs for other projects were not available, and Budget and Management used an approximate O&M figure of 1.5 percent of capital costs, as suggested by the APA, for these projects in estimating power costs. Gordon Hallum of the federal Alaska Power Administration indicated that O&M costs are relatively fixed over a wide range of hydropower capacity, and would not actually vary in direct proportion to capital costs. Therefore, the O&M approximation of 1.5 percent of capital costs may overstate O&M expenses for larger projects, particularly Susitna.

For Susitna, we assumed that the first phase of the Watana dam (400 MW - 1.6 GWH per year) would be completed and on-line in 1993, the second 400 MW at Watana would be installed by 1997, and the Devil Canyon dam (400 MW - 3 GWH per year) would be on-line in 2000. These power capacities were taken from the APA Susitna project Mid Report released in March, 1981. An APA newsletter just received lists total Susitna capacity as 1600 megawatts and 6.7 GWH per year, rather than the 1200 MW and 6.2 GWH cited in the earlier report and used in this analysis. The higher power output would result in somewhat lower power rates for the Susitna project and the statewide rate than those listed in Table 2. Also, the construction time frame assumed above is fairly arbitrary and could differ substantially from the actual construction schedule.

The original Corps of Engineers plan was to have the full Watana project completed by 1993 and Devil Canyon by 1997. Lower demand forecasts have prompted the consideration of a longer construction time frame, but no firm plans have been released. It is possible that the scheduling of the Devil Canyon dam will not be decided until 1990 or later, when power demands can be more accurately estimated. The most recent APA cost estimate for Susitna of $5.174 billion was inflated at 7 percent per year to estimate actual construction costs. The total capacity of each phase was assumed to be utilized immediately upon completion.

I hope this information is useful. Please let me know if you have any questions or would like additional information.

JK/dp

Attachments

TABLE 1

SUMMARY INFORMATION FOR HYDROELECTRIC PROJECTS
PLANNED OR UNDER DEVELOPMENT

HYDRO PROJECT	Planned Power Capacity		Estimated Construction Cost (Millions of 1982 Dollars)	1980 Annual Electric Sales in Area Served (Millions of KWH)
	Megawatts	Annual KWH (millions)		
Black Bear Lake	6	24	35	4.4
Bradley Lake	70	320	270	247.0
Solomon Gulch	12	55	68	36.5
Swan Lake	22	70	90	72.2
Terror Lake	20	145	150	77.7
Lake Tyee	20	110	100	29.8
Susitna	1,600	6,700	5,174	2,789.0

Sources: Power capacity and electric sales from the Division of Budget and Management, personal communication with George Matz and Elliot Wetzler. 1982 construction costs from the Division of Policy Development and Planning, Policy Analysis Paper No. 81-25, November 16, 1981.

TABLE 2 2/9/82

COMPARISON OF ESTIMATED WHOLESALE HYDROELECTRIC
POWER COSTS UNDER PRESENT LAW AND HB 655
(Cents per KWH)

1986

	LOW DEMAND			HIGH DEMAND		
HYDRO PROJECT	Present Law (O&M Costs)	Present Law (10% return)	HB655	Present Law (O&M Costs)	Present Law (10% return)	HB655
Black Bear Lake	2.8	77.2	26.0	2.5	67.0	23.0
Bradley Lake	--	--	--	--	--	--
Solomon Gulch	3.1	15.9	8.0	2.4	12.4	6.0
Swan Lake	8.5	49.6	24.0	4.5	26.4	13.0
Terror Lake	1.4	20.1	7.0	1.2	17.6	6.0
Lake Tyee	6.3	42.2	19.0	5.5	36.9	17.0
Statewide Rate-Present Law	3.2	27.0	--	2.6	21.5	--

1990

	LOW DEMAND			HIGH DEMAND		
HYDRO PROJECT	Present Law (O&M Costs)	Present Law (10% return)	HB655	Present Law (O&M Costs)	Present Law (10% return)	HB655
Black Bear Lake	3.0	63.0	26.0	2.4	49.8	20.0
Bradley Lake	2.2	14.9	6.0	Same	Same	Same
Solomon Gulch	3.7	14.3	9.0	3.2	12.4	8.0
Swan Lake	8.3	36.8	22.0	3.7	16.4	9.0
Terror Lake	1.7	18.8	8.0	1.3	15.1	6.0
Lake Tyee	7.1	36.6	20.0	5.8	29.6	16.0
Statewide Rate-Present Law	2.8	18.4	--	2.4	15.9	--

Sources: HB 655 estimates from Division of Budget and Management, based on information from the Alaska Power Authority. Present law estimates by the House Research Agency, based on Budget and Management data. See text of memorandum for assumptions and methodology used.

TABLE 2 (Continued)

COMPARISON OF ESTIMATED WHOLESALE HYDROELECTRIC
POWER COSTS UNDER PRESENT LAW AND HB 65
(Cents per KWH)

1995

	LOW DEMAND			HIGH DEMAND		
HYDRO PROJECT	Present Law (O&M Costs)	Present Law (10% return)	HB655	Present Law (O&M Costs)	Present Law (10% return)	HB655
Black Bear Lake	3.3	48.9	24.0	2.3	34.4	17.0
Bradley Lake	3.1	14.9	8.0	Same	Same	8.0
Solmon Gulch	4.5	12.5	10.0	Same	Same	Same
Swan Lake	8.6	27.2	21.0	4.1	12.9	9.0
Terror Lake	2.1	17.3	9.0	1.5	12.4	7.0
Lake Tyee	8.4	30.9	22.0	6.2	22.8	16.0
Statewide Rate-Without Susitna	3.7	17.4	--	3.2	14.9	--
Susitna	4.9	32.4	15.4	Same	Same	Same
Statewide Rate-With Susitna	4.6	28.6	--	4.4	27.4	--

2000

	LOW DEMAND			HIGH DEMAND		
HYDRO PROJECT	Present Law (O&M Costs)	Present Law (10% return)	HB655	Present Law (O&M Costs)	Present Law (10% return)	HB655
Black Bear Lake	3.6	37.9	24.0	2.2	23.7	15.0
Bradley Lake	4.4	14.9	11.0	Same	Same	Same
Solomon Gulch	6.3	12.4	13.0	Same	Same	Same
Swan Lake	9.4	21.2	21.0	5.7	12.9	12.0
Terror Lake	2.8	15.9	11.0	2.1	11.9	8.0
Lake Tyee	10.0	26.2	24.0	6.8	22.8	16.0
Statewide Rate-Without Susitna	5.0	16.6	--	4.3	14.4	--
Susitna	3.1	17.1	11.5	Same	Same	Same
Statewide Rate-With Susitna	3.2	17.1	--	3.2	16.8	--

TABLE 2 (Continued)

COMPARISON OF ESTIMATED WHOLESALE HYDROELECTRIC
POWER COSTS UNDER PRESENT LAW AND HB655
(Cents per KWH)

2010

	LOW DEMAND			HIGH DEMAND		
HYDRO PROJECT	Present Law (O&M Costs)	Present Law (10% return)	HB655	Present Law (O&M Costs)	Present Law (10% return)	HB655
Black Bear Lake	4.2	22.9	22.0	3.6	19.2	18.0
Bradley Lake	8.7	14.9	18.0	Same	Same	Same
Solomon Gulch	12.3	12.4	23.0	Same	Same	Same
Swan Lake	12.2	14.0	23.0	11.2	12.9	21.0
Terror Lake	4.6	13.4	15.0	4.1	11.9	13.0
Lake Tyee	14.5	19.3	30.0	8.4	11.2	1[illegible]0
Statewide Rate-Without Susitna	8.9	14.9	--	8.1	13.6	--
Susitna	6.1	17.1	18.5	Same	Same	Same
Statewide Rate-With Susitna	6.3	16.9	--	6.3	16.7	--

2015

	LOW DEMAND			HIGH DEMAND		
HYDRO PROJECT	Present Law (O&M Costs)	Present Law (10% return)	HB655	Present Law (O&M Costs)	Present Law (10% return)	HB655
Black Bear Lake	5.0	19.2	23.0	Same	Same	Same
Bradley Lake	12.2	14.9	24.0	Same	Same	Same
Solomon Gulch	17.3	N.A*	21.0	Same	Same	Same
Swan Lake	15.7	N.A*	28.0	Same	Same	Same
Terror Lake	5.9	12.4	17.0	5.7	11.9	17.0
Lake Tyee	17.5	N.A*	34.0	9.5	N.A.	18.0
Statewide Rate-Without Susitna	11.9	14.3	--	11.0	13.2	--
Susitna	8.5	17.1	23.7	Same	Same	Same
Statewide Rate-With Susitna	8.8	16.8	--	8.2	16.7	--

*N.A. indicates that under present law, the 10% return would not apply because O&M costs are estimated to be higher than the 10% return would be.

JIM LAZAR CONSULTING ECONOMIST

Spoke at SB 606 teleconference
Alaska Environmental Lobby

MAR 04 1982

February 28, 1982

Sen. Bettye Fahrenkamp, Chairperson
Senate Resources Committee
113C State Capitol
Juneau, Alaska, 99811

Rep. Eric Sutcliffe, Chairperson
House Resources Committee
215 B State Capitol
Juneau, Alaska 99811

SB606

Dear Senator Fahrenkamp and Representative Sutcliffe:

I greatly appreciated the opportunity to appear before your committees last week, the courtesy extended to me by yours-lves, your fellow legislators and your staff, and the opportunity to escape from the Washington legislature (albeit to another legislature.)

The similarity between the situation Alaska is currently in and that which has evolved over the past four decades in the Pacific Northwest cannot be overemphasized. My appearance in Juneau, and this letter, are intended to sound the alarm, and urge that a more reasoned approach be taken in your state.

There are two fundamental issues facing the State of Alaska regarding the development of the Energy Program for Alaska. The first is the decision as to whether or not particular projects should be built. The second, and more important, is the determination of how selected projects will be financed, and how the power produced therefrom will be priced.

The decision to build, or not build, particular projects is primarily an economic decision. Generally speaking, projects should be undertaken if they are the least-cost option, and are cost-effective. These criteria are often confused. A least-cost option is an energy investment which will meet consumer's end-use energy needs at lower cost than available alternatives. A cost-effective project is one which will produce a higher return to the investor than available alternative investments. For example, a project could be cheaper than any alternative, but still not be cost-effective, if the output it produced was not more valuable than the inputs which make it up.

A classic example of this is the current construcion in the Pacific Northwest of three nuclear plants (formerly five), which will collectively produce about 2500 average megawatts of electricity. The projects are far enough along now that it is doubtful if alternatives could produceequal amounts of electricity at lower cost. Thus, they are "least-cost" alternatives. (The third plant may not be of this nature, but the first two almost assuredly are.) However, the output of the plants is needed in order to avoid curtailment of the region's aluminum smelters in times of low riverflow. The value of the aluminum which will be produced with this electricity simply does not merit the construction of powerplants of this expense. Specifically, the power will be produced at a cost of about 15¢/kwh; 8 kwh are needed to smelt a pound of aluminum; raw materials, transportation, and labor amount to about 40¢/lb.; thus the total cost of the aluminum to be produced is about $1.60/lb. The current price of aluminum on the free market is about 76¢/lb. Obviously, a poor investment is being made. Why does this happen?

317 East 17th Olympia, WA 98501 (206)357-8364

The reason is quite simple. the Aluminum companies will not bear the cost of this power themselves. Through an act of a legislative body (in this case, the U.S. Congress, enacting the Northwest Power Act, P.L. 96-501) these industries receive power at below-free market prices, primarily through the output of the federally subsidized hydroelectric projects on the Columbia River. In fact, they will be paying something less than 3¢/kwh for this power when it comes on line, not the full, unregulated price.

The result, of course, is that other customer's electric rates are rising to cover the difference. Power rates in the Northwest have historically been the lowest in the nation, with residential rates averaging about 1-1.5¢/kwh until 1979. At that time, rate increases to pay the costs of the nuclear construction program began to be included in wholesale power rates from the Bonneville Power Administration. By 1984, rates are expected to average about 5¢/kwh, or about 300% higher than five years earlier. The result has been ratepayer discontent and rebellion, displacement of industrial customers accustomed to low rates, and a severe impact on the national municipal bond market, from the extreme financing requirements of the nuclear projects.

A similar thing could easily happer in Alaska. If hydroelectric projects are built with appropriated cash, from petroleum royalty income, and the power from those projects offered for sale at below-market prices, the low prices will stimulate demand. As a result, more projects will be demanded by the subsidized market than is economically efficient. Too much capital will be invested in these projects, and too little left over for other needed and justified projects. Therefore, in the short run, the diversion of capital will result in sub-optimal public investment policies.

In the long run, of course, it will not be possible to sustain subsidized investment in power production. First, the capital will not be available; second, the sites for power facilities will eventually be exhausted (as has happened in the Pacific Northwest.) It will then be necessary to develop projects with conventional financing, with rates being sharply increases to pay the cost. You run the same risk as we have taken here in the Northwest, of having rates jump suddenly, with severe dislocative effect. It may also be necessary to turn to coal and/or nuclear projects, as hydroelectric sites which can be developed without unacceptable environmental impacts become scarce. There you face the problem of short lifetime facilities, with high fuel costs, unknown environmental impacts, and additional capital requirements. Not a very welcome alternative.

The option for energy pricing which makes the most sense is to have the state operate it's power system as a prudent business. This suggests that prices should be set equal to the long run incremental cost of output from new facilities. That cost should be determined as the value which would be received from an investment of the construction funds in an alternative, such as long-term government or corporate bonds; about 15% annually is approximately the return which the people of Alaska could receive, if their royalty funds were so invested. It is senseless to invest the public's money in any enterprise which gives the public a lower return than could otherwise be obtained.

For example, if the Susitna projects have a construction cost of $5 billion, they should generate $750 million in revenue per year, plus necessary operation and maintenance cost. Since the two dams together would produce about 6 billion kwh/year, the cost of that energy to Alaskans is about 12.5¢/kwh.

The cost of the energy does not necessarily have anything to do with it's price. The state is free (as is done in British Columbia) to sell the power above cost, and use the difference to subsidize other programs. Alternatively, the price can be set below cost, and the power thus sold at subsidized prices, with other public programs being cut short as a result. This is a political policy decision.

Even if the projects are built with cash, from oil royalties, the cost of the power remains at 12.5¢/kwh. That "cost" is the foregone income which the $5 billion, invested elsewhere, could have provided to the same Alaskans who instead find themselves as owners of a hydroelectric project.

If the power is sold at a price below the 12.5¢/kwh it costs to produce, those who consume the power will be subsidized by those who own the dam. These may be mostly the same people, but the difference is significant. If the power is sold below cost, the "benefits" of the oil royalty income is distributed proportionate to consumption. The more a consumer uses, the more of the benefit they receive. I receive more benefit by using more power; less benefit by using less. I have an inverse incentive to conserve.

If power is sold for 3¢/kwh, from the projects built with cash, I will have no incentive to install double (or triple) glazing, unless the amount of power saved is such that the average cost of the savings is less than 3¢/kwh. On the other hand, if the cost of the savings is 6¢/kwh, we collectively, as a society, would be better off making that investment instead. If a $2000 investment in storm windows will save 4000 kwh per year in an electrically heated home, the net cost of the savings is 7.5¢/kwh. This is calculated as the 15% return which could be obtained by investing the funds elsewhere, times the investment in storm windows, divided by the savings ($2000 X .15)/4000; If a project costing 12.5¢/kwh (Susitna) is developed, and these storm windows are not, then the money of the people of Alaska is being wasted.

The uneconomic pricing policies of the Northwest, however, have led to exactly this kind of mistake being made in the past. I urge the people of Alaska to learn from our mistakes.

The most sensible route, if hydroelectric projects are developed, is to price the energy at marginal cost, including escalation over time. If the projects are financed initially with cash, the resulting power sales will provide a steady source of income for state government operations. Taxes on business and individuals can be held down, with resulting gains of employment and diversity. The problem of the Northwest, with massive investments by energy-intensive industries, providing few jobs, but requiring massive subsidies through power rates, can be avoided. The result would be a conversion of a one-time royalty windfall into a steady source of income.

A few important comments on the current planning policies, particularly for the Susitna projects, is certainly in order. The primary apparent failure is in the sizing of the projects. One lesson the Northwest has learned deals with "planning for uncertainty." The future is not nearly as clear as it used to be, and the art of forecasting energy demands has deteriorated into an annual exercise in futility, in many cases.

The approach which more areas of the country are taking is to invest in high-capital cost resources sufficient to meet the lowest imaginable future demand. Since you are certain this demand will exist, you know the projects will be used, and thus generate revenue to repay their costs. Less certain demand scenarios justify only projects with lower capital costs, and higher operating costs. These include coal, oil, and gas fired projects. Finally, to meet peak demands, or unexpected economic growth, a decision must be made whether it is economic to plan for such growth at all, given the high uncertainty, and the low likelihood that facilities will operate sufficiently to repay their investment.

The Susitna projects alone would supply the entire anticipated peak demand, and annual energy requirements, of the entire Anchorage-Fairbanks corridor, under the "low demand" scenario identified by Battelle. This forecast has been severely questioned, in particular by Arlon Tussing, of ARTA, a Seattle consulting firm with an excellent record in forecasting. Even this "low demand" scenario anticipates a 150% growth in consumption, hardly a <u>certain</u> event.

Even if this growth did occur, other facilities, including those now existing, could meet much of that demand. Existing oil and gas fired plants can meet peak demands; there is no justification whatsoever for building expensive new capacity to meet peak loads. Even if new facilities are built, the existing facilities could provide needed reserves, and peak load capacity, so new facilities should be constructed only to meet baseload needs. Furthermore, such smaller projects, as Bradley Lake, Chakachamna, and others must be considered. The bottom line is that there is not a <u>certainty</u> that the output of Susitna will be needed, at prices sufficient to repay the investment. Given the high capital cost of the projects, that uncertainty must be weighed against the available alternatives.

For example, a strict building code is one alternative to expensive new projects. One benefit of the conservation which results from a strict building code is that the savings come into the system in lockstep with the incremental loads. If few new buildings are built, little conservation occurs, but there is little need for conservation. If growth occurs rapidly in building, the conservation savings, compared with conventional building practices, are very large. Basically, by insuring that all growth is <u>efficient</u> growth, the entire problem of providing adequate resources becomes more manageable.

For the Pacific Northwest, insulation levels much higher than current building practices are justified by the cost of new powerplants. For residential structures, R-65 attic insulation, R-27 wall insulation, R-38 floor insulation, and triple glazing are all cost-effective. In Alaska, with more extreme Winter temperatures, even stricter standards would likely be justified by cost.

Since much of the growth in Alaska has been sporadic, energy efficiency has not always received the attention which it deserves. Retrofitting of existing structures, including insulation, multiple-glazing, and lighting system improvements, may provide a higher rate of return than any new power projects. Where Alaskans can get a better return on their oil royalty dollar in this manner, it makes sense to do so. Rates of return of 25% to 35% are not uncommon for retrofit conservation measures. By reducing the cost of living, such measures can make a big difference in family budgets.

Perhaps a critical concern I have about the Susitna project is that it may not be fully financible. Smaller projects can be financed as a unit; sufficient financing can be obtained at the outset to insure completion. Large projects are more difficult. The WPPSS 4&5 nuclear plants became unfinancable AFTER $2.25 billion had been invested in them. The money was lost by the ratepayers of the Northwest. Susitna could be a similar situation, where an initial $1 billion or so might be appropriated by the Legislature, but sufficient financing for completion could not be subsequently obtained. Given the uncertainty of demand, the cost of the projects, and the uncertainty of future oil royalty revenues, the availability of future financing should be looked at very carefully.

It is interesting to note that the Acres-American study team has retained Solomon Brothers, a national investment banking firm, to determine the financibility of the project. They are among the largest in this business, and have experience with projects of this magnitude. In fact, Solomon Brothers was the lead underwriter for WPPSS nuclear plants 4&5 at the time that the projects were terminated, for lack of financibility.

It would be truly unfortunate if $1 billion or $2 billion were invested in Susitna, and the projects not completed for lack of financing, or for lack of need in the future. It would certainly make more sense to develop smaller projects, for which adequate financing could be lined up prior to the start of construction. Several of the other hydroelectric projects under current consideration meet that test. Combining the smaller scale (and certainty of need) of these projects with their more certain finacibility makes them more dependable investments for the limited financial resources of the Alaskans you represent.

This issue is far from insignificant. A list of abandoned major energy projects in the lower 48 is quite depressing. Dozens of nuclear projects have been terminated, with investments in the hundreds of million of dollars per projects written off in the process. The Tennessee Valley Authority has defereed work on 8 partially completed nuclear plants. Coal and hydroelectric projects have also been abandoned, some for lack of need, some for lack of financing, and some for lack of construction permits.

In several cases, utilities have been ordered by their state regulatory bodies to abandon projects, in an effort to save the utilities, or their ratepayers, from bankruptcy. In the Northwest alone, six nuclear plants have been set aside; WPPSS 4&5 had a total of about $2.25 billion invested in them at the time of termination. The Skagit projects have had $360 million poured into them (without actually pouring any concrete), while the Pebble Springs units consumed about $300 million. I believe it unlikely that any of these projects will ever be completed. Due to poor planning (which Alaska is in a position to avoid) the money will be totally lost.

The list goes on and on. In California, the Sundesert nuclear projects were terminated by San Diego Gas and Electric, after several hundred million dollars were invested. Arizona, Palo Verde units 4&5 followed the same course. In Oklahoma, the Black Fox units; in Texas, Allens Creek 1&2, and so forth. The price of poor planning is too great for anyone to bear; it is certainly too great in Alaska, where future development could be slow, rapid, or possibly negative, as oil resources are depleted. To fail to plan for this uncertainty is the greatest risk you face.

I hope that the mistakes of the Northwest serve as a good lesson to the people of Alaska. Where electrical demand is spurred along by subsidized power rates, and scarcity of capital and resources eventually appears, serious problems of economic dislocation can occur. On the other hand, an economic approach to energy pricing can insure a strong economy, a stable source of income for state government, and simultaneously promote conservation.

This is not to suggest that the lessons which can be applied to the Anchorage-Fairbanks corridor are necessarily applicable in rural areas, where a project must be of some certain size to be technologically feasible. It does not suggest that pricing policies applicable to an urban area are appropriate for other areas. And it does not suggest that the general concept of attempting to translate a one-time nonrenewable energy resource (oil) into a long-time renewable resource system (hydro) is a bad policy. In fact, it is an excellent concept. But the concept must be well implemented, or scarce capital, belonging collectively to the people of Alaska, will be wasted.

As I stated to Rep. Sutcliffe's committee, the current policy, of constructing resources for cash, and then underpricing the output, will attract energy-intensive industry, with the result being an export of oil royalty income to industry stockholders in the lower 48. The entire output of the Susitna projects would support only about 1500 jobs in the aluminum industry. On the other hand, economic pricing of energy, with the revenues therefrom used to attract manufacturing industry, could result in many times the economic impact for Alaskans. The people deserve careful investment of their funds, to bring the greatest good to the greatest number. I do not envy your difficult situation, but can certainly offer this warning of one very unattractive option, based on the experience of the Northwest.

I thank you for your interest in the complex and challenging problem.

Sincerely,

Jim Lazar
Consulting Economist

Alaska State Legislature

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POUCH V
STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3834
(907) 465-3835

Senate

Committee on Resources

February 22, 1982
1:30 p.m.

Butrovich Room
Capitol - Room 205

MEMBERS PRESENT

Senator Fahrenkamp
Senator Fischer (at Anchorage site)
Senator Bradley
Senator Gilman
Senator Mulcahy
Senator Sturgulewski

Hearing

SB 608 An Act making a special appropriation to the power development fund of the Alaska Power Authority for the Susitna River hydroelectric project and other hydroelectric projects; and providing for an effective date.

Jim Cheydleur (Anchorage) opposes SB 608. He spoke of impact on fisheries and wildlife, and the lack of information in several areas. He favors smaller size hydro projects and energy grants to aid conservation.

Rene Limeres (Anchorage) thinks the legislature is exceeding its authority to appropriate $1 billion when the wildlife and fisheries studies are incomplete. He thinks this should go before the voters.

Paul Lowe (Anchorage) urged that the bill be killed in Committee, stating that giving $1 billion to any one project was not in the public interest.

Urban Rahoi (Fairbanks) stated let's do it now.

Guy Schuman (Fairbanks) stated no funds should be appropriated until the studies are complete and alternatives are studied.

Brenda Theyers-Wilson (Kodiak) is dubious of SB 608 because of the effect it will have on salmon spawning and the lack of information on exactly how the money will be spent.

Floyd Heimbuch (Soldotna), Executive Director, Cook Inlet Aquaculture Association, urged the co-development of hydro projects and salmon habitat. He recommended that funding be provided in SB 608 for this purpose.

Matt Zencey (Anchorage), Rural Community Action Program, finds SB 608 unequitable as hydro can't meet the needs of the villages. He urged improved efficiency of energy currently being used.

Emil Portscheller (Anchorage), referred to environmental and economic drawbacks as reasons for opposing SB 608, along with the need to complete feasibility studies and to emphasize conservation measures and alternative energy sources.

Jeff Weltzin (Fairbanks), Northern Alaska Environmental Center, feels appropriating money now is premature because the studies are incomplete. He supports SB 608 to fund existing hydro projects around the state, but not to fund Susitna.

Robert Sutherland (Fairbanks) supports smaller hydro projects in local areas, in addition to alternative energy sources and conservation. He urged low interest loans rather than outright subsidy by the State.

Budd Goodyear (MatSu), Public Information Officer, Matanuska Electric, supports SB 608 as stable-priced electrical energy.

Eric Meyers (Anchorage), Alaska Center for the Environment, is concerned with the fiscal impact of SB 608; the uneven distribution of wealth; the incomplete fish and wildlife studies; and the fact that revenues are needed elsewhere.

John Durkin (Anchorage) stated that he supports SB 608.

Tom Stahr (Anchorage), General Manager, Alaska Municipal Light and Power Company, supports SB 608. He suggested the State direct the Alaska Power Authority to conduct salmon-hydro codevelopment studies.

Gary Friedmann (Anchorage) stated no funds of this magnitude should be appropriated without a public vote. Loans, rather than grants, should be considered.

Ron Wendte (Ketchikan), Southern Southeast Regional Aquaculture Association, urged consideration of codevelopment of salmon and hydro.

Torre Jorgenson (Fairbanks) said the first priority of dollar allocation should be energy conservation, and that SB 608 should be put up for a public vote.

Alexa Dvorson (Fairbanks) opposes SB 608 because of the impact on salmon and caribou.

David Finkelstein (Anchorage) urged that no funding be provided before studies are complete.

Leroy Fredrickson (Anchorage) stated that he supports SB 608.

Randy Rogers (Fairbanks) wants a public vote on Susitna, and assurance that any savings in energy cost will go to the consumer.

Nancy Webb (Fairbanks) inquired as to the employment possibilities Susitna would create as compared to smaller and alternative projects.

Mike Holloway (Anchorage) favors low or no-interest loans rather than grants.

The meeting was adjourned at 3:40 p.m.

Alaska State Legislature

SETTYE FAHRENKAMP, CHAIRMAN
VIC FISCHER, VICE-CHAIRMAN
BRAD BRADLEY
DICK ELIASON
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POUCH V
STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3834
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Senate

Committee on Resources

February 24, 1982
1:30 p.m.

Butrovich Room
Room 205 - Capitol

MEMBERS PRESENT

Senator Fahrenkamp
Senator Fischer
Senator Bradley
Senator Eliason
Senator Gilman
Senator Mulcahy
Senator Sturgulewski

Hearing - Statewide Teleconference, Part II

SB 608 An Act making a special appropriation to the power development fund of the Alaska Power Authority for the Susitna River hydroelectric project and other hydroelectric projects: and providing for an effective date.

Keith Stump, Anchorage supports SB 608.

Doug Stark, Anchorage, supports SB 608 because hydroelectricity is a renewable resource.

Richard Hebb, Anchorage, supports SB 608, stating it will benefit all Alaskans.

Bill Wood, Fairbanks, supports SB 608 with the understanding that the money will be fairly allocated.

Tom Owen, Greater Fairbanks Chamber of Commerce, stated the Chamber has passed a resolution supporting Susitna and other hydro projects.

Joe Killion, Golden Valley Electric Association, supports SB 608, and would like a portion of the money allocated for the completion of the Intertie.

Ray Menaker, Haines, opposes SB 608 stating the studies need to be completed first.

Scott Lamb, Homer, supports SB 608, and stated that the Bradley Lake project needs more money.

Chuck Smith, MatSu, Susitna Now, favors SB 608, stating that 40 years of study is sufficient. The minor detrimental effects are outweighed by the need.

William Alexander, Anchorage, supports SB 608, stating Alaska needs power and employment.

Peg Kehrer, Director, Alaska Public Interest Research Group, Anchorage, opposes SB 608 as an unequal distribution of wealth, and stated there has not been enough public participation in the planning process.

L.W. Jones, Anchorage, favors SB 608, stating that oil revenues must be used to tap renewable resources.

Robert Orr, Fairbanks, supports SB 608, with some of the funds going to the Intertie.

A.W. Baker, Fairbanks, favors SB 608 as the only long term plan that will assure an adequate energy supply at reasonable cost.

Tim Jennings, Fairbanks, opposes SB 608, preferring smaller hydro projects, and greater use of alternative energy sources.

Bill Schneider, Anchorage, supports SB 608 because hydro is a clean, infinite, dependible source of energy. The long term operational cost savings will offset the initial large output of funds.

Sara Juday, Anchorage, opposes SB 608 as premature since the feasibility studies are not complete. She wants it to go up for a public vote.

Clara Stahr, Anchorage, supports SB 608 as benefiting all Alaskans.

Ginny Howard, Anchorage, supports SB 608 because hydro does not harm air quality.

Andy Piekarski, Anchorage, favors SB 608 because current energy costs and unemployment are too high.

Austin Ward, Fairbanks, supports SB 608.

Ginny Wood, Fairbanks, opposes Susitna but favors smaller hydro projects.

Ellen Mannion, Fairbanks, supports SB 608.

John Froceskie, Teamsters Union, Anchorage, supports SB 608,

Dorothy Patterson, Anchorage, supports SB 608 as it will provide jobs.

Patricia Anderson, Fairbanks, opposes SB 608. She would rather the money go to individual Alaskans for use in developing small energy projects or increasing energy efficiency in their homes.

Michell Robert, Fairbanks, opposes SB 608, stating that one year of field studies is inadequate.

Celia Hunter, Fairbanks, opposes SB 608. She would like some of the money to go towards conservation, and wants SB 608 to be voted on by the people.

Liz Gilbert, Susitna Power Now, Anchorage, supports SB 608.

Norman Josten, Anchorage, supports SB 608.

Geoff Kennedy, Fairbanks, wants SB 608 put on the ballot.

Terry Reichardt, Fairbanks, opposes SB 608 as too great an expenditure of money. He prefers State energy conservation loans.

Richard Underkofler , City Manager, Petersburg, stated that the City of Petersburg supports SB 608.

John Pursley, Anchorage, is opposed to the funding method proposed by SB 608. He would prefer to see grants.

Cindy Marquette, Executive Director, Alaska Center for the Environment, Anchorage, opposes SB 608, stating the studies must be completed first.

John Hopkins, Anchorage, supports SB 608, stating that Susitna would provide jobs and the dam would provide recreation.

Pauline Hessing, Fairbanks, opposes SB 608 as it discourages the development and use of alternative energy sources.

Ross Hardwick, Fairbanks, opposes SB 608, stating it should be voted on by the peopl .

Alexa Dvorson, Fairbanks, opposes SB 608, expressing concern over cost overruns.

Bruce Apple, National Wildlife Federation, Anchorage, recommended that SB 608 be amended to include SB 646 and HB 758.

Herman Kaiser, Anchorage, supports SB 608.

Blaine Dove, Anchorage, supports SB 608, stating Alaska needs the jobs it would provide.

Dave DeLong, Fairbanks, supports hydro but opposes SB 608. He is concerned about the incomplete studies and how Susitna will be funded.

Leroy Cook, Fairbanks, supports SB 608, stating that hydro power is preferable to burning wood.

Marilyn Sigmund, Fairbanks, opposes SB 608 because of incomplete studies, and she thinks it should be voted on by the public.

Mike Elderzelt, Anchorage, opposes SB 608.

Michael Keich, Anchorage, supports Sb 608, stating hydro power is cheap both environmentally and economically.

Max Foster, Anchorage, expressed support for the Battelle Study.

Nancy Webb, Fairbanks, opposes any appropriation of funds before the studies are complete.

Jane Galvlim, Fairbanks, is not necessarily opposed to Susitna but thinks it is inappropriate to give so much money to any one project while ignoring alternative energy sources.

Susan Georgette, Anchorage, opposes SB 608, stating the State has many needs other than the Susitna hydro project.

Frank Van Zant, Anchorage Chamber of Commerce, supports Susitna.

Mialma Kaiser, Anchorage, supports SB 608, as it would disturb the environment only minimally and would not pollute the air.

Vivian Menaker, Haines, opposes SB 608, stating the studies must be completed first. She suggested alternatives of smaller hydro, wind power, and natural gas.

Emil Portscheller, Anchorage, opposes SB 608 until environmental studies are completed.

Deke Harris, Anchorage, is concerned about the large amount of money, stating there are other programs that need funding.

Alan Seegert, Anchorage, opposes SB 608, stating feasibility studies need to be completed first.

Wilmer Oines, Thomas Bay Power Authority, Petersburg, supports SB 608.

Jim Lazar, Consulting Energy Economist, speaking for the Alaska Environmental Lobby in opposition to SB 608. Lazar urged that further consideration be given to the financibility of Susitna, the need for its power, and the return it will provide to all Alaskans. He suggested the legislature provide money only to complete the studies and begin the permit application process.

The meeting was adjourned at 3:30 p.m.

Alaska State Legislature

POUCH V
STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3834
(907) 465-3835

Senate

Committee on Resources

March 3, 1982
1:30 p.m.

Beltz Room
Room 211 - Capitol

MEMBERS PRESENT

Senator Fahrenkamp
Senator Fischer
Senator Bradley
Senator Eliason
Senator Gilman
Senator Mulcahy
Senator Sturgulewski

Hearing: (Teleconference, Part 3)

SB 608 An Act making a special appropriation to the power development fund of the Alaska Power Authority for the Susitna River hydroelectric project and other hydroelectric projects; and providing for an effective date.

Dave Hutchins, Executive Director, Alaska Rural Electrical Cooperative Association, referred to the mitigation of environmental impacts as a "key component" of the Susitna project, but thinks the hydro/salmon compatibility studies should not be funded by the hydro project. He stated the 1982 cost estimate is only a 4% increase over 1981, called the 5¢ per kilowatt hour savings Susitna would provide "significant", and said Bradley Lake and Chaknachamna are not alternatives to Susitna. As regards SB 608, it proposes a savings account for if and when Susitna is built. Currently, the Alaska Power Authority operates with a system-wide pool of money for hydro projects. Present law mandates that appropriations are to be averaged throughout the system; SB 608 does not approach this issue. Hutchins suggested funding priorities for FY 83 of projects ready to commence development and projects currently under development. Money for Susitna should then be set aside if available. Hutchins concluded by urging an amendment to SB 608 to include interest earnings on money appropriated.

Eric Yould, Executive Director, Alaska Power Authority (APA), provided a brief history of the Susitna project, saying that the legislature appropriated funds to APA to investigate the economic, engineering, technical, and environmental aspects of the project, and to recommend to the legislature whether the Federal Energy Regulatory Commission (FERC) permitting process should be pursued. An interim report went to the legislature in March 1981; final recommendations will be presented in April 1982. The ensuing FERC permitting process could take from 18 months to 3 1/2 years, with the engineering and design work going on at the same time. FERC will do their own economic feasibility study and can require APA to do further studies. APA and FERC have been working closely on this project, and Yould is confident the current studies are adequate, except from the environmental aspect. APA plans to submit more environemntal data thoughout the permitting process. Yould concluded with a brief rundown on the status of the smaller hydro projects: he will be supplying the Resources Committee with detailed cost figures in a letter.

Rupe Andrews, Alaska Department of Fish and Game, considers Susitna a great opportunity to develop new fisheries technology. Field work began in May 1981 with 50 contract employees studying what comes into the system, what lives in the system, and the spawning and rearing needs of those fish. The goal is to get APA to the FERC process with data that will withstand any challenge. Andrews did mention that since the life cycle of the Chinook salmon is 5-6 years, studies will have to go that long to determine full impacts and that some issues (as yet unknown) will probably need mitigation.

Tom Cashen, International Brotherhood of Electrical Workers, spoke in support of SB 608 because of the employment opportunities it will provide.

Jean Kline, Associated General Contractors, spoke in support of SB 608, referring to hydro as clean, infinite, safe, and reasonably priced energy. She stated that Juneau electrical customers, who are paying 5¢ per kilowatt hour because of Snettisham hydro, would be paying 12-17¢ per kilowatt hour if diesel fired electricity was being used.

Bill Ashton, Civil Engineering Student, University of Alaska, encouraged a close look at APA's "track record", reasons for Susitna's increasing cost estimates, the project's cost effectiveness, whether State grants for hydro are the best use of our revenues, and the options of conservation and increased energy efficiency.

The meeting was adjourned at 3:00 p.m.

Alaska State Legislature

Official Business

SENATE
Resources Committee

465-3834

Pouch V
State Capitol
Juneau, Alaska 99811

March 12, 1982
1:35 p.m.

Beltz Room
Room 211 - Capitol

MEMBERS PRESENT

Senator Fahrenkamp
Senator Fischer
Senator Bradley
Senator Mulcahy
Senator Sturgulewski
Senator Kertulla
Representative Sutcliffe

Hearing:
Alaskan Agriculture Overview--by Bill Heim, Charles Logsdon, and Roland Snodgrass
SB 608 An Act making a special appropriation to the power development fund of the Alaska Power Authority for the Susitna River hydroelectric project and other hydroelectric projects: and providing for an effective date.

Agriculture Overview

Charles Logsdon stated that the overview establishes a philosophical base for agriculture actions, and defines the State's role as one of providing the proper climate for farming. He reviewed the report's 16 recommendations for legislative action:

1. Accelerate the disposal and production schedule of state agriculture lands.
2. Revamp the Agriculture Revolving Loan Fund, so that it is a development fund only, with no new loans to an agricultural enterprise after seven years.
3. Establish an office for market development and information for Alaska products with an "800" telephone number, to aid in the distribution phase of agriculture.
4. Establish a crop testing program for remote areas.
5. Fund the establishment of archives of all pertinent data related to State agricultural projects.
6. Fund the creation of an "Alaskan Agricultural Development" computer-simulation model in order to project future development feasibilities.
7. Assure research support for agricultural development by funding of the Agricultural Experiment Station with a separate budget.
8. Fund the development and service of an in-state agricultural data bank, available to the public through computer termina[illegible]

9. Establish joint quarantine facility at the Palmer Plant Material Center.

10. Establish a gene bank of northern-adapted plants useful in Alaska.

11. Fund a joint weed control demonstration with the Province of Alberta in the Delta Junction region.

12. Fund a once-a-year barge service to the Aleutian Islands to bring feeder cattle to the mainland for finishing.

13. Appraise the world market possibilities for Alaska products.

14. Express willingness to work with Native corporations in development of the agricultural capabilities of their land.

15. Consider the development of limestone and phosphate resources in Alaska for fertilizer.

16. Develop a modest but firm-priced source of electricity, which can have a great impact on agricultural productivity.

Bill Heim recommended that the Agriculture Revolving Loan Fund have a separate account for land clearing, with no payback for three to four years to allow time to get land into production. Land clearing funds are important for the development of small farms. Small farms should be located near large farms to use the existing infrastructure. Since most small farmers work off the farm, too, small farms should be located near other employment opportunities.

SB 608

Senator Fischer prepared a Committee Substitute consisting of items already before the Senate Finance Committee in the Governor's budget. There is concern that the Governor may change his budget in view of the projected revenue shortfalls. The Committee Substitute assures that all projects would remain before the Finance Committee.

Senator Fahrenkamp prepared an amendment to page 1, line 27, appropriating $2.5 million for an electrical generation unit at Cordova.

Senator Fischer asked for more time to prepare an amendment dealing with alternative energy sources.

Senator Fahrenkamp stated SB 608 would be held until Wednesday.

Senator Fischer moved the Committee consider the Committee Substitute. He then moved the adoption of the amendment to page 1, line 27.

The meeting was adjourned at 2:40 p.m.

Alaska State Legislature

Senate

Resources Committee

Official Business

Pouch V
State Capitol
Juneau, Alaska 99811

March 17, 1982
1:35 p.m.

Beltz Room
Room 211 - Capitol

MEMBERS PRESENT

Senator Fahrenkamp
Senator Fischer
Senator Eliason
Senator Gilman
Senator Mulcahy
Senator Sturgulewski

Hearing:

Briefing - Resource Inventory Program - Department of Natural Resources

SSSB 608 - An Act making a special appropriation to the power development fund of the Alaska Power Authority for the Susitna River hydroelectric project and other hydroelectric projects: and providing for an effective date.

Briefing:

Jeff Haynes, Deputy Commissioner, Department of Natural Resources, explained that the Department received a capital appropriation last year to search for new resources, and would present a progress report today.

Ross Shaff, State Geologist, Department of Natural Resources, stated that a cooperative arrangement had been worked out with other state and federal agencies for collecting data for the Resource Inventory Program. An initial goal is compiling the existing information, which involves a literature search of everything collected in the state on resources, and putting it into a digitized format. Surface resources being studied include archeological sites, agriculture, and forestry, in coordination with the land disposal program. The water data collection program has been developed in conjunction with the United States Geological Survey, which matches the State dollar for dollar in funding the program. Subsurface studies include geothermal potential, minerals, coal, and petroleum. Areas selected for study are those in which development is most likely to take place. The State produces maps of areas inventoried, with detailed mapping in particular locations.

SSSB 608

Senator Fischer explained that he had prepared a Committee Substitute incorporating suggestions he had received from various people, and organized the bill to group related items.

The Committee discussed the adequacy of the amounts of the various appropriations. Senator Fischer stated the bill was designed to bring the ideas before the Finance Committee. Senator Fahrenkamp suggested a letter of intent be sent with the bill explaining that more analysis needs to be done on the amounts appropriated.

Senator Eliason moved and asked unanimous consent for the adoption of an amendment appropriating $200,000 for a new power distribution system in Tenakee Springs.

Senator Eliason moved and asked unanimous consent for the adoption of an amendment appropriating $1.1 million for the Hoonah Intertie.

Senator Gilman moved and asked unanimous consent for the adoption of an amendment appropriating $35,000,000 for construction of the Bradley Lake hydroelectric project.

Senator Fischer moved the Committee Substitute for SSSB 608 as amended, with individual recommendations.

The meeting was adjourned at 2:50 p.m.

ALASKA STATE LEGISLATURE
HOUSE OF REPRESENTATIVES
RESEARCH AGENCY

Pouch Y, State Capitol
Juneau, Alaska 99811
(907) 465-3991

May 22, 1981

MEMORANDUM

TO: Representative Tony Vaska
Attn: Norman Cohen

FROM: Alexander Hoke and Jack Kreinheder
Research Staff

RE: Analysis of SB 25 and SB 26 Hydro Legislation
Research Request No. 81-142

You asked that we provide the following information for each of the power projects included in SB 25 and SB 26: (1) net State contribution; (2) State contribution per electrical customer served; and (3) the State contribution per resident of the communities served by each project. Each of these state contributions was to be shown in terms of the expenditures in each fiscal year from 1982 to 1991, the annualized net cost for each fiscal year 1982 to 2001, and the present value of this annualized net cost as of 1981.

The analysis was to address five scenarios: the Senate version of SB 25 and SB 26, with and without funding for construction of the Susitna dams; the House Resources CS for SB 25 and SB 26, with and without Susitna funding; and the House Resources CS for HB 359, which amends the power cost assistance program.

We have prepared four computer printouts, which are enclosed, that provide the requested information for the House and Senate versions of SB 25 and SB 26. The power cost assistance program in HB 359 has been incorporated into the two printouts for the House version of the hydro legislation. The information on the printouts is divided into three groupings: total expenditures and costs, expenditures and costs per power consumer, and expenditures and costs per capita.

Column 1 of each printout shows the planned expenditures for each project by fiscal year. Column 2 displays the net annualized cost to the State of these expenditures, which we have calculated as the difference between the market rate of return available to the State (including payback of principal, as well as interest), and the actual return from the power projects. For example, the Green Lake project in the House Resources version of SB 26 has an appropriation of $52.5 million. The net annualized cost of this appropriation over the period

from FY 1982 to FY 2001 is about $3.97 million per year. This figure is the difference between the $6.59 million which the State could receive each year from a loan or bond investment at 11 percent interest, and the $2.62 million which the State would receive from the 5 percent "equity return" on hydro projects specified in the House Resources work draft version of SB 25.

You can see from the Green Lake example, as well as other non-grant projects, that the net annualized cost does not remain constant throughout the 1982 - 2001 period. These changes are a result of the linkages with the Susitna project which are incorporated in the House Resources version of SB 25. The draft Resources CS provides that when 500 megawatts of generation capacity have been developed, or in other words, when the first phase of Susitna has been completed, the return to the State from the power projects will be reduced from 5 percent to a level which covers operations and maintenance costs and other expenses.

The Watana dam which comprises the first phase of proposed Susitna development is scheduled for completion in 1993. Therefore, the net annualized cost for all the loan-financed power projects jumps in 1994 as a result of the termination of the 5 percent equity return. In the Green Lake expample, the net annualized cost increases in 1994 from $3.97 million to $6.6 million, because the $2.62 million equity return would not be received after 1993 if Susitna is constructed.

The opposite effect would occur under the Resources version of SB 25 if Susitna or another large hydro project is not constructed. The draft bill provides that if the legislature has not appropriated at least $5 billion to the power development fund by FY 1986, the equity return to the State shall increase from 5 percent to 10 percent. On the printout which excludes Susitna, the net annualized cost for Green Lake decreases from $3.97 million to $1.34 million in 1987, because of the doubling of the State's return from the project. Similar decreases occur for all loan-financed power projects.

Column three of the printouts converts the net annualized cost to the State into present value terms (as of 1981). The discount rate used for this conversion is 10.24 percent, which is the average inflation rate in Anchorage over the past five years, according to the Consumer Price Index.

The second set of three columns presents the information discussed above in terms of the expenditure and cost per power consumer to be served by each power project. In some cases where the actual number of consumers was not readily available, we used an estimate based on the average ratio of power customers to population for communities through-

out the state. The third set of columns shows expenditures and costs on a per capita basis, based on the 1980 census population figures. At the end of each computer listing is a summary table which shows the total expenditures and costs for all power projects from FY 1982 to FY 2001. The grand totals at the bottom of each summary table represent the total expenditures and costs for each of the four scenarios.

We hope this information is useful. Now that we have the program set up, we should be able to incorporate any changes or additions you might like fairly quickly. If you have any questions or comments, please let us know.

JK/dp

SUMMARY OF ALL POWER PROJECTS
SB 26 (HOUSE RESOURCES VERSION)

	EXPENDITURE	NET ANNUALIZED COST TO STATE	PRESENT VALUE NET ANNUALIZED COST TO STATE	EXPENDITURE PER CONSUMER	NET COST PER CONS.	PRESENT VALUE NET COST PER CONS.	EXPENDITURE PER CAPITA	NET COST PER CAPITA	PRESENT VALUE NET COST PER CAPITA
FY 1982	301,606,000	76,256,300	31,646,593	2,220	259	232	818	95	85
FY 1983	113,570,000	47,064,173	37,918,934	835	346	279	308	127	102
FY 1984	61,438,000	55,041,450	39,805,077	452	405	292	166	149	108
FY 1985	1,354,000	44,220,826	28,705,044	9	325	211	3	120	77
FY 1986	1,308,000	44,398,082	25,868,927	9	326	190	3	120	70
FY 1987	1,277,000	28,270,668	14,785,402	9	208	108	3	76	40
FY 1988	1,254,000	28,450,276	13,355,692	9	209	98	3	77	36
FY 1989	1,240,000	28,633,983	12,055,477	9	210	88	3	77	32
FY 1990	1,234,000	28,824,053	10,901,861	9	212	80	3	78	29
FY 1991	1,236,000	29,021,199	9,853,118	9	213	72	3	78	26
FY 1992	0	29,023,199	8,844,159	0	213	65	0	78	24
FY 1993	0	29,023,199	7,938,517	0	213	58	0	78	21
FY 1994	0	29,023,199	7,125,613	0	213	52	0	78	19
FY 1995	0	29,023,199	6,395,050	0	213	47	0	78	17
FY 1996	0	29,023,199	5,741,005	0	213	42	0	78	15
FY 1997	0	29,023,199	5,153,126	0	213	37	0	78	13
FY 1998	0	29,023,199	4,625,446	0	213	34	0	78	12
FY 1999	0	29,023,199	4,151,800	0	213	30	0	78	11
FY 2000	0	29,023,199	3,726,656	0	213	27	0	78	10
FY 2001	0	29,023,199	3,345,046	0	213	24	0	78	9
TOTALS	485,577,000	659,415,615	281,953,459	3,573	4,853	2,075	1,317	1,789	765

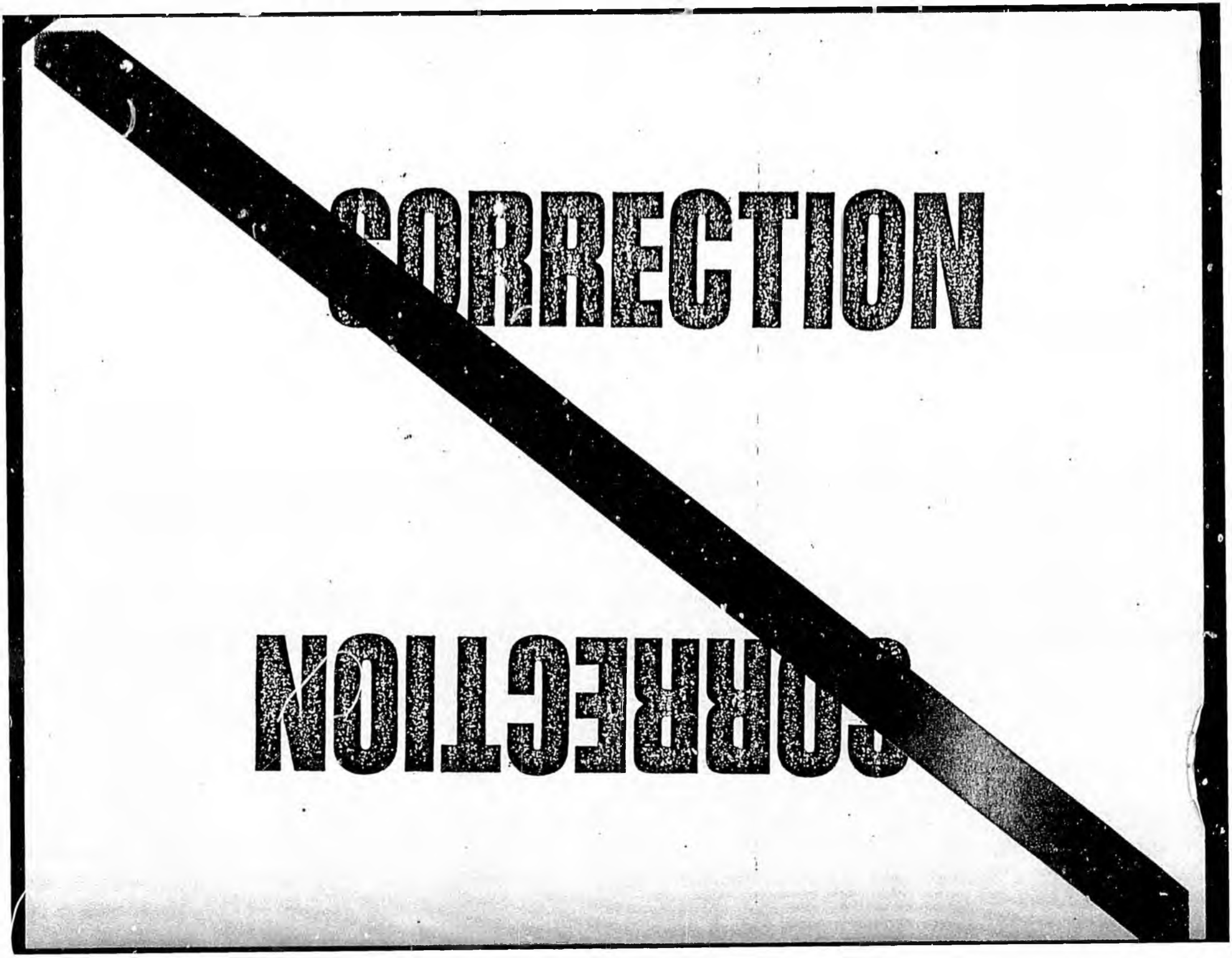
SUMMARY OF ALL POWER PROJECTS - SB 26 (HOUSE RESOURCES VERSION)
TOTAL COST TO STATE FOR PERIOD 1992 TO 2001

(THOUSANDS OF DOLLARS)

PROJECT	EXPENDITURE	ANNUALIZED STATE COST	PRES VAL ANNUALIZED STATE COST	EXPEND. PER CONS.	NET COST PER CONS.	PRES VAL NET COST PER CONS.	EXPEND. PER CAP	NET COST PER CAP	PRES VAL NET COST PER CAP
GREEN LAKE	52,500	39,979	20,016	21,000	15,991	8,006	6,757	5,146	2,576
DILLINGHAM	1,700	1,379	724	29,824	24,203	12,709	9,826	7,974	4,187
PORT LIONS	1,400	1,136	598	19,718	16,001	8,402	6,511	5,284	2,774
SKETTISHAM	4,500	3,651	1,917	548	445	233	230	187	98
SOLOMON GULCH	20,000	23,533	12,358	14,257	11,570	6,075	4,833	3,922	2,059
SWAN LAKE	65,000	55,309	28,310	17,195	14,632	7,489	5,728	4,874	2,494
TERROR LAKE	100,000	34,151	42,533	34,843	29,321	14,890	10,083	8,485	4,308
TYEE LAKE	55,000	46,633	23,779	26,908	22,814	11,633	8,967	7,603	3,877
AEL&P	7,000	5,680	2,982	952	772	405	400	325	170
ANCH-FBNKS INTERTIE	85,000	207,796	76,541	834	2,040	751	313	767	282
CRAIG-KLAWOCK INTERTIE	2,000	5,023	1,947	7,117	17,875	6,931	2,372	5,958	2,310
TYEE-KAKE INTERTIE	5,800	14,391	5,450	32,222	79,950	30,279	10,603	26,309	9,964
KOTZEBUE-SHISHMAK	200	502	194	305	766	297	89	221	86
NAPASKIAK-OSCARVILLE	215	539	209	2,150	5,393	2,093	728	1,830	709
BETHEL-NAPASKIAK	215	539	209	157	395	153	57	144	55
BETHEL REG. STUDY	1,000	2,511	973	778	1,956	758	285	716	278
BLACK BEAR LAKE	2,000	5,023	1,947	5,000	12,557	4,869	1,666	4,185	1,623
BRADLEY LAKE	4,000	10,046	3,895	428	1,076	417	159	400	155
CHESTER LAKE	1,000	2,511	973	3,030	7,610	2,951	1,011	2,539	984
CHAKACHAMNA LAKE	1,000	2,511	973	9	24	9	3	9	3
GRANT LAKE	1,000	2,511	973	1,628	4,090	1,586	542	1,363	528
POWER CREEK	700	1,758	681	688	1,730	670	220	554	214
SUSITNA STUDY	18,100	45,458	17,627	177	446	173	57	218	84
TAKATZ LAKE	50	126	48	20	50	19	6	16	6
TAZIMINA LAKE	2,000	5,023	1,947	5,714	14,351	5,565	1,846	4,638	1,798
DENALI-JUNEAU INTERTIE	996	2,501	969	3,114	7,817	3,031	1,471	3,694	1,432
PELICAN	42	105	40	552	1,387	538	233	586	227
LAKE ELVA	4,500	11,301	4,382	6,818	17,123	6,640	2,250	5,650	2,191
VILLAGE ELECTRIFICATION	400	1,004	389	3,149	7,910	3,067	1,044	2,622	1,017
RURAL POWER LOANS	400	1,004	389	N/A	N/A	N/A	N/A	N/A	N/A
UNALASKA GEOTHERMAL	5,000	12,557	4,869	11,627	29,203	11,324	3,840	9,650	3,742
RURAL POWER GRANTS	5,000	12,557	4,869	N/A	N/A	N/A	N/A	N/A	N/A
RURAL VIL. RECONNAISSANCE	5,600	14,064	5,453	781	1,963	761	280	654	253
AVEC POWER COST ASSIST.	10,472	22,359	8,671	2,908	6,210	1,808	748	1,597	472
PORT LIONS COST ASSIST.	443	947	281	6,514	13,919	4,142	2,050	4,408	1,310
KOTZEBUE COST ASSISTANCE	286	609	257	484	1,185	435	130	342	126
TLINGIT-HAIDA COST ASSIST	1,744	3,851	1,206	2,412	5,327	1,668	826	1,824	571
UNALAKLEET COST ASSIST.	284	629	198	1,371	3,040	957	461	1,021	322
MCGRATH COST ASSISTANCE	274	603	188	2,382	5,259	1,639	771	1,701	531
NOME COST ASSISTANCE	156	348	148	205	512	195	68	170	65
TOTALS	485,577	679,415	281,951	3,573	4,853	2,075	1,117	1,789	765

SUMMARY OF ALL POWER PROJECTS
SB 26 (SENATE VERSION)

	EXPENDITURE	NET ANNUALIZED COST TO STATE	PRESENT VALUE NET ANNUALIZED COST TO STATE	EXPENDITURE PER CONSUMER	NET COST PER CONS.	PRESENT VALUE NET COST PER CONS.	EXPENDITURE PER CAPITA	NET COST PER CAPITA	PRESENT VALUE NET COST PER CAPITA
FY 1982	337,800,000	42,419,450	38,075,608	2,407	302	271	882	110	99
FY 1983	121,400,000	57,905,538	46,653,667	865	412	332	317	151	121
FY 1984	72,500,000	67,319,146	48,684,098	516	479	347	189	175	127
FY 1985	0	67,319,146	43,698,846	0	479	311	0	175	114
FY 1986	0	67,319,146	39,224,084	0	479	279	0	175	102
FY 1987	0	67,319,146	35,207,538	0	479	250	0	175	92
FY 1988	0	67,319,146	31,602,286	0	479	225	0	175	82
FY 1989	0	67,319,146	28,366,212	0	479	202	0	175	74
FY 1990	0	67,319,146	25,461,512	0	479	181	0	175	66
FY 1991	0	67,319,146	22,854,753	0	479	162	0	175	59
FY 1992	0	67,319,146	20,513,977	0	479	146	0	175	53
FY 1993	0	67,319,146	18,413,346	0	479	131	0	175	48
FY 1994	0	67,319,146	16,527,819	0	479	117	0	175	43
FY 1995	0	67,319,146	14,835,371	0	479	105	0	175	38
FY 1996	0	67,319,146	13,316,229	0	479	94	0	175	34
FY 1997	0	67,319,146	11,952,647	0	479	85	0	175	31
FY 1998	0	67,319,146	10,728,698	0	479	76	0	175	28
FY 1999	0	67,319,146	9,630,077	0	479	68	0	175	25
FY 2000	0	67,319,146	8,643,957	0	479	61	0	175	22
FY 2001	0	67,319,146	7,758,816	0	479	55	0	175	20
TOTALS	531,700,000	1,312,060,620	492,140,138	3,789	9,352	3,507	1,389	3,429	1,286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SUMMARY OF ALL POWER PROJECTS - SB 26 (SENATE VERSION)
TOTAL COST TO STATE FOR PERIOD 1992 TO 2001

(THOUSANDS OF DOLLARS)

PROJECT	EXPENDITURE	ANNIALIZED STATE COST	PRES VAL ANNIALIZED STATE COST	EXPEND. PER CONS.	NET COST PER CONS.	PRES VAL NET COST PER CONS.	EXPEND. PER CAP	NET COST PER CAP	PRES VAL NET COST PER CAP
GREEN LAKE	46,000	115,529	44,798	18,400	46,211	17,919	5,920	14,870	5,766
PORT LIONS	1,400	3,516	1,363	19,718	49,522	19,203	6,511	16,354	6,341
SNETTISHAM	20,000	50,270	19,477	2,439	6,127	2,376	1,026	2,578	999
SOLOMON GULCH	62,000	155,713	60,380	30,481	76,555	29,685	10,333	25,957	10,063
SWAN LAKE	53,000	129,906	48,071	14,021	34,366	12,717	4,670	11,448	4,236
TERROR LAKE	81,500	198,983	73,075	28,397	69,332	25,461	8,218	20,064	7,368
TYEE LAKE	45,000	110,165	40,676	22,015	53,897	19,900	7,337	17,962	6,632
ANCH-FBNKS INTERTIE	85,000	207,796	76,541	834	2,040	751	313	767	282
BLACK BEAR LAKE	1,400	3,516	1,363	3,500	8,790	3,408	1,166	2,930	1,136
BRADLEY LAKE	60,000	145,008	52,194	6,429	15,538	5,593	2,399	5,783	2,081
CHESTER LAKE	6,000	15,069	5,843	18,181	45,663	17,706	6,066	15,236	5,908
GRANT LAKE	3,000	7,358	2,723	4,885	11,985	4,435	1,628	3,995	1,478
KISARALIK	1,000	2,511	973	778	1,956	758	285	716	278
KOTZEBUE	850	2,134	827	1,440	3,618	1,403	415	1,044	404
PUMP CREEK	700	1,758	681	688	1,730	670	220	554	214
SCAMMON BAY	200	502	194	2,403	6,051	2,346	796	2,001	776
SUSITNA STUDY	15,000	37,672	14,608	147	370	143	72	181	70
TAKATZ LAKE	50	125	48	20	50	19	6	16	6
TAZIMINA LAKE	2,000	5,023	1,947	5,714	14,351	5,565	1,846	4,638	1,798
RURAL VIL. RECONNAISSANCE	5,600	14,064	5,453	2,641	6,634	2,572	880	2,211	857
SENATE DIST. M	10,000	25,115	9,738	1,920	4,823	1,870	640	1,607	623
SENATE DIST. N	10,000	25,115	9,738	1,715	4,307	1,670	571	1,435	556
SENATE DIST. P	10,000	25,115	9,738	1,891	4,750	1,842	630	1,583	614
OTHER AREAS	10,000	25,115	9,738	N/A	N/A	N/A	N/A	N/A	N/A
TAZIMINA LAKE	2,000	5,023	1,947	5,714	14,351	5,565	1,846	4,638	1,798
HOMER-JUNEAU INTERTIE	995	2,501	969	3,112	7,817	3,031	1,471	3,694	1,432
PELICAN	42	105	40	552	1,387	538	273	686	227
LAKE ELVA	4,500	11,301	4,382	6,818	17,123	6,640	2,250	5,650	2,191
VILLAGE ELECTRIFICATION	400	1,004	389	3,149	7,910	3,067	1,044	2,622	1,017
RURAL POWER LOANS	400	1,004	389	N/A	N/A	N/A	N/A	N/A	N/A
UNALASKA GEOTHERMAL	5,000	12,557	4,869	11,627	29,203	11,324	3,849	9,662	3,742
RURAL POWER GRANTS	5,000	12,557	4,869	N/A	N/A	N/A	N/A	N/A	N/A
RURAL VIL. RECONNAISSANCE	5,600	14,064	5,453	781	1,963	761	260	654	253
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PORT LIONS COST ASSIST.	443	947	281	6,514	13,933	4,142	2,060	4,403	1,310
KOTZEBUE COST ASSISTANCE	286	690	257	404	1,185	436	139	362	126
KLINGIT-HAIDA COST ASSIST	1,744	3,851	1,206	2,412	5,327	1,668	825	1,824	571
UNALAKLEET COST ASSIST.	284	629	198	1,371	3,040	957	461	1,023	322
MCGRATH COST ASSISTANCE	274	603	188	2,382	5,252	1,650	771	1,701	531
NOME COST ASSISTANCE	156	388	148	205	512	195	68	170	65
TOTALS	531,700	1,312,009	492,149	3,789	9,352	3,507	1,389	3,429	1,286

SUMMARY OF ALL POWER PROJECTS
SB 26 (SENATE VERSION)

	EXPENDITURE	NET ANNUALIZED COST TO STATE	PRESENT VALUE NET ANNUALIZED COST TO STATE	EXPENDITURE PER CONSUMER	NET COST PER CONS.	PRESENT VALUE NET COST PER CONS.	EXPENDITURE PER CAPITA	NET COST PER CAPITA	PRESENT VALUE NET COST PER CAPITA
FY 1982	397,800,000	42,419,450	38,075,698	2,407	257	271	882	110	99
FY 1983	421,400,000	57,905,538	46,653,667	865	412	332	317	151	121
FY 1984	72,500,000	67,319,146	48,684,098	516	479	347	189	175	127
FY 1985	0	67,319,146	43,698,846	0	479	311	0	175	114
FY 1986	0	67,319,146	39,224,084	0	479	279	0	175	102
FY 1987	0	67,319,146	35,207,538	0	479	250	0	175	92
FY 1988	0	67,319,146	31,602,286	0	479	225	0	175	82
FY 1989	0	67,319,146	28,366,212	0	479	202	0	175	74
FY 1990	0	67,319,146	25,461,512	0	479	181	0	175	66
FY 1991	0	67,319,146	22,854,253	0	479	162	0	175	59
FY 1992	0	67,319,146	20,513,977	0	479	146	0	175	53
FY 1993	0	67,319,146	18,413,346	0	479	131	0	175	48
FY 1994	0	67,319,146	16,527,819	0	479	117	0	175	43
FY 1995	0	67,319,146	14,835,371	0	479	105	0	175	38
FY 1996	0	67,319,146	13,316,229	0	479	94	0	175	34
FY 1997	0	67,319,146	11,952,647	0	479	85	0	175	31
FY 1998	0	67,319,146	10,728,693	0	479	76	0	175	28
FY 1999	0	67,319,146	9,630,077	0	479	68	0	175	25
FY 2000	0	67,319,146	8,643,957	0	479	61	0	175	22
FY 2001	0	67,319,146	7,758,816	0	479	55	0	175	20
TOTALS	891,700,000	1,312,069,620	492,149,138	3,789	9,357	3,507	1,389	3,429	1,286

ALASKA STATE LEGISLATURE
HOUSE OF REPRESENTATIVES
RESEARCH AGENCY

Pouch Y, State Capitol
Juneau, Alaska 99811
(907) 465-3991

June 2, 1981

MEMORANDUM

TO: Members of the House Finance Committee

FROM: Alexander Hoke and Jack Kreinheder
Research Staff

RE: Analysis of SB 25 and SB 26 Hydro Legislation
Research Request No. 81-152

We have prepared two sets of computer printouts, which are enclosed, that summarize our analysis of the House Resources CS for SB 25 and the latest House Finance workdraft CS for SB 26. The first set of tables shows the expenditures and opportunity costs of these expenditures for power projects included in the SB 26 workdraft. In the second set, funding for construction of the Susitna project is added to demonstrate the effect of Susitna funding on other power projects and the total cost to the state for all projects.

The first printout of each set shows the total expenditures and opportunity costs for each power project over the period from FY 1982 to FY 2001, while the second printout presents a breakdown of these figures by each fiscal year in this period. The first column of each printout shows the planned expenditures for each project or fiscal year. It is important to note that these expenditures represent the full costs of each project, which for Bradley Lake and Solomon Gulch are higher than the amounts appropriated in SB 26.

Column 2 displays the net annualized cost, or opportunity cost, to the State of these expenditures, which we have calculated as the difference between the market rate of return available to the State (including payback of principal, as well as interest), and the actual return from the power projects. For example, the Bradley Lake project has a total cost in 1981 dollars of about $200 million. The net annualized cost of this expenditure over the period from from FY 1982 to FY 2001 in the noSusitna case is about $155.4 million. This figure is the difference between the amount which the State could receive each year from a loan or bond investment at an 11 percent market rate of interest, and the amount which the State would receive from the "equity return" on hydro projects specified in the House Resources CS for SB 25.

The Resources CS for SB 25 provides that this equity rate of return is 5 percent through 1986. If the legislature has not appropriated at least $5 billion to the power development fund by FY 1986, in other

words if Susitna or another major project is not constructed, the equity return to the State would increase from 5 percent to 10 percent, thereby reducing the opportunity costs to the State (but also increasing power prices).

If Susitna or another major project is developed, the opposite effect would occur. The bill states that when 500 megawatts of generation capacity have been developed, the return to the State from the power projects will be reduced from 5 percent to a level which covers only operations and maintenance costs and other expenses. The opportunity costs to the State would therefore increase at this time. We have assumed that the 500 megawatt threshold would be reached in 1993 in the Susitna case.

Column three of the printouts converts the net annualized cost to the State into present value terms (as of 1981). The discount rate used for this conversion is 10.24 percent, which is the average inflation rate in Anchorage over the past five years, according to the Consumer Price Index.

It is important to note that we have analyzed the opportunity costs of power project expenditures only through 2001. These opportunity costs would be substantially higher than those presented here if the analysis covered the full life of the power projects. Legislative Finance has done a long-term cost analysis which demonstrates this point.

The second set of three columns presents the information discussed above in terms of the expenditure and cost per power consumer to be served by each power project. In some cases where the actual number of consumers was not readily available, we used an estimate based on the average ratio of power customers to population for communities throughout the State. The third set of columns shows expenditures and costs on a per capita basis, based on the 1980 census population figures.

We have also enclosed five graphs which illustrate the information contained in the printouts. Figure 1 shows the per capita distribution of the SB 26 power project funding by election district in the no-Susitna case. Figure 2 shows the same distribution with Susitna construction funding included. In Figure 3, the expenditures, net annualized costs, and present value costs for the no-Susitna case are charted. This graph corresponds to the first three columns of the first computer printout. Figure 4 shows the same expenditures and costs with Susitna included, demonstrating the proportion of these costs which are attributable to the Susitna project.

In Figure 5, we have projected the assistance available under the Power Cost Assistance program between FY 1982 and FY 1992 at several levels of power costs. This chart assumes a 5 percent annual increase in power costs, which is equivalent to a 10 percent annual increase in the cost of fuel.

Although not included with this memorandum, we have also prepared a set of tables which show the expenditures and costs for each project for each fiscal year. We can provide these tables if this more detailed breakdown is necessary.

We hope this information is useful. If you have any questions or would like additional information, please let us know.

Enclosures

JK/bf