ALASKA LEGISLATURE COMMITTEE FILES 1981-1982 8672

1846 HRES HB 758

1846

* * * * * DEPARTMENT OF COMMERCE & ECONOMIC DEVELOPMENT * * * * *

HORT ORM AGE	BUDGET COMPONENT	FY81 ACT	FY82 ATH	CONT.	GOVERNOR	HOUSE	HOUSE - GOVERNOR COMPARISON 76	
	TOURISM	3248.9	11254.1	5005.2	7605.2	6737.3	-867.9	-11.3%
	ENERGY & POWER DEVELOPMENT							
30	ENERGY ADMINISTRATION	335.7	341.8	850.9	858.9		-858.9	-100.0%
32	ENERGY GRANTS & ASSISTANCE	4357.2	21347.1	5901.8	5901.8		-5901.8	-100.0%
34	ENERGY PLANNING	189.6	253.8	381.3	481.3		-481.3	-100.0%
36	WEATHERIZATION	1570.3	2186.9					
38	FIELD OFFICES	746.0	1156.4	780.9	780.9		-780.9	-100.0%
40	ENERGY ENGINEERING			752.8	930.9		-930.9	-100.0%
	*** PROGRAM TOTAL ***	7198.8	25286.0	8667.7	8953.8		-8953.8	-100.0%
44	ALASKA POWER AUTHORITY	2754.9	10907.1	10333.1	11428.1	11281.5	-146.6	-1.2%
48	ROYALTY OIL AND GAS BOARD	126.9	268.8	290.5	290.5	190.5	-100.0	-34.3%
52	AK INDUSTRIAL DEVELOPMENT AUTH		1572.2	1689.8	1720.8	1700.7	-20.1	-1.1%
56	AGRICULTURAL ACTION COUNCIL	150.2	885.7	417.3	417.3	385.7	-31.6	-7.5%
60	AK SEAFOOD MARKETING INSTITUTE		2000.0	2754.2	2754.2	1854.2	-900.0	-32.6%
	*** CATEGORY TOTAL ***	19917.9	59328.7	35862.8	40576.3	27113.1	-13463.2	-33.1%
	******** TOTAL EXPENDITURES	30375.7	71243.5	49126.4	54244.2	40280.6	-13963.6	-25.6%
	******** FUNDING							
	FED. RECEIPT	2039.3	3003.9	54.2	54.2	54.2		
	GENERAL FUND	27108.4	65550.6	44869.3	48571.3	35249.8	-13321.5	-27.3%
	OTHER FUNDS	1228.0	2689.0	4202.9	5618.7	4976.6	-642.1	-11.3%

ALASKA STATE LEGISLATURE
HOUSE OF REPRESENTATIVES
RESEARCH AGENCY

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

February 22, 1982

MEMORANDUM

TO: Representative Eric Sutcliffe
Attn: Pat Lawler

FROM: Jack Kreinheder
Research Staff

RE: Lifeline Utility Rates
Research Request 82-49

In response to your request, we have obtained a copy of the California statute establishing lifeline utility rates and have interviewed representatives of the California Public Utilities Commission (CPUC) and a major California electric utility regarding the implementation and results of the lifeline rate legislation. This memorandum summarizes this information and also discusses lifeline and inverted block rate pricing structures in other states. In addition, some observations on possible problems in HB 752 relating to the establishment of lifeline rates in Alaska have been made, where appropriate.

California enacted the Miller-Warren Energy Lifeline Act (§739, Public Utilities Code) in 1975. The statute, which is attached, required the CPUC to designate a lifeline quantity of gas and electricity which is necessary to supply the minimum needs of the average residential user. The statute specified that separate quantities were to be established for several types of "end uses": lighting, cooking, food refrigeration, space heating and cooling, and water heating.

The CPUC was also required to take into account the effect of climate and seasonal changes on energy needs. The lifeline legislation directed the CPUC to require that all electric and gas utilities under its jurisdiction file a schedule of rates and charges providing lifeline rates. The lifeline rates were not to be greater than the rates in effect on January 1, 1976, and no increase in lifeline rates was allowed to be granted until the average system rate increased by 25 percent or more over the January 1, 1976 level.

The lifeline program established by the CPUC is described in detail in the attached CPUC publication. Basically, the program provides a basic allowance of 240 kilowatt hours (KWH) per month for each residence for the puposes of lighting, cooking, and food refrigeration (a comparable

allowance of 26 therms per month is made for gas consumers). Homes with electric water heating qualify for an additional 250 KWH/month. Residences with electric space heat receive an additional lifeline allowance ranging from 550 KWH to 1420 KWH per month, depending on the climate zone in which the home is located. Except for some coastal areas, the home heating allowances are available only from November through April.

Based on this schedule, an all-electric home in the colder mountain areas of California can receive a lifeline allowance of up to 1910 KWH/month. The lifeline act was amended in 1978 to require the CPUC to provide additional allowances for persons with special medical conditions requiring life support equipment or having increased heating and cooling needs.

I spoke with Walter McGee, a Consumer Affairs Consultant with the CPUC, regarding the implementation of the California lifeline program. According to Mr. Mcgee, the three most common complaints received by the Commission regarding lifeline rates are the following:

(1) The lifeline program is unfair because it is based on average house size, average number of occupants per dwelling, etc., and doesn't provide sufficient allowances for large families, large houses, and so on.

(2) The program is too complicated and difficult to understand for the consumer. Too many changes have been made in the program.

(3) Business and industrial interests have complained that they are subsidizing lifeline rates for residential consumers by paying higher power rates.

The first two problems are in direct conflict with each other, because a lifeline program which takes account of house and family size and other factors is inherently complex. On the other hand, a simple system such as that proposed in HB 758 does not make adjustments for the types of electric uses and other variables and therefore does not provide the same level of savings to different groups of consumers. There is no single solution for these problems, just a trade-off between the goals of a simple, understandable system and a versatile system which reflects the variations in electric power use among consumers. The lifeline program enacted by the California legislature emphasized versatility over simplicity, while HB 758 does the opposite.

In regard to the third major complaint, that of subsidization of residential consumers by business and industrial power users, the CPUC

maintains that the subsidized cost of lifeline rates is offset by the higher rates for residential consumers using larger amounts of power, rather than business and industrial users. CPUC studies have indicated that the average cost of power to all three consumer groups is nearly the same -- about 8 cents per KWH.

I also contacted Stan Little, a Rate Analyst with the Pacific Gas and Electric Co. (PG&E), which serves much of northern California, for the utility's perspective on the lifeline program. PG&E's biggest single problem with the California lifeline rate program is that it requires the utility to determine customer end-uses of gas or electricity, such as water heating, space heating, etc., creating the problem of incorrect billings if the utility is not made aware of those uses. PG&E has relied on its customers to apply for the lifeline allowances for specific gas and electricity uses. Despite an extensive advertising program, there have been numerous cases of customers not applying for lifeline allowances for months or years after utility service is established. PG&E must then adjust prior bills for these errors.

A second problem is the potential for customer abuse of the lifeline program, i.e. customers claiming they have electric heat when some other heat source is used. According to Mr. Little, such abuse has been a small but significant problem for PG&E.

The complexity of rate schedules has been another burden for the utilities under the lifeline rate system. Before the lifeline rates were implemented, PG&E had three residential power rates, depending on the quantity used. There are now over 100 rate schedules, based on 6 climate zones and the various combinations of water heating, space heating, and other electric power uses. Rate adjustments are much more time-consuming as a result of this proliferation of rate schedules. PG&E's basic residential rate schedule is currently 6.9 cents/KWH for the lifeline quantity, 9.3 cents for the next 300 KWH or 2/3 of the lifeline amount, whichever is higher, and 12.6 cents for all additional consumption.

Finally, there appears to be some doubt that the lifeline system is effective in meeting its primary goal of lowering power and gas rates for low-income consumers. According to Mr. Little, a study prepared for PG&E indicated that it was possible that low-income consumers actually used more power and gas than higher-income consumers, and may therefore pay higher average power rates. Among the reasons for this tentative conclusion were that low-income persons tend to live in poorly insulated homes with older, less efficient appliances, spend more time at home, cook more frequently at home, and so on.

Other State's Laws

According to information provided by the National Conference of State Legislatures, at least 12 states have approved either lifeline or inverted block rates (higher rates for higher amounts of power used), including the following: Arizona, Alabama, California, Connecticut, Florida, Idaho, Maine, Michigan, New Jersey, Pennsylvania, Rhode Island, and Washington. This list of states includes rate structures created both by the legislatures and by the public utilities commissions in these states. Both Maine and Washington have lifeline programs which are targeted to low-income senior citizens, rather than all residential consumers. Copies of these statutes are attached. In addition, the NCSL information indicates that public utilities commissions in 32 states have adopted policies discouraging the use of declining block rates.

Lifeline Rates in HB 758

I discussed the proposed lifeline rate program in HB 758 [§8(h)-(j)] with both Mr. McGee and Mr. Little. Both gentlemen commented that the flat 250 KWH lifeline provision in HB 758 would be administratively much easier to implement than the California program, but that the cost savings would be marginal for consumers with electric water heat, space heat, etc. Mr. McGee stated that a consumer with an all- or primarily-electric home might actually pay more under this lifeline proposal, because the savings on the first 250 KWH would be offset by the higher costs of the remaining 1000 to 2000 KWH which would probably be consumed. Thus, it appears that mainly consumers using electricity for only lighting and cooking would benefit from this lifeline proposal, although the specific impact would depend on the actual rates applied.

Although a larger lifeline allowance, say 500 or 1000 KWH could provide a broader distribution of savings to consumers, a potential problem cited by Mr. McGee is that consumers using electricity only for lighting and cooking (say, 250 KWH per month) would have a reduced incentive for conservation, because of the low rates for the first 500 or 1000 KWH. Conservation is stated as a primary objective in the lifeline system proposed in HB 758. On the other hand, the only alternative to a fixed lifeline allowance appears to be an end-use based program like California's, with the problems described earlier.

I have two additional comments on the HB 758 lifeline proposal, regarding potential conflicts with the regulatory authority of the Alaska Public Utilities Commission (APUC). In lines 23-25 on page 7 of the bill, it states that "for residential consumers the utility shall specify successively higher ranges of power usage to which successively higher rates within its rate structure apply." It appears that for

utilities regulated by the APUC, this language could conflict with the APUC's statutory authority over utility rates. A possible solution could simply be to say that the utility, or the APUC for those utilities regulated by the APUC, shall specify successively higher ranges... etc.

The second possible conflict is in lines 6-9 on page 9 of HB 758. These lines allow the Alaska Power Authority to authorize a higher retail power rate in certain conditions for utilities to which it sells wholesale power. This granting of authority over retail power rates to the Power Authority may create a conflict with the APUC's authority over utility rates. Again, a simple rewording which grants authority to the proper agency, depending on jurisdiction, may be sufficient to avoid this conflict.

* * * * * * * * * *

I hope this information is useful. Please don't hesitate to contact me if you have any questions or would like additional information.

Terror Lake

PROJECT COST$ = 153436992. ANNUAL KWH= 139000000. ESCALLATION=1.07
ESC. YR. 1/101.043 ESC. YR. 11/201.057 ESC. YR. 21/301.073 ESC. YR. 31/341.07

YEAR	PAYMENT $	PAYMENT %	C/KWH
1	4603110.	3.00	3.31
2	4799309.	3.13	3.45
3	5003870.	3.26	3.60
4	5217150.	3.40	3.75
5	5439521.	3.55	3.91
6	5671370.	3.70	4.08
7	5913101.	3.85	4.25
8	6165135.	4.02	4.44
9	6427912.	4.19	4.62
10	6701889.	4.37	4.82
11	6987544.	4.55	5.03
12	7383408.	4.81	5.31
13	7801699.	5.08	5.61
14	8243687.	5.37	5.93
15	8710714.	5.68	6.27
16	9204200.	6.00	6.62
17	9725644.	6.34	7.00
18	10276628.	6.70	7.39
19	10858828.	7.08	7.81
20	11474010.	7.48	8.25
21	12124044.	7.90	8.72
22	13022036.	8.49	9.37
23	13986540.	9.12	10.06
24	15022482.	9.79	10.81
25	16135154.	10.52	11.61
26	17330240.	11.29	12.47
27	18613840.	12.13	13.39
28	19992512.	13.03	14.38
29	21473300.	13.99	15.45
30	23063764.	15.03	16.59
31	24772032.	16.14	17.82
32	26606824.	17.34	19.14
33	28577516.	18.62	20.56

397,389,053 = 2.6 x original investment

82 + 33 2015

SECTION-BY-SECTION ANALYSIS

HOUSE BILL 655 — REVISED FORCSHB 758

Section 9

° ~~Section 1~~ would modify the present procedures for reviewing and approving reconnaisance studies, feasibility studies and projects. We recommend that smaller projects, those generating 1.5 megawatts or less, be subjected to a simplified feasibility study and review process, and not be individually authorized by the Legislature. In this way, some of the steps in design and construction of these projects can be combined, thus saving substantial time. This section would also bring the review process for all projects into conformance with other proposed changes in the law. Projects larger than 1.5 megawatts would remain subject to the complete review and feasibility study process, including individual legislative authorization.

° SECTION 10 ~~Section 2~~ would repeal a section which purports to exempt revenues from the sale of power from the appropriation process, and allow them to be deposited directly into the Power Development Fund. The Attorney General has informed us that revenues from the sale of power must be appropriated by the Legislature before the Alaska Power Authority (APA) may expend them.

° SECTION 11 ~~Section 3~~ would add the provision that the Power Development Fund may not be used for construction of a power project until the project has been approved and a local special election has been held.

° Section 12 ~~4~~ would provide the form and specifications for the local special elections required by Section 3 of the bill. The election would be conducted by the State among those qualified voters residing in the area which the power project would serve. This section would also require that the voters be provided with certain specific information about the project before the election is conducted. The election process would be applicable to all projects upon which construction itself has not begun by the date of passage of this bill.

After the election, in the event that a substantial change in the project occurs that would require additional funds, a new election would be required. The Division of Budget and Management would determine whether the proposed changes are substantial.

° Section 13 ~~5~~. This section would revise the feasibility requirement to simply conform to the standards of AS 44.83.181 in existing law. Feasibility must be determined by the Alaska Power Authority within one year before expending funds on the project; this feasibility determination must be concurred in by the Division of Budget and Management. The APA may rely upon a feasibility study that is not more than one year old in making this determination, or may revise a feasibility study which is more than one year old.

This section removes the requirement that the project is deemed feasible only if it can be demonstrated that revenues from the project could be sufficient to return, annually, 5% of the State's investment in the project. As these funds are not returned to the State under existing law, and the amount to be returned under this bill is vastly different, this requirement should be removed.

° Section 15. This section would repeal the existing provisions for determining wholesale power rates, including eliminating the "postage stamp rates" and the "Susitna blackmail clause" and replace it with a wholesale rate structure for each project that provides revenues to pay:

(a) recurring costs of the project, including operation, maintenance, equipment replacement, debt service, loan repayments, safety inspections and investigations by the APA;

(b) repayment of the State's General Fund investment in the project on a "no real interest" basis at the rate of 3% return per year in dollars inflated back to the first year of project operation. Once the repayment is complete, the only portion used to calculate rates is the recurring costs.

° Section 17 provides the means to establish the repayment inflation rate used in Section 6. Essentially, the APA establishes the first rate used in repayment by averaging the Federal Consumer Price Index for the previous 33 years (the same period as the project repayment schedule). This figure is used to approximate bringing each year's portion of the capital investment to nominal dollars. The inflation rate is updated each ten years of the project's life.

° Section 18 would reestablish an emergency maintenance fund. This fund would be available to defray unanticipated operation and maintenance costs. These costs might occur as a result of a catastrophic equipment failure or other unbudgeted cost. The fund would initially provide loans to the projects at 9% interest. However, the APA is required to seek legislative appropriations to replace the amounts expended from the fund, and to convert the loans to capital investments of the State which would be repaid under Section 6 of this bill.

° Section 21. This section would exempt projects under construction or the effective date of the Act from the requirements for local special elections under Sections 3 and 4.

° Section 20 would repeal existing AS 44.83.390 and AS 44.83.398(c). AS 44.83.390 would purport to restrict future Legislatures' ability to reappropriate funds unexpended on a particular power project. AS 44.83.398(c) purports to allow the APA to retain and expend certain funds without appropriation. The Attorney General advises that these provisions are not constitutional, and should be repealed.

PER CAPITA ENERGY USE STATISTICS
CORRECTED FOR HYDRO @ 3413 BTU/KWH
UNITS MILLIONS OF BTU

STATE NAME	TOTAL USE	GAS USE	OIL USE	GAS&OIL USE	PU PWR FACT. HCORR	OIL	RESIDENTIAL OIL	TOTAL
ALA	430.29	64.45	170.91	235.36	.92	.01	11.08	72.33
AKA	776.00	366.71	417.60	784.31	.92	.14	20.58	76.82
ARZ	310.65	75.96	164.14	240.11	.84	.09	6.34	51.37
ARK	422.22	102.63	222.25	324.89	.91	.48	38.1?	84.05
CAL	273.32	71.48	161.11	232.59	.81	.46	11.??	47.58
COLO	349.10	102.12	164.70	266.82	.96	.02	11.9?	72.42
CONN	254.03	21.37	196.36	217.73	.99	.46	47.79	74.71
DEL	346.87	35.99	288.57	324.56	1.00	.73	46.24	69.3?
D.C	242.57	39.39	124.87	164.26	1.00	1.00	43.96	64.12
FLA	280.27	37.97	200.94	238.91	1.00	.49	36.41	68.27
GA	325.48	55.63	166.82	222.45	.95	.08	10.87	69.32
HW	281.87	.00	275.77	275.77	1.00	1.00	28.98	29.00
IDA	371.17	51.16	190.19	241.35	.33	.00	23.04	55.17
ILL	374.90	106.21	164.99	271.20	1.00	.10	18.90	94.11
IND	480.45	83.38	190.45	273.82	1.00	.04	27.41	98.02
IOWA	373.86	83.63	185.61	269.24	.97	.03	26.34	91.65
KAN	460.75	225.63	195.91	421.54	1.00	.10	20.42	93.08
KNTY	340.34	61.85	148.24	210.08	.96	.00	13.25	67.58
LA	830.93	577.86	243.99	821.86	1.00	.29	18.47	72.08
MAIN	302.79	1.97	247.82	249.79	.75	.14	50.71	72.21
MARY	275.98	33.25	162.25	195.49	.97	.35	23.33	58.72
MASS	254.76	28.25	214.00	242.25	1.00	.83	50.56	69.69
MICH	322.79	87.37	145.48	232.85	.94	.15	20.24	79.18
MINN	346.75	79.41	168.32	247.73	.96	.03	26.27	85.03
MISS	346.16	86.42	230.84	317.26	1.00	.60	40.80	70.07
MO	335.40	75.13	168.44	243.57	.99	.04	21.22	90.37
MONT	376.87	94.05	222.13	316.18	.54	.01	23.31	75.09
NEB	393.30	106.00	195.52	301.52	.95	.05	23.58	91.27
NEV	422.49	99.89	245.15	345.05	.92	.13	14.28	76.49
NHAM	263.80	9.50	205.91	215.41	.86	.46	55.66	75.68
NJER	267.60	31.73	183.32	215.05	1.00	.55	34.80	65.02
NMEX	399.41	180.08	195.37	375.45	1.00	.01	10.46	53.76
NYOR	216.65	32.6?	161.61	194.23	.83	.53	34.35	60.07
NCAR	295.06	14.94	153.26	168.20	.94	.02	16.00	66.80
NDAK	340.09	60.88	214.15	275.03	.79	.00	25.55	82.06
OHIO	398.31	87.87	133.69	221.56	1.00	.04	14.04	87.92
OKLA	449.34	273.90	185.20	459.10	.97	.01	16.54	89.79
OREG	278.22	35.81	157.85	193.66	.36	.00	7.41	36.95
PENN	367.66	58.26	150.34	208.60	1.00	.15	21.42	79.75
RI	333.09	25.04	154.04	179.07	1.00	1.00	53.84	68.67
SCAR	338.72	40.97	163.49	204.46	.95	.09	16.45	67.24
SDAK	280.58	52.16	209.79	261.95	.55	.02	33.27	77.92
TENN	399.71	42.92	153.00	195.92	.90	.05	11.88	82.56
TEX	566.00	330.85	207.17	538.02	1.00	.02	10.47	77.02
UTAH	393.42	92.23	169.79	262.02	.43	.02	5.47	55.42
VERM	269.42	7.89	190.52	198.41	.86	.00	40.74	74.62
VIRG	292.98	26.48	182.78	209.26	.98	.40	28.89	65.67
WASH	233.61	34.27	159.58	193.84	.40	.00	7.43	42.36
WVIR	419.46	82.94	119.92	202.86	1.00	.01	6.85	75.33
WISC	329.13	80.53	152.13	232.66	.96	.04	30.52	89.55
WYOM	864.38	209.20	400.70	609.90	.97	.00	22.36	90.81
USA	349.08	91.71	174.11	265.82	.91	.18	21.29	71.67

END OF PROGRAM
:BYE

CPU=12. CONNECT=20. TUE, FEB 16, 1982, 10:26 PM

SECTION-BY-SECTION ANALYSIS

HOUSE BILL 655

° Section 1 would modify the present procedures for reviewing and approving reconnaisance studies, feasibility studies and projects. We recommend that smaller projects, those generating 1.5 megawatts or less, be subjected to a simplified feasibility study and review process, and not be individually authorized by the Legislature. In this way, some of the steps in design and construction of these projects can be combined, thus saving substantial time. This section would also bring the review process for all projects into conformance with other proposed changes in the law. Projects larger than 1.5 megawatts would remain subject to the complete review and feasibility study process, including individual legislative authorization.

° Section 2 would repeal a section which purports to exempt revenues from the sale of power from the appropriation process, and allow them to be deposited directly into the Power Development Fund. The Attorney General has informed us that revenues from the sale of power must be appropriated by the Legislature before the Alaska Power Authority (APA) may expend them.

° Section 3 would add the provision that the Power Development Fund may not be used for construction of a power project until the project has been approved and a local special election has been held.

° Section 4 would provide the form and specifications for the local special elections required by Section 3 of the bill. The election would be conducted by the State among those qualified voters residing in the area which the power project would serve. This section would also require that the voters be provided with certain specific information about the project before the election is conducted. The election process would be applicable to all projects upon which construction itself has not begun by the date of passage of this bill.

After the election, in the event that a substantial change in the project occurs that would require additional funds, a new election would be required. The Division of Budget and Management would determine whether the proposed changes are substantial.

° Section 5. This section would revise the feasibility requirement to simply conform to the standards of AS 44.83.181 in existing law. Feasibility must be determined by the Alaska Power Authority within one year before expending funds on the project; this feasibility determination must be concurred in by the Division of Budget and Management. The APA may rely upon a feasibility study that is not more than one year old in making this determination, or may revise a feasibility study which is more than one year old.

Section 10 would repeal existing AS 44.83.390 and AS 44.83.398(c). AS 44.83.390 would purport to restrict future Legislatures' ability to reappropriate funds unexpended on a particular power project. AS 44.83.398(c) purports to allow the APA to retain and expend certain funds without appropriation. The Attorney General advises that these provisions are not constitutional, and should be repealed.

February 8, 1982

COMMENTS OF

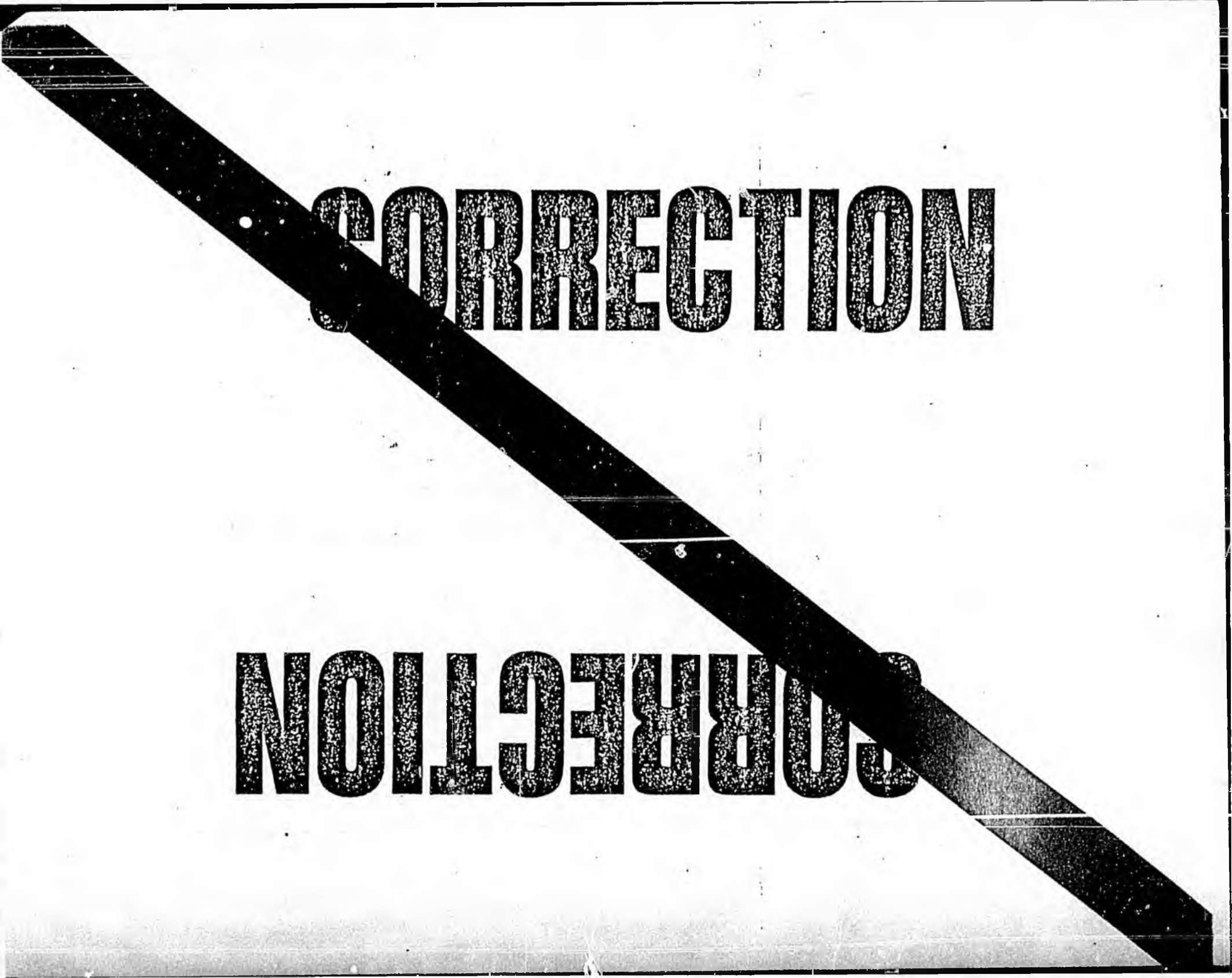
ERNST W. MUELLER, VICE-CHAIRMAN
BOARD OF DIRECTORS
ALASKA POWER AUTHORITY

On

SB 646, HB 655
Acts relating to the energy program for Alaska.

By way of introduction, I am Ernst W. Mueller, Vice-Chairman of the Board of Directors of the Alaska Power Authority. As you know, last year the Legislature enacted certain changes in the structure of our Board of Directors which provided that the Governor appoint three heads of principal State departments and the Director of the Division of Budget and Management to the Board, as well as three non-governmental members. As a result of this change, I was appointed to the Board, and subsequently elected its Vice-Chairman. Part of my role is, with the Director of Budget and Management, to provide some liaison and communication between the Office of the Governor and the Board, and also to help represent the Administration's views on the Power Authority's operations before the Alaska Legislature. Other members of the Board include Mr. Charles Conway of Anchorage, Chairman; Dr. Robert B. Weeden of Fairbanks; Mr. John Schaefer of Nome; Director of Budget and Management Ron Lehr; and Commissioners Chuck Webber and Bob Ward.

Last year, Governor Hammond allowed Senate Bill 25 to become law without his signature. In his August 3 message to you, the Governor outlined his major objections to the approach used in


CORRECTION

SECTION-BY-SECTION ANALYSIS

HOUSE BILL 655

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° Section 2 would repeal a section which purports to exempt revenues from the sale of power from the appropriation process, and allow them to be deposited directly into the Power Development Fund. The Attorney General has informed us that revenues from the sale of power must be appropriated by the Legislature before the Alaska Power Authority (APA) may expend them.

° Section 3 would add the provision that the Power Development Fund may not be used for construction of a power project until the project has been approved and a local special election has been held.

° Section 4 would provide the form and specifications for the local special elections required by Section 3 of the bill. The election would be conducted by the State among those qualified voters residing in the area which the power project would serve. This section would also require that the voters be provided with certain specific information about the project before the election is conducted. The election process would be applicable to all projects upon which construction itself has not begun by the date of passage of this bill.

After the election, in the event that a substantial change in the project occurs that would require additional funds, a new election would be required. The Division of Budget and Management would determine whether the proposed changes are substantial.

° Section 5. This section would revise the feasibility requirement to simply conform to the standards of AS 44.83.181 in existing law. Feasibility must be determined by the Alaska Power Authority within one year before expending funds on the project; this feasibility determination must be concurred in by the Division of Budget and Management. The APA may rely upon a feasibility study that is not more than one year old in making this determination, or may revise a feasibility study which is more than one year old.

This section removes the requirement that the project is deemed feasible only if it can be demonstrated that revenues from the project could be sufficient to return, annually, 5% of the State's investment in the project. As these funds are not returned to the State under existing law, and the amount to be returned under this bill is vastly different, this requirement should be removed.

° Section 6. This section would repeal the existing provisions for determining wholesale power rates, including eliminating the "postage stamp rates" and the "Susitna blackmail clause" and replace it with a wholesale rate structure for each project that provides revenues to pay:

(a) recurring costs of the project, including operation, maintenance, equipment replacement, debt service, loan repayments, safety inspections and investigations by the APA;

(b) repayment of the State's General Fund investment in the project on a "no real interest" basis at the rate of 3% return per year in dollars inflated back to the first year of project operation. Once the repayment is complete, the only portion used to calculate rates is the recurring costs.

° Section 7 provides the means to establish the repayment inflation rate used in Section 6. Essentially, the APA establishes the first rate used in repayment by averaging the Federal Consumer Price Index for the previous 33 years (the same period as the project repayment schedule). This figure is used to approximate bringing each year's portion of the capital investment to nominal dollars. The inflation rate is updated each ten years of the project's life.

° Section 8 would reestablish an emergency maintenance fund. This fund would be available to defray unanticipated operation and maintenance costs. These costs might occur as a result of a catastrophic equipment failure or other unbudgeted cost. The fund would initially provide loans to the projects at 9% interest. However, the APA is required to seek legislative appropriations to replace the amounts expended from the fund, and to convert the loans to capital investments of the State which would be repaid under Section 6 of this bill.

° Section 9. This section would exempt projects under construction or the effective date of the Act from the requirements for local special elections under Sections 3 and 4.

° Section 10 would repeal existing AS 44.83.390 and AS 44.83.398(c). AS 44.83.390 would purport to restrict future Legislatures' ability to reappropriate funds unexpended on a particular power project. AS 44.83.398(c) purports to allow the APA to retain and expend certain funds without appropriation. The Attorney General advises that these provisions are not constitutional, and should be repealed.

February 8, 1982

COMMENTS OF

ERNST W. MUELLER, VICE-CHAIRMAN
BOARD OF DIRECTORS
ALASKA POWER AUTHORITY

On

SB 646, HB 655
Acts relating to the energy program for Alaska.

By way of introduction, I am Ernst W. Mueller, Vice-Chairman of the Board of Directors of the Alaska Power Authority. As you know, last year the Legislature enacted certain changes in the structure of our Board of Directors which provided that the Governor appoint three heads of principal State departments and the Director of the Division of Budget and Management to the Board, as well as three non-governmental members. As a result of this change, I was appointed to the Board, and subsequently elected its Vice-Chairman. Part of my role is, with the Director of Budget and Management, to provide some liaison and communication between the Office of the Governor and the Board, and also to help represent the Administration's views on the Power Authority's operations before the Alaska Legislature. Other members of the Board include Mr. Charles Conway of Anchorage, Chairman; Dr. Robert B. Weeden of Fairbanks; Mr. John Schaefer of Nome; Director of Budget and Management Ron Lehr; and Commissioners Chuck Webber and Bob Ward.

Last year, Governor Hammond allowed Senate Bill 25 to become law without his signature. In his August 3 message to you, the Governor outlined his major objections to the approach used in

establishing and financing large new power projects. The bill you have before you contains the corrective measures the Governor promised in that message.

The energy program for Alaska is a bold, multi-faceted approach to helping Alaskan residents, businesses, and industry cope with the increasing cost and growing scarcity of energy. Its most ambitious element is the construction of large electrical generation facilities, mainly hydroelectric plants, in a number of sites throughout the State. These facilities will provide a reliable, secure source of electric power which, while by no means inexpensive to produce, is not dependent upon foreign economic factors, such as the price of crude oil. The Governor and this Administration strongly support new hydro development as often the most sensible way to develop new power sources, providing it can be done in a manner which is economically and environmentally sound. The environmental part of that test is, at present, the one most easily met as all sizable new hydropower projects must undergo licensing by the Federal Energy Regulatory Commission and an environmental impact analysis is required as part of FERC's thorough review. However, the energy program for Alaska as it now exists both distorts analysis of economic practicability and encourages the development of projects which would not otherwise be economical. There are several reasons for this, the major one being the use of general fund capital grants with no repayment required. As a result, the State receives no return whatsoever on its investment, and the

traditional tests for economic practicabilities are somewhat neutralized. Decisions as to which public power projects to construct, and who receives the enormous economic advantages of them become more based on politics than on economics. This is exacerbated by the postage stamp, wholesale power rate of existing law by which all wholesale purchases pay the same rate r less of the capital and operating costs of the particular proje t from which they receive power. In this way, rates for projects which are economically impracticable are subsidized by those who receive power economically-sound projects.

The use of grants for these projects present a number of other inequities. Unless the entire population of the State is served by Alaska Power Authority projects, only a few Alaskans will receive the benefit of what is an economic cost burden for all. Further, the provision of subsidized power under the scenario present in existing law would strongly benefit, at the St te's expense, new energy intensive industrial development projects. Thus, those Alaskans who are not receiving power from an APA project are subsidizing, directly or indirectly, not only the APA power which residential consumers buy, but also the very industry that provides work and business to those consumers. Thi basic inequity can be corrected only through changing the type of fu ing for these projects from outright grants to a loan, or converting them into an investment from which the State will receive a substantial return.

Of course, a major factor in developing any new capital projects at this time is the State's cash flow situation. At present, we simply do not have the money to build the APA projects which are now on the drawing boards and also fund all the other capital projects the State needs. Also, the private financial market, particularly the bond market for large new power projects, is not as good as it once was. Providing some return to the State on its cash investment in power projects will help ensure that funds will be available for new projects in the future.

The Governor and his staff reviewed a wide variety of funding mechanisms for energy projects. The Alaska Power Authority needs to retain its existing authority to issue revenue bonds, as well as expend general fund capital appropriations made by the Legislature. In addition, the Authority will, from time to time, need to acquire short-term financing during construction. The Governor is also concerned that the spirit of public financing be retained so that energy prices be as reasonable as possible. After evaluating a large number of interest rates, "tilt" factors, repayment schedules and others, it was decided that the concept of a "no real interest" loan should be introduced. This option has the advantage of the State recouping its capital investment in the project yet still provide electricity costs that are lower than could be provided by any form of conventionally financed public or private project. While this concept still provides a substantial subsidy, especially for large bulk power users, it does not require a real dollar loss

to all the State's taxpayers to provide that subsidy. The only loss to the State is the opportunity cost--the income that would have been earned if the State had invested the money at market rates.

The concept of a "no real interest rate" loan must, somehow, adjust principal repayment for inflation. It is important, however, for customers of these projects to know what electric rates will be in the future, and how changes will be based, so that they can decide upon major capital investments of their own. For this reason, and to avoid the problem of constant readjustment of rates to meet continually changing inflation rates, it is proposed to "freeze" inflation rates in ten-year blocks, and to base the inflation rate on the previous 33-year history of the consumer price index. In this way, investors will be able to predict very accurately what the wholesale rates will be, not only for each ten-year block, but as a reevaluation period is reached, to predict the new rates as the basis upon which they will be established is in the public record.

A further advantage to establishment of a repayment schedule at this time is the elimination of future risk. Under existing law, repayment of the State's general fund capital investment is not required. This is, however, subject to change by future Legislatures. A large electric power purchaser making a major investment based upon the artificially low rates established in SB 25 stands

the risk of a repayment rate being imposed in the future--a repayment rate that might adversely affect the economics of his project. Establishing a reasonable, relatively simple and straightforward basis for rates now helps avoid the possibility of a future Legislature developing a whole new system which might unfairly penalize large power users.

In a very real sense, the "bottom line" of economic viability is the relative cost of electricity per kilowatt-hour. Once this has been estimated, proposed alternative sources of electrical power can be evaluated. In the best of all possible worlds, this evaluation would be conducted by those who would be purchasing the power; in free competition, so to speak, the buyer should have some degree of choice over where he purchases his electricity. At present, there is no opportunity for the potential rate payers to have independent control over proposed projects, the decisions are made by the Alaska Power Authority and the Alaska Legislature. To remedy this situation, the Governor recommends that an election be held among the potential customers to determine if a particular project should be selected. Before the election, the Alaska Power Authority's feasibility study would be published and available for the voters to review, as well as an informative "voter's pamphlet"-style information summary. The potential rate payers are then given an opportunity to make an informed choice based on the same factors that the Legislature and the Alaska Power Authority use in making their decisions.

This bill would make other changes in the energy program for Alaska which are consistent with the Governor's philosophy. Section 1 would provide that all APA power projects undergo a feasibility study phase, however, the degree of detail for projects of 1.5 megawatts are less, could be substantially less than that for larger projects.

Section 2 corrects a potential constitutional flow in existing law by providing that all funds in the power development fund must be appropriated to the fund by the Legislature. It may be interpreted that the provision that revenues collected from the sale of power may be deposited directly into the power development fund is the equivalent of establishing a dedicated fund, and thus unconstitutional. By removing that provision of law, this potential problem is eliminated.

Section 5 of the bill would change the criteria for development of economic feasibility. The present law establishes that a project is economically feasible if, in part, "Operation of the power project will be able to provide revenue sufficient to return annually to the State five percent of the amount the Authority has spent from the fund for the power project." Of course, this "five percent rule" is not realistic; the State would not receive, under existing law, that amount of return. Further, the repayment provision in the Governor's bill would set a new economic formula for return of the State's investment, and thus this five percent rule is no longer needed.

Section 8 of the Governor's bill would provide for a "Power project emergency maintenance fund." This fund would be a continuing account, funded by appropriations from the Legislature, that would be available to the Alaska Power Authority for unanticipated and unfunded operation and maintenance expenditures. Generally, these expenditures might result from equipment breakdowns or other major failures that would be beyond the scope of the legislative appropriation for operation and maintenance of a particular project. This fund is to be considered a loan to the particular power project, but the Authority is to seek conversion of a particular expenditure to repayment under the Governor's proposed formula through legislative appropriation.

The bill also repeals two sections of the existing law which are of doubtful constitutionality. In our view, AS 44.82.390 attempts to restrain future legislative ability to reappropriate funds not spent for the particular power project for which the appropriation was originally made. AS 44.83.398(c) attempts to exclude certain receipts of the power authority from the appropriation process prior to expenditure. Section 10 of the bill would repeal these provisions.

And finally, the Governor's bill does repeal the so-called "Susitna blackmail clause." This clause would attempt to bind future Legislatures to appropriating at least $5 billion to the power project development fund through the triggering of an enormously punitive

power rate in the event this amount is not appropriated by July 1, 1986. Because of the inartful drafting of this provision, that rate could reach a maximum of $500 million per kilowatt-hour. As we all know, the State will simply not have sufficient revenues to be able to appropriate $1 billion per year over the next five without destruction of the entire remainder of the capital budget. Of course, there are practical, as well as constitutional problems with the Susitna blackmail provision. Under the current high estimates of power sales from all potential APA funded projects, the lowest cost per kilowatt-hour if the State did appropriate only $2 billion by July 1, 1986 would be more than $1 per kilowatt-hour.

The Governor has expressed his concern that this legislation is a high priority of his 1982 legislative package. Parallel with this bill are the two bills he has introduced to provide further capital funding for ongoing APA power projects. I would be happy to provide you with information on those bills, or answer any questions you may have.

SECTION-BY-SECTION ANALYSIS

HOUSE BILL 655

° Section 1 would modify the present procedures for reviewing and approving reconnaisance studies, feasibility studies and projects. We recommend that smaller projects, those generating 1.5 megawatts or less, be subjected to a simplified feasibility study and review process, and not be individually authorized by the Legislature. In this way, some of the steps in design and construction of these projects can be combined, thus saving substantial time. This section would also bring the review process for all projects into conformance with other proposed changes in the law. Projects larger than 1.5 megawatts would remain subject to the complete review and feasibility study process, including individual legislative authorization.

° Section 2 would repeal a section which purports to exempt revenues from the sale of power from the appropriation process, and allow them to be deposited directly into the Power Development Fund. The Attorney General has informed us that revenues from the sale of power must be appropriated by the Legislature before the Alaska Power Authority (APA) may expend them.

° Section 3 would add the provision that the Power Development Fund may not be used for construction of a power project until the project has been approved and a local special election has been held.

° Section 4 would provide the form and specifications for the local special elections required by Section 3 of the bill. The election would be conducted by the State among those qualified voters residing in the area which the power project would serve. This section would also require that the voters be provided with certain specific information about the project before the election is conducted. The election process would be applicable to all projects upon which construction itself has not begun by the date of passage of this bill.

After the election, in the event that a substantial change in the project occurs that would require additional funds, a new election would be required. The Division of Budget and Management would determine whether the proposed changes are substantial.

° Section 5. This section would revise the feasibility requirement to simply conform to the standards of AS 44.83.181 in existing law. Feasibility must be determined by the Alaska Power Authority within one year before expending funds on the project; this feasibility determination must be concurred in by the Division of Budget and Management. The APA may rely upon a feasibility study that is not more than one year old in making this determination, or may revise a feasibility study which is more than one year old.

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This section removes the requirement that the project is deemed feasible only if it can be demonstrated that revenues from the project could be sufficient to return, annually, 5% of the State's investment in the project. As these funds are not returned to the State under existing law, and the amount to be returned under this bill is vastly different, this requirement should be removed.

° Section 6. This section would repeal the existing provisions for determining wholesale power rates, including eliminating the "postage stamp rates" and the "Susitna blackmail clause" and replace it with a wholesale rate structure for each project that provides revenues to pay:

(a) recurring costs of the project, including operation, maintenance, equipment replacement, debt service, loan repayments, safety inspections and investigations by the APA;

(b) repayment of the State's General Fund investment in the project on a "no real interest" basis at the rate of 3% return per year in dollars inflated back to the first year of project operation. Once the repayment is complete, the only portion used to calculate rates is the recurring costs.

° Section 7 provides the means to establish the repayment inflation rate used in Section 6. Essentially, the APA establishes the first rate used in repayment by averaging the Federal Consumer Price Index for the previous 33 years (the same period as the project repayment schedule). This figure is used to approximate bringing each year's portion of the capital investment to nominal dollars. The inflation rate is updated each ten years of the project's life.

° Section 8 would reestablish an emergency maintenance fund. This fund would be available to defray unanticipated operation and maintenance costs. These costs might occur as a result of a catastrophic equipment failure or other unbudgeted cost. The fund would initially provide loans to the projects at 9% interest. However, the APA is required to seek legislative appropriations to replace the amounts expended from the fund, and to convert the loans to capital investments of the State which would be repaid under Section 6 of this bill.

° Section 9. This section would exempt projects under construction or the effective date of the Act from the requirements for local special elections under Sections 3 and 4.

° Section 10 would repeal existing AS 44.83.390 and AS 44.83.398(c). AS 44.83.390 would purport to restrict future Legislatures' ability to reappropriate funds unexpended on a particular power project. AS 44.83.398(c) purports to allow the APA to retain and expend certain funds without appropriation. The Attorney General advises that these provisions are not constitutional, and should be repealed.

Alaska State Legislature
HOUSE OF REPRESENTATIVES
COMMITTEE ON RESOURCES

KEN FANNING, CO-CHAIRMAN
ERIC SUTCLIFFE, CO-CHAIRMAN
POUCH V
JUNEAU, ALASKA 99811
(907) 463-3715

MEMORANDUM

TO: All Members

FROM: Representative Eric Sutcliffe

RE: HB 758

DATE: February 15, 1982

Last session the Legislature established a framework for investing state money in renewable resource power projects, most notably hydroelectric projects. While this opportunity is an exciting and worthwhile one, it would be a serious mistake for the state to be wholly taken in by the allure of cheap power through grants for project construction. Predicting both future energy needs and future state revenues is a risky business. We have a hard enough time predicting revenues six months from now, no less a decade from now.

Will there be enough money to provide for all Alaskans as their communities become eligible for power projects? Will cheap power stimulate demand to the point where new, even more expensive projects are needed in 10, 20, or 30 years from now (as it has done in Washington)? Will subsidized power attract the kind of industry we want in Alaska? Will "artificially cheap" power retard the development of new, more diversified energy technologies? I question the wisdom of a public policy which dispenses billions of state dollars without being able to answer these questions.

HB 655, introduced by the Governor, corrects some of the problems. The bill provides for:

1. The repayment of the project's cost in real terms;
2. A project-specific wholesale price for power (not a statewide rate);
3. Local involvement by requiring an election before a project is built;
4. A fund that will provide a source of funds in case of emergency.

What motivated the introduction of HB 758 was that neither the current law nor HB 655 adequately addressed two major issues: conservation and equity of benefits.

Conservation should be key component in any energy strategy. Simple conservation measures can be quickly implemented yet accrue dramatic energy savings; it is a cost-effective substitute for energy production. Conservation means efficiency, not deprivation. Studies show that consumption of electricity can be reduced by up to 40% without affecting a standard of living at all. Conservation benefits are permanent. Conservation technologies can create more jobs than an equivalent investment in energy production.

The current law mentions the need for conservation without providing any direction as to how to attain it; HB 655 does not address the subject except in the sense that under this law, power would become more expensive and people would therefore use less of it. HB 758 treats conservation in a different way.

Rate design by most utilities actually discourages conservation. The more power you use, the lower the rate you pay. HB 758 would reverse this. Utilities purchasing power from a state funded project would be directed to set retail rates which would increase as power usage increases.

First, utilities would set a rate for 'essential energy' (0 - 250 KWh per month, sufficient to supply an average household with electric lights, radio, washing machine, refrigerator and electric range). This rate would return only the non-capital costs of that power - as if the project were built with a grant. For usages of power in excess of 250 Kwh per month the rates would be progressively higher because the capital costs of construction must be paid back. The utility would be required to set some type of inverted or ascending block rate structure which should attempt to encourage conservation. The public would be involved in the rate setting process through public hearings.

Under this bill, areas served by a particular project would have considerable flexibility to design their own rates. Only the 'essential energy' rate would be fixed by statute. Some areas could opt for relatively flat rates. Others may choose steeper increases - perhaps to avoid massive conversions to electrical space heating which might raise the peak load demand to such a level that a new power project would soon be needed. Industrial/commercial users could be charged a higher rate than residential users or the same rate.

The advantage of this approach is that the most incentive for conservation is for those who consume the most power, i.e., where the most potential for conservation exists. By charging higher rates for higher consumption, the consumer would have a greater reason to weatherize, to construct more energy efficient buildings and convert to more energy efficient appliances.

The second question which needs to be addressed is equity. There is already too much disparity in benefits to Alaskans without embarking on yet another disbursement of public funds without at least attempting to address the question of fairness.

The stage is now set for billions of dollars to pass from the general fund to the power development fund over the next few years. It is interesting to trace the flow of money to the people after the projects are constructed. The Terror Lake hydroelectric project slated for completion in 1985 is a case in point.

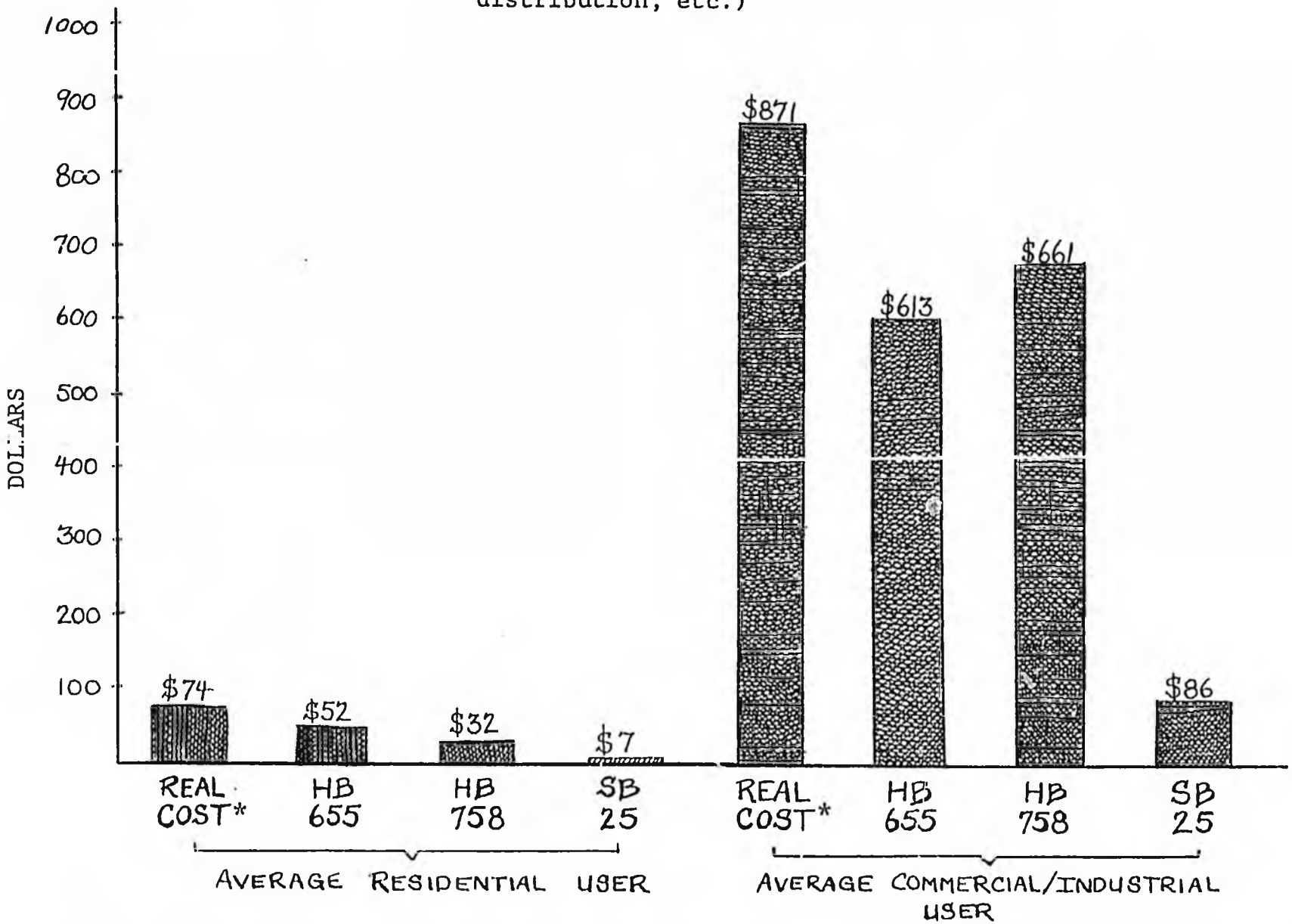
The charts on the following pages show the probable distribution of benefits under the current law (SB 25), HB 655 and HB 758. The current law would give much greater benefits to large users of power than to the average residential user. A very large power user would receive enormous benefits (in Terror Lake's case, the U.S. Coast Guard would receive about $250,000 a month in subsidized power). HB 655 would reduce the size of the subsidy but the relative inequity would be unchanged. HB 758 mitigates this inequity by favoring the average residential user. By establishing an 'essential energy' rate, everyone's basic energy needs would be provided for equally.

Each session, with so much to do, there is the tendency of every legislator to concentrate on his or her areas of interest and rely on the counsel of colleagues who have expertise in other issues. This is inevitable, but occasionally there are key issues which merit each member's close scrutiny. Hydro is such an issue, and I would urge you to join me in giving this legislation the time and attention it demands.

TERROR LAKE

MONTHLY COST TO CONSUMERS

(Does not include cost of transmission, distribution, etc.)

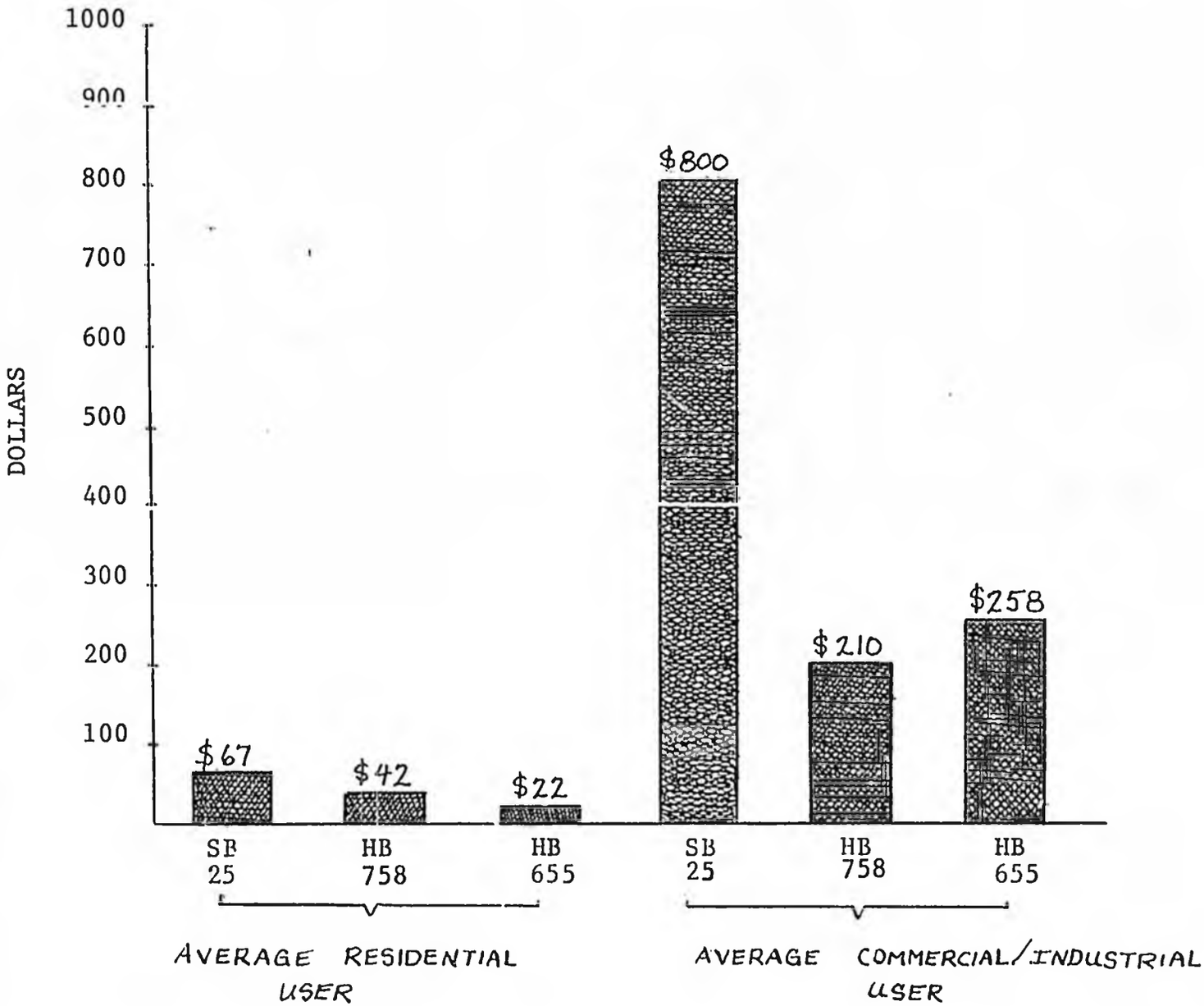


*Revenue bond market, 12% interest rate.

(Figures based on 1980 usage levels, Alaska Power Administration.)

TERROR LAKE

MONTHLY SUBSIDY TO CONSUMERS



(Figures based on 1980 usage levels, Alaska Power Administration.)

ALASKA STATE LEGISLATURE
HOUSE OF REPRESENTATIVES
RESEARCH AGENCY

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

February 19, 1982

MEMORANDUM

TO: Representative Rick Halford
Attn: Rick Uehling

FROM: Jack Kreinheder
Research Staff

RE: Comparison of Hydro Bills -- HB 655, HB 758, and Present Law
Research Request 82-24

Rick Uehling of your staff requested that we prepare a comparative analysis of the present energy program for Alaska, as enacted last session by SB 25, with HB 655, the Governor's proposed amendments to the energy program, and HB 758, the House Resources Committee substitute for HB 655. In this memorandum, the most important differences are summarized below, with more detailed information provided in the body of the memo.

SUMMARY OF MAJOR DIFFERENCES

- The most significant change made to the present energy program by both HB 655 and HB 758 is that State investments in hydro or other types of power projects would be essentially zero-interest loans, rather than direct grants, as under present law.[1] This change would, of course, greatly reduce the long-term cost to the State of development of hydroelectric and other power sources, but would also result in substantially higher power rates to consumers.

- Under HB 655 and HB 758, each power project would be subject to approval in a special election by the voters residing in the area to be served by the project, in addition to legislative approval. Approval of hydro projects under present law is solely the responsibility of the legislature.

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[1] State investments in hydro projects will be grants under present law, unless $5 billion is not appropriated to the power development fund by July 1, 1986. In that case, 10 percent of the State investment in each project would be required to be returned to the State each year.

- Present law requires the Alaska Power Authority (APA) to establish a single statewide or "postage stamp" rate for all hydro projects administered by the APA. Under HB 655 and HB 758, separate wholesale power rates would be established by the APA for each hydro project.

- The most important difference between HB 758 and HB 655 is that the Resources Committee version (HB 758) would require utilities which purchase power from the APA to establish retail rate structures incorporating "lifeline" and inverted block rates. The lifeline provision requires utilities to charge the lowest rates for the first 250 kilowatt hours used each month, while larger amounts of power are to be priced at successively higher rates. Lifeline and inverted block rate structures are required or allowed in a number of other states, but are not now used by any electric utilities in Alaska.

HB 655

Section 1 of the Governor's bill amends AS 44.83.380(b), which under present law states that a power project may be constructed as part of the energy program only if approved by the legislature. HB 655 would waive this requirement for power projects on which construction has begun or is completed. However, both planned projects and projects under construction or completed would be required by HB 655 demonstrate economic feasibility under Sec. 44.83.394, as amended by the bill. This section would require the APA to base its determination of economic feasibility upon a feasibility study or revised study less than one year old, and would require approval of the APA's finding by the Division of Budget and Management in the Office of the Governor.

Section 2 of HB 655 deletes the portion of AS 44.382(b) which states that the power development fund includes power revenues which are not required by law to be deposited into the general fund. The reason for this change is apparently that there would be no such revenues, as the Alaska Constitution prohibits the dedication of revenues to special funds.

Section 3 of the bill adds a new paragraph requiring voter approval of power projects to AS 44.83.384(b), which defines the eligibility requirements for projects to be financed from the power development fund.

Section 4 adds a new section to chapter AS 44.83, specifying the requirement and process for voter approval of power projects. Basically, the section requires the APA to prepare a written determination of the amount of money intended for construction or acquisition of a power project, and the anticipated impacts of the project on the area in which it is located. This determination must be submitted to the Division of Elections, the Division of Budget and Management, and to each legislator. The Division of Elections is then to conduct a special election in which the voters to be served by the project approve or disapprove the project. The Division is required to distribute the APA's description of the cost and impacts of the project to voters before the election is held. An additional election must be held if a "substantial" change in the project requires additional funds.

Section 5, as mentioned previously, amends AS 44.83.394 by requiring the APA to base its determination of economic feasibility for a power project on a feasibility study or revised study less than one year old. Under present law, the APA is to assess economic feasibility by determining if a project is capable of providing revenue sufficient to return 5 percent of the State's investment in the project on an annual basis. Section 5 also requires the Division of Budget and Management to approve the APA's finding of economic feasibility.

Sections 6 and 7 are the most important parts of the Governor's bill. These sections change the present law program of State grants for power projects to a loan program in which the State's investment in each project, with adjustments for inflation, is to be repaid through power sale revenues over a period of 33 and 1/3 years. Section 6 would also require the APA to establish a separate wholesale power rate for each power project, in contrast to present law, which provides for a single, statewide power rate based on the costs of all power projects administered by the APA.

Under present law, the APA is to establish a wholesale power rate which returns revenues sufficient to pay for the cost of operation, maintenance, inspections, and debt service, if any, for the power projects it constructs or aquires under the energy program. If at least $5 billion is not appropriated by the legislature to the power development fund by July 1, 1986, the APA is required to raise its wholesale rate to a level which will return annually either 10 percent of the State's investment in the power projects, or the costs listed above, whichever is higher (the 10 percent return would almost certainly be higher for many years, until inflation in operational costs increased these costs to a higher level).

Section 6 of HB 655 requires the APA to set its wholesale power rates for each project at a level which will recover the costs of operation, maintenance, inspections, and debt service, plus the return of the State's investment in the project, as adjusted for inflation, over a 33-1/3 year period. Section 7 specifies the method the APA is to use to calculate the annual return of the State's investment. The inflation adjustment is to be based on the average nationwide rate of inflation over the preceding 33 year period, as indicated by the Consumer Price Index. The rate of inflation is to be recalculated every 10 years. The amount to be returned to the State each year is equal to the previous year's return multiplied by the inflation factor. After 33-1/3 years, no additional return to the State is to be made, unless the State makes additional investments in the power project.

The apparent intent of this approach is to ensure that the State recovers the real value of its investment in power projects. By adjusting the return to the State for inflation, the amount the State receives at the end of the 33-1/3 year period should have approximately the same buying power as the amount invested in each power project. I have enclosed a set of tables prepared by the Division of budget and management which show the estimated amounts which would be returned to the State from each project under HB 655. Although the financing approach in HB 655 obviously would greatly reduce the cost to the state of developing power projects in comparison to the energy program under present law, there would still be a substantial State subsidy involved in terms of the foregone earnings on the power project investments.

While HB 655 would reduce the cost of power development, it would do so at the expense of higher power rates to consumers of electricity from power projects under the energy program. An earlier memorandum by this agency estimated the approximate differences in wholesale power costs which would result under present law and under HB 655. This memorandum is attached for your information.

Section 8 of HB 655 creates a power project emergency maintenance fund, which is intended to pay the cost of maintenance and equipment replacement if other appropriations are not available or are insufficient. Money used from the fund becomes a loan at an interest rate of 9 percent; however, the loan may be converted to a grant through an appropriation for that purpose from the legislature.

Section 9 waives the voter approval requirements established by sections 3 and 4 for projects already under construction. Section 10 repeals parts of present law pertaining to the reappropriation of funds by the legislature and the deposit of certain funds in the general fund.

COMPARISON OF HB 655 AND HB 758

Most of HB 758 is very similar in effect to HB 655, although a number of minor clarifications and other wording changes are made throughout the bill. The most important difference between the two bills is the addition in HB 758 of subsections requiring utilities which purchase power from the APA to establish rate structures which include "lifeline" and inverted block rate provisions. Lifeline pricing refers to the setting of rates for a basic amount of power at low levels, in order to provide the amount of power necessary for basic household operation at affordable rates.

In HB 758, utilities are required to provide the first 250 kilowatt hours (KWH) of monthly consumption at the lowest rate. Larger amounts of power are to be priced at successively higher rates. This type of increasing rate structure is known as inverted block rates -- inverted because utilities have historically charged lower rates for increasing amounts of power. No electric utilities in Alaska presently have either lifeline or inverted block rates, although Municipal Light and Power in Anchorage does have a flat rate structure, charging the same rate regardless of the amount of power used. A number of other states have either required or allowed lifeline or inverted block rates. The rationale behind inverted block rates is generally to encourage conservation of electric power, and/or to reflect the higher cost of new generation facilities in the rates paid by large power users.

There appear to be some possible problems in the present version of HB 758 regarding the authority of the Alaska Public Utilities Commission (APUC) over retail power rates. In section 8(h) of the bill, it states that "for residential consumers the utility shall specify successively higher ranges of power usage to which successively higher rates within its rate structure apply." It appears that this language could conflict with the APUC's authority over rates for utilities regulated by the APUC. A second potential problem is in section 8(i), which provides that if the Alaska Power Authority determines that a higher retail power rate is necessary in order to allow a utility to pay the APA wholesale power rate, the APA may authorize that higher rate. This provision would seem to create a jurisdictional conflict between the Power Authority and the Public Utilities Commission for utilities regulated by the APUC.

The second major difference between HB 655 and HB 758 is that the 33-1/3 year repayment period for State investments in power projects is changed in HB 758 to be 33-1/3 years or three-fourths of the life of the power project, whichever is less. Most hydro projects have economic lives of 50 years or more, but other types of power projects such as wind turbines, coal plants, and so on commonly have shorter life spans.

This change insures that the State's investment will be repayed while the power project is still in operation to make the repayment.

I hope this comparison of the three approaches to power development in Alaska is helpful. If you have any questions or would like additional information, please don't hesitate to contact me.

JK/bf

Attachments

DATE = 1/28/82
TIME = 14:48

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

RO

BLACK BEAR LAKE HYDROELECTRIC PROJECT

YEAR	LOW DEMAND** IN MILLIONS OF KILOWATT HOURS	HIGH DEMAND* IN MILLIONS OF KILOWATT HOURS	ANNUAL COST IN MILLIONS OF DOLLARS	LOW DEMAND** DOLLAR COST PER KILOWATT HOUR	HIGH DEMAND* DOLLAR COST PER KILOWATT HOUR
1985	5.67	6.38	1.54	0.27	0.24
1986	5.96	6.87	1.60	0.26	0.23
1987	6.27	7.40	1.67	0.26	0.22
1988	6.60	7.96	1.75	0.26	0.21
1989	6.94	8.58	1.82	0.26	0.21
1990	7.30	9.24	1.90	0.26	0.20
1991	7.68	9.95	1.98	0.26	0.19
1992	8.08	10.72	2.07	0.25	0.19
1993	8.50	11.54	2.16	0.25	0.18
1994	8.95	12.43	2.25	0.25	0.18
1995	9.41	13.39	2.35	0.24	0.17
1996	9.90	14.42	2.46	0.24	0.17
1997	10.42	15.53	2.56	0.24	0.16
1998	10.96	16.72	2.68	0.24	0.16
1999	11.53	18.01	2.80	0.24	0.15
2000	12.13	19.40	2.92	0.24	0.15
2001	12.76	20.89	3.05	0.23	0.14
2002	13.42	22.50	3.19	0.23	0.14
2003	14.12	24.00	3.33	0.23	0.13
2004	14.85	24.00	3.48	0.23	0.14
2005	15.63	24.00	3.63	0.23	0.15
2006	16.44	24.00	3.80	0.23	0.15
2007	17.29	24.00	3.97	0.22	0.16
2008	18.19	24.00	4.15	0.22	0.17
2009	19.14	24.00	4.34	0.22	0.18
2010	20.13	24.00	4.53	0.22	0.18
2011	21.18	24.00	4.74	0.22	0.19
2012	22.28	24.00	4.96	0.22	0.20
2013	23.44	24.00	5.18	0.22	0.21
2014	24.00	24.00	5.42	0.22	0.22
2015	24.00	24.00	5.67	0.23	0.23
2016	24.00	24.00	5.94	0.24	0.24
2017	24.00	24.00	6.21	0.25	0.25
2018	24.00	24.00	3.15	0.13	0.13

LOW GROWTH RATE = 5.2 PERCENT
HIGH GROWTH RATE = 7.7 PERCENT

GROWTH RATES IN DEMAND ARE APPLIED TO 1980 TOTAL ELECTRICITY SALES IN PROJECT AREA.
1980 HYDROPOWER SALES ARE SUBTRACTED FROM TOTAL SALES TO OBTAIN PROJECT HYDROPOWER DEMAND.
* HIGH DEMAND FROM FEASIBILITY STUDY EXPECTED DEMAND.
** LOW DEMAND FROM FEASIBILITY STUDY.

DATE = 1/28/82
TIME = 14:48

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

R01

BLACK BEAR LAKE HYDROELECTRIC PROJECT

PERIOD ENDING	PRINCIPAL REPAYMENT	INFLATION ADJ REPAYMENT	O & M COST	ADJ REPAYMENT PLUS O&M COST
1985	1,380,000	1,380,000	157,300	1,537,300
1986	1,380,000	1,435,200	168,300	1,603,500
1987	1,380,000	1,492,600	180,100	1,672,700
1988	1,380,000	1,552,300	192,700	1,745,000
1989	1,380,000	1,614,400	206,200	1,820,600
1990	1,380,000	1,679,000	220,600	1,899,600
1991	1,380,000	1,746,100	236,100	1,982,200
1992	1,380,000	1,816,000	252,600	2,068,600
1993	1,380,000	1,888,600	270,300	2,158,900
1994	1,380,000	1,964,200	289,200	2,253,400
1995	1,380,000	2,042,700	309,400	2,352,200
1996	1,380,000	2,124,400	331,100	2,455,500
1997	1,380,000	2,209,400	354,300	2,563,700
1998	1,380,000	2,297,800	379,100	2,676,900
1999	1,380,000	2,389,700	405,600	2,795,300
2000	1,380,000	2,485,300	434,000	2,919,300
2001	1,380,000	2,584,700	464,400	3,049,100
2002	1,380,000	2,688,100	496,900	3,185,000
2003	1,380,000	2,795,600	531,700	3,327,300
2004	1,380,000	2,907,400	568,900	3,476,300
2005	1,380,000	3,023,700	608,700	3,632,400
2006	1,380,000	3,144,700	651,300	3,796,000
2007	1,380,000	3,270,500	696,900	3,967,400
2008	1,380,000	3,401,300	745,700	4,147,000
2009	1,380,000	3,537,300	797,900	4,335,200
2010	1,380,000	3,678,800	853,700	4,532,600
2011	1,380,000	3,826,000	913,500	4,739,500
2012	1,380,000	3,979,000	977,500	4,956,500
2013	1,380,000	4,138,200	1,045,900	5,184,100
2014	1,380,000	4,303,700	1,119,100	5,422,800
2015	1,380,000	4,475,900	1,197,400	5,673,300
2016	1,380,000	4,654,900	1,281,300	5,936,100
2017	1,380,000	4,841,100	1,370,900	6,212,000
2018	460,000	1,678,200	1,466,900	3,145,100
TOTAL	46,000,000	93,046,800	20,175,500	113,222,400

3 PERCENT OF PRINCIPAL REPAID EACH YEAR.
INFLATION RATE ON PRINCIPAL = 4 PERCENT.
FIRST YEAR O&M COST BASED ON APA REPORT.

NUMBER OF YEARS TO PAY OFF PRINCIPAL IS 33.333.
INFLATION RATE ON O & M = 7 PERCENT.
FIRST YEAR O&M COST IN 1981 DOLLARS IS $120,000.

PLANNED FIRST YEAR OF CONSTRUCTION IS 1982.
CONSTRUCTION COST OF PROJECT IS 46,000,000 DOLLARS.

CONSTRUCTION TIME IS 3 YEARS.

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

BRADLEY LAKE HYDROELECTRIC PROJECT

YEAR	LOW DEMAND** IN MILLIONS OF KILOWATT HOURS	HIGH DEMAND* IN MILLIONS OF KILOWATT HOURS	ANNUAL COST IN MILLIONS OF DOLLARS	LOW DEMAND** DOLLAR COST PER KILOWATT HOUR	HIGH DEMAND* DOLLAR COST PER KILOWATT HOUR
1990	320.00	320.00	21.51	0.06	0.06
1991	320.00	320.00	22.59	0.07	0.07
1992	320.00	320.00	23.72	0.07	0.07
1993	320.00	320.00	24.91	0.07	0.07
1994	320.00	320.00	26.17	0.08	0.08
1995	320.00	320.00	27.50	0.08	0.08
1996	320.00	320.00	28.90	0.09	0.09
1997	320.00	320.00	30.38	0.09	0.09
1998	320.00	320.00	31.94	0.09	0.09
1999	320.00	320.00	33.59	0.10	0.10
2000	320.00	320.00	35.33	0.11	0.11
2001	320.00	320.00	37.17	0.11	0.11
2002	320.00	320.00	39.11	0.12	0.12
2003	320.00	320.00	41.16	0.12	0.12
2004	320.00	320.00	43.32	0.13	0.13
2005	320.00	320.00	45.61	0.14	0.14
2006	320.00	320.00	48.03	0.15	0.15
2007	320.00	320.00	50.58	0.15	0.15
2008	320.00	320.00	53.28	0.16	0.16
2009	320.00	320.00	56.14	0.17	0.17
2010	320.00	320.00	59.17	0.18	0.18
2011	320.00	320.00	62.37	0.19	0.19
2012	320.00	320.00	65.75	0.20	0.20
2013	320.00	320.00	69.33	0.21	0.21
2014	320.00	320.00	73.13	0.22	0.22
2015	320.00	320.00	77.14	0.24	0.24
2016	320.00	320.00	81.40	0.25	0.25
2017	320.00	320.00	85.90	0.26	0.26
2018	320.00	320.00	90.67	0.28	0.28
2019	320.00	320.00	95.73	0.29	0.29
2020	320.00	320.00	01.09	0.31	0.31
2021	320.00	320.00	06.77	0.33	0.33
2022	320.00	320.00	12.79	0.35	0.35
2023	320.00	320.00	84.30	0.26	0.26

LOW GROWTH RATE = 5.0 PERCENT
HIGH GROWTH RATE = 6.5 PERCENT

GROWTH RATES IN DEMAND ARE APPLIED TO 1980 TOTAL ELECTRICITY SALES IN PROJECT AREA.
1980 HYDROPOWER SALES ARE SUBTRACTED FROM TOTAL SALES TO OBTAIN PROJECT HYDROPOWER DEMAND.
* HIGH DEMAND FROM FEASIBILITY STUDY EXPECTED DEMAND.
** LOW DEMAND FROM FEASIBILITY STUDY. IN THIS CASE, GROWTH RATES HAVE INSIGNIFICANT EFFECT, BECAUSE OF CAPACITY CONSTRAINT.

DATE = 1/28/82
TIME = 14:45

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

RO

BRADLEY LAKE HYDROELECTRIC PROJECT

PERIOD ENDING	PRINCIPAL REPAYMENT	INFLATION ADJ REPAYMENT	O & M COST	ADJ REPAYMENT PLUS O&M COST
1990	14,340,000	14,340,000	7,170,000	21,510,000
1991	14,340,000	14,913,600	7,671,900	22,585,500
1992	14,340,000	15,510,100	8,208,900	23,719,100
1993	14,340,000	16,130,500	8,783,600	24,914,100
1994	14,340,000	16,775,800	9,398,400	26,174,200
1995	14,340,000	17,446,800	10,056,300	27,503,100
1996	14,340,000	18,144,600	10,760,300	28,904,900
1997	14,340,000	18,870,400	11,513,500	30,383,900
1998	14,340,000	19,625,200	12,319,500	31,944,700
1999	14,340,000	20,410,200	13,181,800	33,592,100
2000	14,340,000	21,226,600	14,104,600	35,331,200
2001	14,340,000	22,075,700	15,091,900	37,167,600
2002	14,340,000	22,958,700	16,148,300	39,107,100
2003	14,340,000	23,877,100	17,278,700	41,155,800
2004	14,340,000	24,832,100	18,488,200	43,320,400
2005	14,340,000	25,825,400	19,782,400	45,607,800
2006	14,340,000	26,858,400	21,167,200	48,025,600
2007	14,340,000	27,932,800	22,648,900	50,581,700
2008	14,340,000	29,050,000	24,234,400	53,284,400
2009	14,340,000	30,212,000	25,930,800	56,142,800
2010	14,340,000	31,420,500	27,746,000	59,166,500
2011	14,340,000	32,677,300	29,688,200	62,365,600
2012	14,340,000	33,984,400	31,766,400	65,750,800
2013	14,340,000	35,343,800	33,990,100	69,333,900
2014	14,340,000	36,757,600	36,369,400	73,127,000
2015	14,340,000	38,227,800	38,915,300	77,143,100
2017	14,340,000	39,756,900	41,639,400	81,396,300
2017	14,340,000	41,347,200	44,554,200	85,901,400
2018	14,340,000	43,001,100	47,673,000	90,674,100
2019	14,340,000	44,721,100	51,010,100	95,731,300
2020	14,340,000	46,510,000	54,580,900	101,090,800
2021	14,340,000	48,370,400	58,401,600	106,771,900
2022	14,340,000	50,305,200	62,489,700	112,794,900
2023	4,780,000	17,439,100	66,864,900	84,303,100
TOTAL	478,000,000	966,878,400	919,627,900	1,886,506,700

3 PERCENT OF PRINCIPAL REPAID EACH YEAR. NUMBER OF YEARS TO PAY OFF PRINCIPAL IS 33.333.
INFLATION RATE ON PRINCIPAL = 4 PERCENT. INFLATION RATE ON O & M = 7 PERCENT.
FIRST YEAR O & M COST = 1.5 PERCENT OF CONSTRUCTION COST.

PLANNED FIRST YEAR OF CONSTRUCTION IS 1983. CONSTRUCTION TIME IS 7 YEARS.
CONSTRUCTION COST OF PROJECT IS 478,000,000 DOLLARS.

DATE = 1/28/82
TIME = 14:47

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

R01-C

GREEN LAKE HYDROELECTRIC PROJECT

YEAR	LOW DEMAND** IN MILLIONS OF KILOWATT HOURS	HIGH DEMAND* IN MILLIONS OF KILOWATT HOURS	ANNUAL COST IN MILLIONS OF DOLLARS	LOW DEMAND** DOLLAR COST PER KILOWATT HOUR	HIGH DEMAND* DOLLAR COST PER KILOWATT HOUR
1982	11.54	12.00	2.70	0.23	0.22
1983	14.24	14.98	2.84	0.19	0.18
1984	17.08	18.12	2.98	0.17	0.16
1985	20.08	21.46	3.13	0.15	0.14
1986	23.25	25.00	3.29	0.14	0.13
1987	26.59	28.75	3.45	0.12	0.12
1988	30.12	32.73	3.63	0.12	0.11
1989	33.84	36.94	3.81	0.11	0.10
1990	37.76	41.41	4.01	0.10	0.09
1991	41.90	46.15	4.22	0.10	0.09
1992	46.27	51.17	4.43	0.09	0.08
1993	50.88	56.49	4.67	0.09	0.08
1994	55.74	60.00	4.91	0.08	0.08
1995	60.00	60.00	5.17	0.08	0.08
1996	60.00	60.00	5.44	0.09	0.09
1997	60.00	60.00	5.72	0.09	0.09
1998	60.00	60.00	6.03	0.10	0.10
1999	60.00	60.00	6.35	0.10	0.10
2000	60.00	60.00	6.69	0.11	0.11
2001	60.00	60.00	7.05	0.11	0.11
2002	60.00	60.00	7.43	0.12	0.12
2003	60.00	60.00	7.83	0.13	0.13
2004	60.00	60.00	8.25	0.13	0.13
2005	60.00	60.00	8.70	0.14	0.14
2006	60.00	60.00	9.18	0.15	0.15
2007	60.00	60.00	9.68	0.16	0.16
2008	60.00	60.00	10.22	0.17	0.17
2009	60.00	60.00	10.78	0.17	0.17
2010	60.00	60.00	11.38	0.18	0.18
2011	60.00	60.00	12.02	0.20	0.20
2012	60.00	60.00	12.69	0.21	0.21
2013	60.00	60.00	13.40	0.22	0.22
2014	60.00	60.00	14.16	0.23	0.23
2015	60.00	60.00	10.58	0.17	0.17

LOW GROWTH RATE = 5.5 PERCENT
HIGH GROWTH RATE = 6.0 PERCENT

GROWTH RATES IN DEMAND ARE APPLIED TO 1980 TOTAL ELECTRICITY SALES IN PROJECT AREA.
1980 HYDROPOWER SALES ARE SUBTRACTED FROM TOTAL SALES TO OBTAIN PROJECT HYDROPOWER DEMAND.
* HIGH DEMAND FROM FEASIBILITY STUDY.
** LOW DEMAND FROM ANNUAL GROWTH RATE, YEARS 1976 THROUGH 1980.

DATE = 1/28/82
TIME = 14:47

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

R01

GREEN LAKE HYDROELECTRIC PROJECT

PERIOD ENDING	PRINCIPAL REPAYMENT	INFLATION ADJ REPAYMENT	O & M COST	ADJ REPAYMENT PLUS O&M COST
1982	1,800,000	1,800,000	900,000	2,700,000
1983	1,800,000	1,872,000	963,000	2,835,000
1984	1,800,000	1,946,900	1,030,400	2,977,300
1985	1,800,000	2,024,800	1,102,500	3,127,300
1986	1,800,000	2,105,700	1,179,700	3,285,500
1987	1,800,000	2,190,000	1,262,300	3,452,300
1988	1,800,000	2,277,600	1,350,700	3,628,200
1989	1,800,000	2,368,700	1,445,200	3,813,900
1990	1,800,000	2,463,400	1,546,400	4,009,800
1991	1,800,000	2,562,000	1,654,600	4,216,600
1992	1,800,000	2,664,400	1,770,400	4,434,900
1993	1,800,000	2,771,000	1,894,400	4,665,400
1994	1,800,000	2,881,800	2,027,000	4,908,800
1995	1,800,000	2,997,100	2,168,900	5,166,000
1996	1,800,000	3,117,000	2,320,700	5,437,700
1997	1,800,000	3,241,700	2,483,200	5,724,800
1998	1,800,000	3,371,400	2,657,000	6,028,300
1999	1,800,000	3,506,200	2,843,000	6,349,200
2000	1,800,000	3,646,500	3,042,000	6,688,400
2001	1,800,000	3,792,300	3,254,900	7,047,200
2002	1,800,000	3,944,000	3,482,800	7,426,800
2003	1,800,000	4,101,800	3,726,600	7,828,300
2004	1,800,000	4,265,800	3,987,400	8,253,200
2005	1,800,000	4,436,500	4,266,500	8,703,000
2006	1,800,000	4,613,900	4,565,200	9,179,100
2007	1,800,000	4,798,500	4,884,800	9,683,200
2008	1,800,000	4,990,400	5,226,700	10,217,100
2009	1,800,000	5,190,000	5,592,600	10,782,600
2010	1,800,000	5,397,600	5,984,100	11,381,700
2011	1,800,000	5,613,500	6,402,900	12,016,500
2012	1,800,000	5,838,100	6,851,200	12,689,200
2013	1,800,000	6,071,600	7,330,700	13,402,300
2014	1,800,000	6,314,500	7,843,900	14,158,400
2015	600,000	2,189,000	8,393,000	10,582,000
TOTAL	60,000,000	121,365,700	115,434,700	236,800,000

3 PERCENT OF PRINCIPAL REPAID EACH YEAR. NUMBER OF YEARS TO PAY OFF PRINCIPAL IS 33.333.
INFLATION RATE ON PRINCIPAL = 4 PERCENT. INFLATION RATE ON O & M = 7 PERCENT.
FIRST YEAR O & M COST = 1.5 PERCENT OF CONSTRUCTION COST.

CONSTRUCTION COST OF PROJECT IS 60,000,000 DOLLARS.

DATE = 1/28/82
TIME = 15:10

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

SOLOMON GULCH HYDROELECTRIC PROJECT

YEAR	LOW DEMAND** IN MILLIONS OF KILOWATT HOURS	HIGH DEMAND* IN MILLIONS OF KILOWATT HOURS	ANNUAL COST IN MILLIONS OF DOLLARS	LOW DEMAND** DOLLAR COST PER KILOWATT HOUR	HIGH DEMAND* DOLLAR COST PER KILOWATT HOUR
1982	38.52	44.11	3.06	0.07	0.06
1983	39.56	48.48	3.21	0.08	0.06
1984	40.63	53.28	3.37	0.08	0.06
1985	41.73	55.00	3.54	0.08	0.06
1986	42.85	55.00	3.72	0.08	0.06
1987	44.01	55.00	3.91	0.08	0.07
1988	45.20	55.00	4.11	0.09	0.07
1989	46.42	55.00	4.32	0.09	0.07
1990	47.67	55.00	4.54	0.09	0.08
1991	48.96	55.00	4.78	0.09	0.08
1992	50.28	55.00	5.03	0.09	0.09
1993	51.64	55.00	5.29	0.10	0.09
1994	53.03	55.00	5.56	0.10	0.10
1995	54.47	55.00	5.85	0.10	0.10
1996	55.00	55.00	6.16	0.11	0.11
1997	55.00	55.00	6.49	0.11	0.11
1998	55.00	55.00	6.83	0.12	0.12
1999	55.00	55.00	7.20	0.13	0.13
2000	55.00	55.00	7.58	0.13	0.13
2001	55.00	55.00	7.99	0.14	0.14
2002	55.00	55.00	8.42	0.15	0.15
2003	55.00	55.00	8.87	0.16	0.16
2004	55.00	55.00	9.35	0.17	0.17
2005	55.00	55.00	9.86	0.17	0.17
2006	55.00	55.00	10.40	0.18	0.18
2007	55.00	55.00	10.97	0.19	0.19
2008	55.00	55.00	11.58	0.21	0.21
2009	55.00	55.00	12.22	0.22	0.22
2010	55.00	55.00	12.90	0.23	0.23
2011	55.00	55.00	13.62	0.24	0.24
2012	55.00	55.00	14.38	0.26	0.25
2013	55.00	55.00	15.19	0.27	0.27
2014	55.00	55.00	16.05	0.29	0.29
2015	55.00	55.00	11.99	0.21	0.21

LOW GROWTH RATE = 2.7 PERCENT
HIGH GROWTH RATE = 9.9 PERCENT

GROWTH RATES IN DEMAND ARE APPLIED TO 1980 TOTAL ELECTRICITY SALES IN PROJECT AREA.
1980 HYDROPOWER SALES ARE SUBTRACTED FROM TOTAL SALES TO OBTAIN PROJECT HYDROPOWER DEMAND.
* HIGH DEMAND FROM FEASIBILITY STUDY.
** LOW DEMAND FROM ANNUAL GROWTH RATE, YEARS 1976 THROUGH 1980.

DATE = 1/28/82
TIME = 15:10

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

R01

SOLOMON GULCH HYDROELECTRIC PROJECT

PERIOD ENDING	PRINCIPAL REPAYMENT	INFLATION ADJ REPAYMENT	O & M COST	ADJ REPAYMENT PLUS O&M COST
1982	2,040,000	2,040,000	1,020,000	3,060,000
1983	2,040,000	2,121,600	1,091,400	3,213,000
1984	2,040,000	2,206,500	1,167,800	3,374,300
1985	2,040,000	2,294,700	1,249,500	3,544,300
1986	2,040,000	2,386,500	1,337,000	3,723,500
1987	2,040,000	2,482,000	1,430,600	3,912,600
1988	2,040,000	2,581,200	1,530,800	4,112,000
1989	2,040,000	2,684,500	1,637,900	4,322,400
1990	2,040,000	2,791,900	1,752,600	4,544,400
1991	2,040,000	2,903,500	1,875,200	4,778,800
1992	2,040,000	3,019,700	2,006,500	5,026,200
1993	2,040,000	3,140,500	2,147,000	5,287,400
1994	2,040,000	3,266,100	2,297,300	5,563,300
1995	2,040,000	3,396,700	2,458,100	5,854,600
1996	2,040,000	3,532,600	2,630,100	6,162,700
1997	2,040,000	3,673,900	2,814,200	6,488,100
1998	2,040,000	3,820,900	3,011,200	6,832,100
1999	2,040,000	3,973,700	3,222,000	7,195,700
2000	2,040,000	4,132,600	3,447,600	7,580,200
2001	2,040,000	4,298,000	3,688,900	7,986,900
2002	2,040,000	4,469,900	3,947,100	8,417,000
2003	2,040,000	4,648,700	4,223,400	8,872,100
2004	2,040,000	4,834,600	4,519,100	9,353,700
2005	2,040,000	5,028,000	4,835,400	9,863,400
2006	2,040,000	5,229,100	5,173,900	10,403,000
2007	2,040,000	5,438,300	5,536,100	10,974,300
2008	2,040,000	5,655,800	5,923,600	11,579,400
2009	2,040,000	5,882,000	6,338,200	12,220,300
2010	2,040,000	6,117,300	6,781,900	12,899,300
2011	2,040,000	6,362,000	7,256,700	13,618,700
2012	2,040,000	6,616,500	7,764,600	14,381,100
2013	2,040,000	6,881,200	8,303,200	15,189,300
2014	2,040,000	7,156,400	8,889,700	16,046,100
2015	680,000	2,480,900	9,512,000	11,992,900
TOTAL	68,000,000	137,547,800	130,825,600	268,373,300

3 PERCENT OF PRINCIPAL REPAID EACH YEAR. NUMBER OF YEARS TO PAY OFF PRINCIPAL IS 33.333.
INFLATION RATE ON PRINCIPAL = 4 PERCENT. INFLATION RATE ON O & M = 7 PERCENT.
FIRST YEAR O & M COST = 1.5 PERCENT OF CONSTRUCTION COST.

CONSTRUCTION COST OF PROJECT IS 68,000,000 DOLLARS.

DATE = 1/28/82
TIME = 14:43

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

SWAN LAKE HYDROELECTRIC PROJECT

YEAR	LOW DEMAND** IN MILLIONS OF KILOWATT HOURS	HIGH DEMAND* IN MILLIONS OF KILOWATT HOURS	ANNUAL COST IN MILLIONS OF DOLLARS	LOW DEMAND** DOLLAR COST PER KILOWATT HOUR	HIGH DEMAND* DOLLAR COST PER KILOWATT HOUR
1984	15.16	25.08	4.05	0.26	0.16
1985	16.64	29.46	4.25	0.25	0.14
1986	18.15	34.07	4.47	0.24	0.13
1987	19.68	38.91	4.69	0.23	0.12
1988	21.25	43.99	4.93	0.23	0.11
1989	22.84	49.33	5.18	0.22	0.10
1990	24.47	54.93	5.44	0.22	0.09
1991	26.13	60.81	5.72	0.21	0.09
1992	27.81	66.99	6.01	0.21	0.08
1993	29.53	70.00	6.32	0.21	0.09
1994	31.28	70.00	6.65	0.21	0.09
1995	33.07	70.00	7.00	0.21	0.09
1996	34.89	70.00	7.36	0.21	0.10
1997	36.74	70.00	7.75	0.21	0.11
1998	38.63	70.00	8.16	0.21	0.11
1999	40.56	70.00	8.59	0.21	0.12
2000	42.52	70.00	9.04	0.21	0.12
2001	44.52	70.00	9.52	0.21	0.13
2002	46.56	70.00	10.03	0.21	0.14
2003	48.63	70.00	10.57	0.21	0.15
2004	50.75	70.00	11.14	0.21	0.15
2005	52.90	70.00	11.74	0.22	0.16
2006	55.10	70.00	12.38	0.22	0.17
2007	57.34	70.00	13.05	0.22	0.18
2008	59.62	70.00	13.77	0.23	0.19
2009	61.94	70.00	14.52	0.23	0.20
2010	64.31	70.00	15.33	0.23	0.21
2011	66.73	70.00	16.17	0.24	0.23
2012	69.18	70.00	17.07	0.24	0.24
2013	70.00	70.00	18.02	0.25	0.25
2014	70.00	70.00	19.03	0.27	0.27
2015	70.00	70.00	20.10	0.28	0.28
2016	70.00	70.00	21.24	0.30	0.30
2017	70.00	70.00	15.87	0.22	0.22

LOW GROWTH RATE = 1.9 PERCENT
HIGH GROWTH RATE = 5.0 PERCENT

GROWTH RATES IN DEMAND ARE APPLIED TO 1980 TOTAL ELECTRICITY SALES IN PROJECT AREA.
1980 HYDROPOWER SALES ARE SUBTRACTED FROM TOTAL SALES TO OBTAIN PROJECT HYDROPOWER DEMAND.
* HIGH DEMAND FROM FEASIBILITY STUDY.
** LOW DEMAND FROM ANNUAL GROWTH RATE. YEARS 1976 THROUGH 1980.

DATE = 1/28/82
TIME = 14:43

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

R01

SWAN LAKE HYDROELECTRIC PROJECT

PERIOD ENDING	PRINCIPAL REPAYMENT	INFLATION ADJ REPAYMENT	O & M COST	ADJ REPAYMENT PLUS O&M COST
1984	2,700,000	2,700,000	1,350,000	4,050,000
1985	2,700,000	2,808,000	1,444,500	4,252,500
1986	2,700,000	2,920,300	1,545,600	4,465,900
1987	2,700,000	3,037,100	1,653,800	4,690,900
1988	2,700,000	3,158,600	1,769,600	4,928,200
1989	2,700,000	3,285,000	1,893,500	5,178,400
1990	2,700,000	3,416,400	2,026,000	5,442,400
1991	2,700,000	3,553,000	2,167,800	5,720,800
1992	2,700,000	3,695,100	2,319,600	6,014,700
1993	2,700,000	3,842,900	2,481,900	6,324,900
1994	2,700,000	3,996,700	2,655,700	6,652,300
1995	2,700,000	4,156,500	2,841,600	6,998,100
1996	2,700,000	4,322,800	3,040,500	7,363,300
1997	2,700,000	4,495,700	3,253,300	7,749,000
1998	2,700,000	4,675,500	3,481,100	8,156,600
1999	2,700,000	4,862,500	3,724,7[illegible]	8,587,300
2000	2,700,000	5,057,000	3,985,50[illegible]	9,042,500
2001	2,700,000	5,259,300	4,264,400	9,523,800
2002	2,700,000	5,469,700	4,563,000	10,032,600
2003	2,700,000	5,688,500	4,882,[illegible]00	10,570,800
2004	2,700,000	5,916,000	5,224,[illegible]00	11,140,200
2005	2,700,000	6,152,700	5,5[illegible]6,[illegible]	11,742,500
2006	2,700,000	6,398,800	5,9[illegible],[illegible]00	12,379,900
2007	2,700,000	6,654,700	6,3[illegible],800	13,054,500
2008	2,700,000	6,920,900	6,847,800	13,768,700
2009	2,700,000	7,197,700	7,327,100	14,524,900
2010	2,700,000	7,485,600	7,840,000	15,325,700
2011	2,700,000	7,785,100	8,388,900	16,173,900
2012	2,700,000	8,096,500	8,976,100	17,072,600
2013	2,700,000	8,420,300	9,604,400	18,024,700
2014	2,700,000	8,757,100	10,276,700	19,033,900
2015	2,700,000	9,107,400	10,996,100	20,103,500
2016	2,700,000	9,471,700	11,765,800	21,237,600
2017	900,000	3,283,500	12,589,900	15,873,000
TOTAL	90,000,000	182,048,600	173 151,700	355,200,600

3 PERCENT OF PRINCIPAL REPAID EACH YEAR. NUMBER OF YEARS TO PAY OFF PRINCIPAL IS 33.333.
INFLATION RATE ON PRINCIPAL = 4 PERCENT. INFLATION RATE ON O & M = 7 PERCENT.
FIRST YEAR O & M COST = 1.5 PERCENT OF CONSTRUCTION COST.

PLANNED FIRST YEAR OF CONSTRUCTION IS 1981. CONSTRUCTION TIME IS 3 YEARS.
CONSTRUCTION COST OF PROJECT IS 90,000,000 DOLLARS.

DATE = 1/28/82
TIME = 14:44

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

TERROR LAKE HYDROELECTRIC PROJECT, WITH COAST GUARD SALES

YEAR	LOW DEMAND** IN MILLIONS OF KILOWATT HOURS	HIGH DEMAND* IN MILLIONS OF KILOWATT HOURS	ANNUAL COST IN MILLIONS OF DOLLARS	LOW DEMAND** DOLLAR COST PER KILOWATT HOUR	HIGH DEMAND* DOLLAR COST PER KILOWATT HOUR
1985	84.48	94.48	6.28	0.07	0.06
1986	85.92	98.26	6.56	0.07	0.06
1987	87.38	102.19	6.86	0.07	0.06
1988	88.86	106.27	7.17	0.08	0.06
1989	90.37	110.52	7.50	0.08	0.06
1990	91.91	114.94	7.84	0.08	0.06
1991	93.47	119.54	8.20	0.08	0.06
1992	95.06	124.32	8.58	0.09	0.06
1993	96.68	129.30	8.97	0.09	0.06
1994	98.32	134.47	9.39	0.09	0.06
1995	99.99	139.85	9.82	0.09	0.07
1996	101.69	145.00	10.28	0.10	0.07
1997	103.42	145.00	10.76	0.10	0.07
1998	105.18	145.00	11.26	0.10	0.07
1999	106.97	145.00	11.79	0.11	0.08
2000	108.78	145.00	12.35	0.11	0.08
2001	110.63	145.00	12.93	0.11	0.08
2002	112.51	145.00	13.55	0.12	0.09
2003	114.43	145.00	14.19	0.12	0.09
2004	116.37	145.00	14.87	0.12	0.10
2005	118.35	145.00	15.58	0.13	0.10
2006	120.36	145.00	16.33	0.13	0.11
2007	122.41	145.00	17.12	0.13	0.11
2008	124.49	145.00	17.95	0.14	0.12
2009	126.61	145.00	18.82	0.14	0.12
2010	128.76	145.00	19.74	0.15	0.13
2011	130.95	145.00	20.71	0.15	0.14
2012	133.17	145.00	21.73	0.16	0.14
2013	135.44	145.00	22.80	0.16	0.15
2014	137.74	145.00	23.93	0.17	0.16
2015	140.08	145.00	25.12	0.17	0.17
2016	142.46	145.00	26.37	0.18	0.18
2017	144.88	145.00	27.69	0.19	0.19
2018	145.00	145.00	16.46	0.11	0.11

LOW GROWTH RATE = 1.7 PERCENT
HIGH GROWTH RATE = 4.0 PERCENT

GROWTH RATES IN DEMAND ARE APPLIED TO 1980 TOTAL ELECTRICITY SALES IN PROJECT AREA.
1980 HYDROPOWER SALES ARE SUBTRACTED FROM TOTAL SALES TO OBTAIN PROJECT HYDROPOWER DEMAND.
* HIGH DEMAND FROM FEASIBILITY STUDY.
** LOW DEMAND FROM ANNUAL GROWTH RATE, YEARS 1976 THROUGH 1980.

DATE = 1/28/82
TIME = 14:44

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

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TERROR LAKE HYDROELECTRIC PROJECT, WITH COAST GUARD SALES

PERIOD ENDING	PRINCIPAL REPAYMENT	INFLATION ADJ REPAYMENT	O & M COST	ADJ REPAYMENT PLUS O&M COST
1985	5,190,000	5,190,000	1,088,000	6,278,000
1986	5,190,000	5,397,600	1,164,200	6,561,800
1987	5,190,000	5,613,500	1,245,700	6,859,200
1988	5,190,000	5,838,000	1,332,800	7,170,900
1989	5,190,000	6,071,600	1,426,100	7,497,700
1990	5,190,000	6,314,400	1,526,000	7,840,400
1991	5,190,000	6,567,000	1,632,800	8,199,800
1992	5,190,000	6,829,700	1,747,100	8,576,800
1993	5,190,000	7,102,900	1,869,400	8,972,300
1994	5,190,000	7,387,000	2,000,300	9,387,200
1995	5,190,000	7,682,500	2,140,300	9,822,700
1996	5,190,000	7,989,800	2,290,100	10,279,900
1997	5,190,000	8,309,300	2,450,400	10,759,800
1998	5,190,000	8,641,700	2,621,900	11,263,700
1999	5,190,000	8,987,400	2,805,500	11,792,900
2000	5,190,000	9,346,900	3,001,900	12,348,700
2001	5,190,000	9,720,800	3,212,000	12,932,700
2002	5,190,000	10,109,600	3,436,800	13,546,400
2003	5,190,000	10,514,000	3,677,400	14,191,400
2004	5,190,000	10,934,500	3,934,800	14,869,400
2005	5,190,000	11,371,900	4,210,300	15,582,200
2006	5,190,000	11,826,800	4,505,000	16,331,800
2007	5,190,000	12,299,900	4,820,300	17,120,200
2008	5,190,000	12,791,900	5,157,800	17,949,600
2009	5,190,000	13,303,500	5,518,800	18,822,300
2010	5,190,000	13,835,700	5,905,100	19,740,800
2011	5,190,000	14,389,100	6,318,500	20,707,600
2012	5,190,000	14,964,700	6,760,800	21,725,500
2013	5,190,000	15,563,200	7,234,100	22,797,300
2014	5,190,000	16,185,800	7,740,400	23,926,200
2015	5,190,000	16,833,200	8,282,300	25,115,500
2016	5,190,000	17,506,500	8,862,000	26,368,600
2017	5,190,000	18,206,800	9,482,400	27,689,200
2018	1,730,000	6,311,700	10,146,200	16,457,900
TOTAL	173,000,000	349,938,900	139,547,500	489,486,400

3 PERCENT OF PRINCIPAL REPAID EACH YEAR. NUMBER OF YEARS TO PAY OFF PRINCIPAL IS 33.333.
INFLATION RATE ON PRINCIPAL = 4 PERCENT. INFLATION RATE ON O & M = 7 PERCENT.
FIRST YEAR O&M COST BASED ON APA REPORT. FIRST YEAR O&M COST IN 1981 DOLLARS IS $830,000.

PLANNED FIRST YEAR OF CONSTRUCTION IS 1982. CONSTRUCTION TIME IS 3 YEARS.
CONSTRUCTION COST OF PROJECT IS 173,000,000 DOLLARS.

DATE = 1/28/82
TIME = 14:43

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

LAKE TYEE HYDROELECTRIC PROJECT

YEAR	LOW DEMAND** IN MILLIONS OF KILOWATT HOURS	HIGH DEMAND* IN MILLIONS OF KILOWATT HOURS	ANNUAL COST IN MILLIONS OF DOLLARS	LOW DEMAND** DOLLAR COST PER KILOWATT HOUR	HIGH DEMAND* DOLLAR COST PER KILOWATT HOUR
1984	21.82	23.92	4.25	0.19	0.17
1985	22.64	25.36	4.46	0.19	0.17
1986	23.49	26.85	4.68	0.19	0.17
1987	24.35	28.40	4.91	0.20	0.17
1988	25.23	30.02	5.16	0.20	0.17
1989	26.14	31.71	5.41	0.20	0.17
1990	27.07	33.46	5.68	0.20	0.16
1991	28.03	35.29	5.97	0.21	0.16
1992	29.00	37.19	6.27	0.21	0.16
1993	30.00	39.16	6.59	0.21	0.16
1994	31.03	41.22	6.92	0.22	0.16
1995	32.08	43.37	7.27	0.22	0.16
1996	33.16	45.60	7.64	0.23	0.16
1997	34.27	47.92	8.04	0.23	0.16
1998	35.40	50.34	8.45	0.23	0.16
1999	36.56	52.86	8.89	0.24	0.16
2000	37.75	55.48	9.35	0.24	0.16
2001	38.97	58.20	9.84	0.25	0.16
2002	40.22	61.04	10.35	0.25	0.16
2003	41.51	64.00	10.90	0.26	0.17
2004	42.82	67.08	11.47	0.26	0.17
2005	44.17	70.28	12.08	0.27	0.17
2006	45.55	73.62	12.72	0.27	0.17
2007	46.96	77.09	13.40	0.28	0.17
2008	48.41	80.70	14.12	0.29	0.17
2009	49.90	84.46	14.88	0.29	0.17
2010	51.42	88.38	15.68	0.30	0.17
2011	52.99	92.46	16.53	0.31	0.17
2012	54.59	96.70	17.43	0.31	0.18
2013	56.23	101.12	18.39	0.32	0.18
2014	57.91	105.72	19.40	0.33	0.18
2015	59.64	110.00	20.47	0.34	0.18
2016	61.40	110.00	21.60	0.35	0.19
2017	63.21	110.00	15.57	0.24	0.14

LOW GROWTH RATE = 2.5 PERCENT
HIGH GROWTH RATE = 4.1 PERCENT

GROWTH RATES IN DEMAND ARE APPLIED TO 1980 TOTAL ELECTRICITY SALES IN PROJECT AREA.
1980 HYDROPOWER SALES ARE SUBTRACTED FROM TOTAL SALES TO OBTAIN PROJECT HYDROPOWER DEMAND.
* HIGH DEMAND FROM ANNUAL GROWTH RATE, YEARS 1976 THROUGH 1980.
** LOW DEMAND FROM FEASIBILITY STUDY.

DATE = 1/28/82
TIME = 14:43

STATE OF ALASKA
OFFICE OF THE GOVERNOR
DIVISION OF BUDGET AND MANAGEMENT

LAKE TYEE HYDROELECTRIC PROJECT

PERIOD ENDING	PRINCIPAL REPAYMENT	INFLATION ADJ REPAYMENT	O & M COST	ADJ REPAYMENT PLUS O&M COST
1984	2,970,000	2,970,000	1,282,600	4,252,600
1985	2,970,000	3,088,800	1,372,400	4,461,200
1986	2,970,000	3,212,400	1,468,500	4,680,800
1987	2,970,000	3,340,800	1,571,200	4,912,100
1988	2,970,000	3,474,500	1,631,200	5,155,700
1989	2,970,000	3,613,500	1,798,900	5,412,400
1990	2,970,000	3,758,000	1,924,800	5,682,800
1991	2,970,000	3,908,300	2,059,600	5,967,900
1992	2,970,000	4,064,600	2,203,800	6,268,400
1993	2,970,000	4,227,200	2,358,000	6,585,200
1994	2,970,000	4,396,300	2,523,100	6,919,400
1995	2,970,000	4,572,200	2,699,700	7,271,900
1996	2,970,000	4,755,100	2,888,700	7,643,700
1997	2,970,000	4,945,300	3,090,900	8,036,100
1998	2,970,000	5,143,100	3,307,300	8,450,300
1999	2,970,000	5,348,800	3,538,800	8,887,600
2000	2,970,000	5,562,700	3,786,500	9,349,200
2001	2,970,000	5,785,300	4,051,500	9,836,800
2002	2,970,000	6,016,700	4,335,100	10,351,800
2003	2,970,000	6,257,300	4,638,600	10,895,900
2004	2,970,000	6,507,600	4,963,300	11,470,900
2005	2,970,000	6,767,900	5,310,800	12,078,700
2006	2,970,000	7,038,600	5,682,500	12,721,100
2007	2,970,000	7,320,200	6,080,300	13,400,500
2008	2,970,000	7,613,000	6,505,900	14,118,900
2009	2,970,000	7,917,500	6,961,300	14,878,800
2010	2,970,000	8,234,200	7,448,600	15,682,800
2011	2,970,000	8,563,600	7,970,000	16,533,600
2012	2,970,000	8,906,100	8,527,900	17,434,100
2013	2,970,000	9,262,400	9,124,900	18,387,300
2014	2,970,000	9,632,900	9,763,700	19,396,500
2015	2,970,000	10,018,200	10,447,100	20,465,300
2016	2,970,000	10,418,900	11,178,400	21,597,300
2017	990,000	3,611,900	11,960,900	15,572,800
TOTAL	99,000,000	200,253,900	164,506,800	364,760,400

3 PERCENT OF PRINCIPAL REPAID EACH YEAR.
INFLATION RATE ON PRINCIPAL = 4 PERCENT.
FIRST YEAR O&M COST BASED ON APA REPORT.

NUMBER OF YEARS TO PAY OFF PRINCIPAL IS 33.333.
INFLATION RATE ON O & M = 7 PERCENT.
FIRST YEAR O&M COST IN 1981 DOLLARS IS $1,047,000

PLANNED FIRST YEAR OF CONSTRUCTION IS 1981.
CONSTRUCTION COST OF PROJECT IS 99,000,000 DOLLARS.

CONSTRUCTION TIME IS 3 YEARS.

Alaska State Legislature
HOUSE OF REPRESENTATIVES
COMMITTEE ON RESOURCES

KEN FANNING, CO-CHAIRMAN
ERIC SUTCLIFFE, CO-CHAIRMAN
POUCH V
JUNEAU, ALASKA 99811
(907) 465-3715

M E M O R A N D U M

To: All Legislators

From: Rep. Eric Sutcliffe

Date: February 11, 1982

Subject: HB 758 - "An Act relating to the energy program for Alaska"

House Bill 758 by the House Resources Commictee makes two changes to Hb 655.

The first change requires that a utility which purchases power from a state funded power project to establish a certain rate structure. This rate structure is as follows:

For the first 250 KWh per month, per customer, the retail rate must exclude the payback of capital construction costs. In other words, for this level of usage, a rate is charged as if the project were built as a state grant.

Higher rates for residential customers must be charged for that level of usage above 250 KWh per month. One additional rate step increase is mandated - more are optional. In order to encourage conservation, these rates should be higher for higher usages (inverted rates.)

The payback to the State for construction of the project would therefore, be borne by those consuming in excess of 250 KWh per month.

The second change, alters the term of payback to the state from thirty-three and one-third years (HB 655), to thirty-three and one-third years or, three-fourths of the life of the project, whichever is less.

TESTIMONY BEFORE HOUSE RESOURCES COMMITTEE

ON FEBRUARY 26, 1982

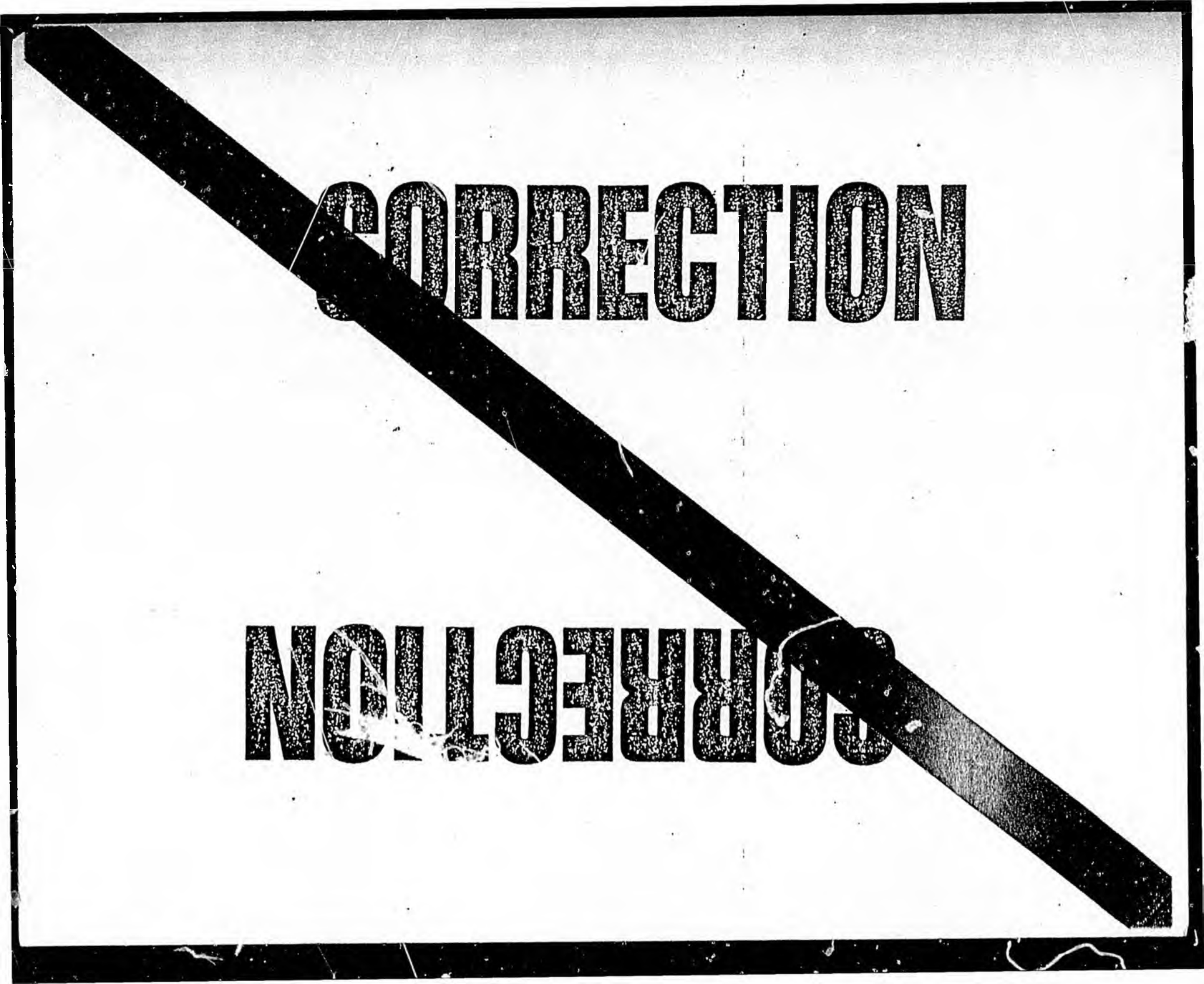
MR. CHAIRMAN, MY NAME IS BUDD GOODYEAR. I AM A MEMBER AND A CUSTOMER OF MATANUSKA ELECTRIC ASSOCIATION AND I AM EMPLOYED BY MEA AS PUBLIC INFORMATION OFFICER.

HOUSE BILL 758 IS NOT A HYDRO FINANCING AMENDMENT, IT IS AN ELECTRIC ENERGY TAX RATE BILL, BECAUSE HOUSE BILL 655 IS NOT A HYDRO FINANCING BILL, IT IS A REVENUE BILL.

IT IS OUR UNDERSTANDING THAT THE PEOPLE OF THE STATE OWN THE WEALTH OF THE STATE AND THAT WE ELECT STATE GOVERNMENT TO MANAGE THAT WEALTH

FOR EXAMPLE, THAT THE SUSITNA PROJECT IS OVER BUILD AND THE RAILBELT AREA WILL NEVER USE THE POWER WHICH IT WILL GENERATE. THEY THEN PROCEED TO DEVELOP AND INTRODUCE A FINANCING PLAN AND RATE STRUCTURE WHICH WILL NOT ALLOW THE CONSUMER TO AFFORD TO BUY HYDRO PROJECT ENERGY. UNDER HB 655 AND HB 758, HYDRO POWER ELECTRIC ENERGY MIGHT WHOLESALE FOR 20¢ PER KWH, RETAIL COSTS FOR MEA CUSTOMERS IS RUNNING 2.5 TIMES WHOLESALE COST. THESE TWO BILLS WILL CAUSE UPWARD SPIRALING ELECTRICAL RATES.

MR. CHAIRMAN, HB 758 IS UNACCEPTABLE A SECOND WAY -- IN PROPOSING INVERTED RATES. WE ESTIMATE THAT WE HAVE THREE TO FOUR THOUSAND HOMES WHICH USE ELECTRIC HEAT AS THE BASIC HOME HEATING SOURCE. TO CAUSE THEM SEVERE


CORRECTION
CORRECTION

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IT IS OUR UNDERSTANDING THAT THE PEOPLE OF THE STATE OWN THE WEALTH OF THE STATE AND THAT WE ELECT STATE GOVERNMENT TO MANAGE THAT WEALTH

AND PROVIDE BENEFITS TO THE PEOPLE FROM IT.

WHERE ARE THE BENEFITS IN HOUSE BILL 655 AND

758? THERE ARE NONE.

MR. CHAIRMAN, OUR RATE PAYERS ARE EXPRESSING

CONCERN AT BD TODAY'S ELECTRIC RATES BY PETITIONS.

THEY ARE NOT GOING TO WELCOME AN ELECTRIC

ENERGY TAX WHICH MIGHT RAISE THE WHOLESALE

COST OF ELECTRIC ENERGY TO 20¢ A KILOWATT HOUR

~~33 YEARS AFTER A PROJECT COMES ON LINE.~~ BD

HOUSE BILL 655 AND 758 HAVE THAT POTENTIAL

BECAUSE THEY ARE REVENUE BILLS NOT FINANCING

BILLS AND THEY ARE NOT BILLS BENEFITING

TODAY'S RESIDENTS OF THE STATE.

THOSE WHO OPPOSE HYDRO-POWER ARE VERY INCON-

SISTANT IN WHAT THEY SAY. FIRST, THEY TELL YOU,

FOR EXAMPLE, THAT THE SUSITNA PROJECT IS OVER BUILD AND THE RAILBELT AREA WILL NEVER USE THE POWER WHICH IT WILL GENERATE. THEY THEN PROCEED TO DEVELOP AND INTRODUCE A FINANCING PLAN AND RATE STRUCTURE WHICH WILL NOT ALLOW THE CONSUMER TO AFFORD TO BUY HYDRO PROJECT ENERGY. UNDER HB 655 AND HB 758, HYDRO POWER ELECTRIC ENERGY MIGHT WHOLESALE FOR 20¢ PER KWH, RETAIL COSTS FOR MEA CUSTOMERS IS RUNNING 2.5 TIMES WHOLESALE COST. THESE TWO BILLS WILL CAUSE UPWARD SPIRALING ELECTRICAL RATES.

MR. CHAIRMAN, HB 758 IS UNACCEPTABLE A SECOND WAY -- IN PROPOSING INVERTED RATES. WE ESTIMATE THAT WE HAVE THREE TO FOUR THOUSAND HOMES WHICH USE ELECTRIC HEAT AS THE BASIC HOME HEATING SOURCE. TO CAUSE THEM SEVERE

UNNECESSARY RATE INCREASES, AS HB758 AND HB655 WOULD DO, WHEN THE ALTERNATIVES ARE EXPENSIVE, INEFFICIENT FOSSIL FUELS IS UNACCEPTABLE

DO NOT CONSIDER US A SUPPORTER OF ELECTRIC SPACE HEATING, BUT LET ME TELL YOU A COUPLE OF THINGS ABOUT ELECTRIC ENERGY EFFICIENCIES. 100% OF THE ELECTRIC ENERGY DELIVERED TO A HOME FOR HEATING PURPOSES IS USED. THAT'S RIGHT, ELECTRIC HEAT IS 100% EFFICIENT WHEN YOU CONSIDER HEATING ENERGY AVAILABLE AT THE DELIVERY POINT.

THE INEFFICIENCIES OF ELECTRICITY COME IN GENERATION OF ELECTRIC ENERGY USING FOSSIL FUELS. IT IS FOSSIL FUEL GENERATION WHICH CAUSES MOST OF THE INEFFICIENCIES IN ELECTRIC ENERGY. EVEN A NUCLEAR REACTOR RUNNING 98%

EFFICIENT LOSES THAT EFFICIENCY BECAUSE THE STEAM GENERATOR IT OPERATES IS ONLY 65 TO 70% EFFICIENT. NONE OF THESE EFFICIENCIES EXIST IN HYDRO-POWER. IT FOLLOWS THAT HYDRO-POWER, A RENEWABLE ENERGY USED, FOR SPACE HEATING IS THE MOST EFFECTIVE AND EFFICIENT USE OF ENERGY AVAILABLE TODAY. AGAIN, I AM NOT, REPEAT NOT, ADVOCATING ELECTRIC SPACE HEATING, I AM EXPLAINING EFFICIENCIES. FROM A HYDRO-POWER SITE TO A CUSTOMER'S HOME 10% TRANSMISSION AND DISTRIBUTION LINE LOSS MAY OCCUR. THAT WOULD MAKE THE OVERALL EFFICIENCY OF ELECTRIC HEAT FROM A HYDRO-PROJECT AT 90%, MUCH HIGHER THAN ANY OTHER ENERGY SOURCE. THE POINT IS, WE SHOULD NOT AUTOMATICALLY ELIMINATE OR PENALIZE SOME ELECTRIC ENERGY USES. WE SHOULD PLAN WISELY FOR ENERGY DEVELOPMENT AND HB 655 AND HB 758 ARE BAD PLANS.

ONE FINAL POINT, OUR FIXED COSTS ASSOCIATED WITH SERVING SINGLE-PHASE ENERGY USERS - NORMAL RESIDENTIAL SERVICE - RAN APPROXIMATELY $38 PER SERVICE PER MONTH IN 1980. 1981 FIGURES ARE NOT YET AVAILABLE, TO INSTITUTE A LIFELINE RATE, DISCOUNT RATE, OR INVERTED RATE, AND FORCE US TO SELL THE FIRST 250 KWH, AT SAY A PENNY EACH, WOULD CAUSE US TO LOSE APPROXIMATELY $35.50 ON THE 250 KWH SOLD. IN ORDER FOR US TO MEET OUR FINANCIAL OBLIGATIONS THEN, SOME OTHER USER GROUP WOULD HAVE TO SUBSIDIZE A LARGE PORTION OF COSTS ASSOCIATED WITH SERVING CUSTOMERS WHO USE LESS THAN 250 KWH. WE BELIEVE THESE SUBSIDIES ARE NOT FAIR, AND MAY VIOLATE STATE STATUTES ON EQUITABLE RATES.

WE ARE NOT IGNORANT OF, OR INSENSITIVE TO THE NEEDS OF ALASKA PIONEERS, PEOPLE ON FIXED INCOMES, OR THE POOR. WHAT WE ARE SAYING IS, ENERGY RATES ARE A POOR PLACE TO CARRY OUT A IAL PROGRAM. IT IS NOT HONEST, IT HIDES THE SUBSIDIES, IT HIDES THE SOCIAL PROGRAM REQUIREMENT. MR. CHAIRMAN, AND COMMITTEE HB 758 IS BAD FOR THE STATE, KILL IT, PLEASE. THAT GOES FOR HB 655 TOO.

THANK YOU FOR THE OPPORTUNITY TO SPEAK.

Budd Goodyear

House Resources

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

FISCAL NOTE

I. REQUEST
Bill/Resolution No. House Bill No. 758
Title "An Act relating to the energy program for Alaska."
Requested by House Resources Date 4/2/82

II. FISCAL DETAIL
Agency Affected Office of the Governor
Program Category Affected Division of Elections
BRU, Program, Or Subprogram(s) Affected Division of Elections
(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES						
200 TRAVEL						
300 CONTRACTUAL		4.0		4.0		
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS,CLAIMS,ETC.						
TOTAL	-0-	4.0	-0-	4.0	-0-	-0-

FUNDING (Thousands of Dollars)

GENERAL FUND		4.0		4.0		
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS No additional positions required.

FULL TIME						
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III)

Assume:

1. That special elections on power projects will be held simultaneously with November general elections in affected areas.
2. That the Official Election Pamphlet will be the vehicle for delivery of descriptions of each power project to each registered voter prior to the appropriate election.
3. That three elections will be held during FY 83 (at the 1982 General Election) affecting a) Terror Lake (Kodiak precincts), b) Bradley Lake (Kenai precincts), and c) Black Bear Lake (Craig, Klawock, and Hydaburg precincts).
4. That one election will be held during FY 85 (at the 1984 General Election) for the Susitna project (Anchorage, Fairbanks [Railbelt], and Valdez precincts).
5. That all expenditures, with the exception of printing costs for one additional ballot and some advertising costs, will be absorbed into the general detail budget for the Division of Elections as projected during a general election budget year.

IV. DATE 4/5/82 PREPARED BY Danith D. Arnoldt, Deputy Director
AGENCY Office of the Governor, Div. of Elections
PHONE 586-6181

Original: Legislative Finance
cc: Budget and Management
Prime Sponsor (First Legislator Named)
33-001 (Rev. 12/81)

Attachment

III. ANALYSIS (continued)

If the Legislature deems it necessary to place these questions on special election ballots separate from the General Election in those years specified, these costs must be recalculated and will increase significantly.

Leslie Kochan
P.O. Box 4414
Soldotna, AK.
99669

To Members of the House Resource Committee:

I urge your support of House Bill 758. I do not wish to see the state of Alaska grant $5 billion (including an estimated $6 billion in lost revenue, thus an actual $11 billion commitment) to electrical development which will, in the long run, discourage the development of alternative energy sources and smaller hydro-electric projects. and will encourage a waste of electrical power. I attended the public informational meeting presented by N.W. Pacific Laboratories on Susitna and alternatives. After evaluating their studies and information, as well as information presented by ACRES and other groups doing research, I feel that reasonable electrical cost can be maintained without relying on increased coal, natural gas, or projects such as Susitna which, under SB 25-26, would drain us of state revenues needed for

other state budget items such as education, transportation, police protection, and health care.

Fairbanks stands as a prime example of the savings incurred in electrical use by simple conservation applications within the home. More effective use of insulation, especially, has helped Fairbanksans decrease their electricity use by 12% a year since 1975. Washington State and Bonneville Power Administration, on the other hand, serve as a prime example of the increased electrical consumption which can occur and eventually cost consumers due to the initial incentive of cheap electrical power. The lure of cheap electricity will also cause an influx of new industry within the railbelt area and along with that a boom/bust effect on land use, increased crowding in our urban areas, and increased pollution. Also to be considered are the impacts the dams itself would have on present land use and wildlife in the proposed Susitna project site area. Please support HB 758.

Sincerely Yours,

Leslie Kochan

DEPD-82-530-R3

STATE OF ALASKA

LONG TERM ENERGY PLAN

1982 REPORT

PRELIMINARY DRAFT
PUBLIC REVIEW COPY

EXECUTIVE SUMMARY

Prepared For

Jay Hammond
Governor

By

Department of Commerce and Economic Development
Division of Energy and Power Development

Charles Webber
Commissioner

Lloyd M. Pernela
Director

FEBRUARY 1982

With all of its indigenous energy resources, its large revenues from energy production, and with many of its citizens depending on high-priced fuels, the state of Alaska has a responsibility to involve itself in energy planning. The state legislature recognized this responsibility in 1980 by requiring the development of an annual state long term energy plan*. The 1980 Act required that the plan and its annual revisions include:

- An "end-use" study examining and reporting on the nature and amount of energy used and the purposes of its use
- An energy development component for meeting projected thermal, electrical and transportation energy needs in the state at the lowest reasonable cost
- An energy conservation component, including regional conservation goals and measures to achieve those goals
- A component for emergency energy conservation measures applicable during times of emergency
- A report on areas or subjects of energy research, development and demonstration projects involving alternative energy systems, local energy sources, and energy conservation.

By addressing the required elements presented above, the plan provides an overview of the statewide energy situation, and helps the state legislature develop just and equitable solutions to Alaska's energy problems. The overall purpose of this year's report is to focus existing energy information to support current decision making needs and provide a sense of priority across state projects and programs. To this end, the plan report describes the current and future energy situation, the least cost energy alternatives for different regions, and the consequences of pursuing these different alternatives.

The 1982 report on the long term energy plan builds on the initial 1981 long term energy plan, as well as other recent and ongoing studies, including: the Susitna feasibility study by Acres American; the Railbelt Electrical Power Alternatives study, and the Historical and Projected Oil and Gas Use study

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*State Statute HCS CCSB 438 (Finance) amH, section 44.56.224

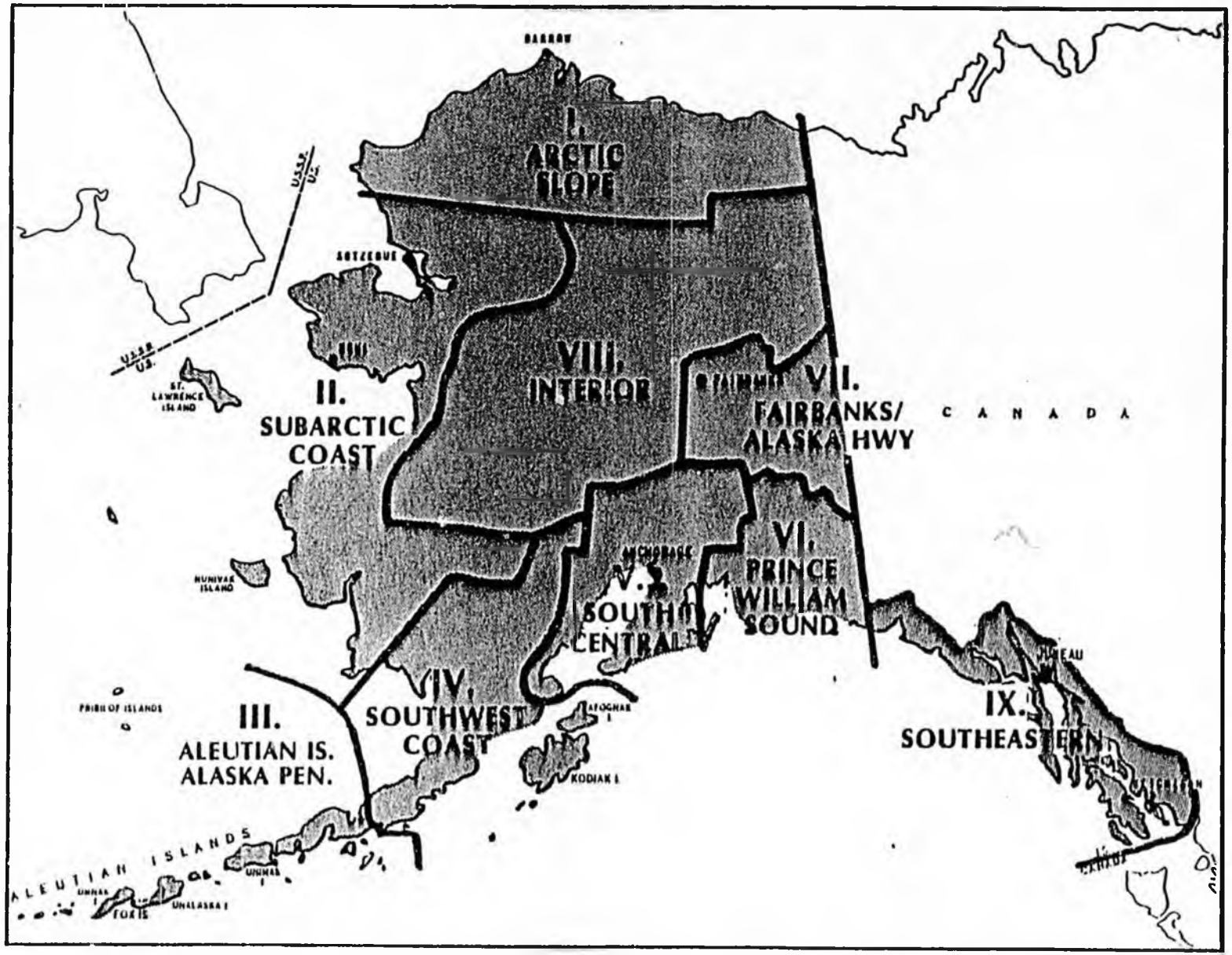
by Battelle Northwest Laboratories. Only the Historical and Projected Oil and Gas Use study had been completed in time to support the development of this year's plan. However, information from interim reports, working papers and draft reports from the other studies was incorporated wherever possible. This information may differ slightly from that contained in the final reports for those studies.

The primary policy objective (or question) addressed by the 1982 plan is (how) "to use Alaskan resources to meet, at the lowest reasonable cost, Alaska's current and future in-state residential, commercial, industrial and transportation energy needs." While it is recognized that there are other state social, environmental and economic objectives that must be considered in energy planning, this "least cost" objective was chosen to provide an analytical framework for the plan. The quantitative estimates of energy costs and benefits provided in the plan can be viewed as a basis for broader policy decisions involving energy and non-energy decisions.

While currently available energy data are limited, particularly at the regional and subregional levels, a regional perspective is critical to state energy planning efforts. To provide the necessary regional energy perspective the state was first divided into three major regions and ultimately into nine regions, as shown in Exhibit 1 and described in Appendix A. The major regions are used for discussion purposes in most instances, since existing data do not support analysis at a nine region level. The three aggregate regions and their components are:

- Extended Railbelt Area
  - South Central Region (Region V)
  - Prince William Sound (Region VI)
  - Fairbanks/Alaska Highway (Region VII)
- The "Bush"
  - Arctic Slope (Region I)
  - Subarctic Coast (Region II)
  - Aleutian Islands/Alaska Peninsula (Region III)
  - Southwest Coast (Region IV)
  - Interior (Region VIII)
- Southeast Area
  - Southeast (Region IX)

EXHIBIT 1
ENERGY PLANNING REGIONS



These regions were developed by aggregating Alaska's census regions to produce geographical areas having similar energy use patterns, energy problems and energy resources.

The importance of a regional disaggregation to analyze Alaska's energy situation is illustrated in the following example. Average per capita residential electricity use in the state is only slightly higher than that in the lower 48 states - approximately 3,275 kilowatt hours (KWH) in 1980, compared with the U.S. average of 3,250 KWH. Average electricity costs are also similar: Alaska's weighted average cost is approximately 6 cents per KWH, compared with 5.5 cents in the lower 48 states. However, as shown in Exhibit 2, both electricity and fuel oil prices vary substantially across the state.

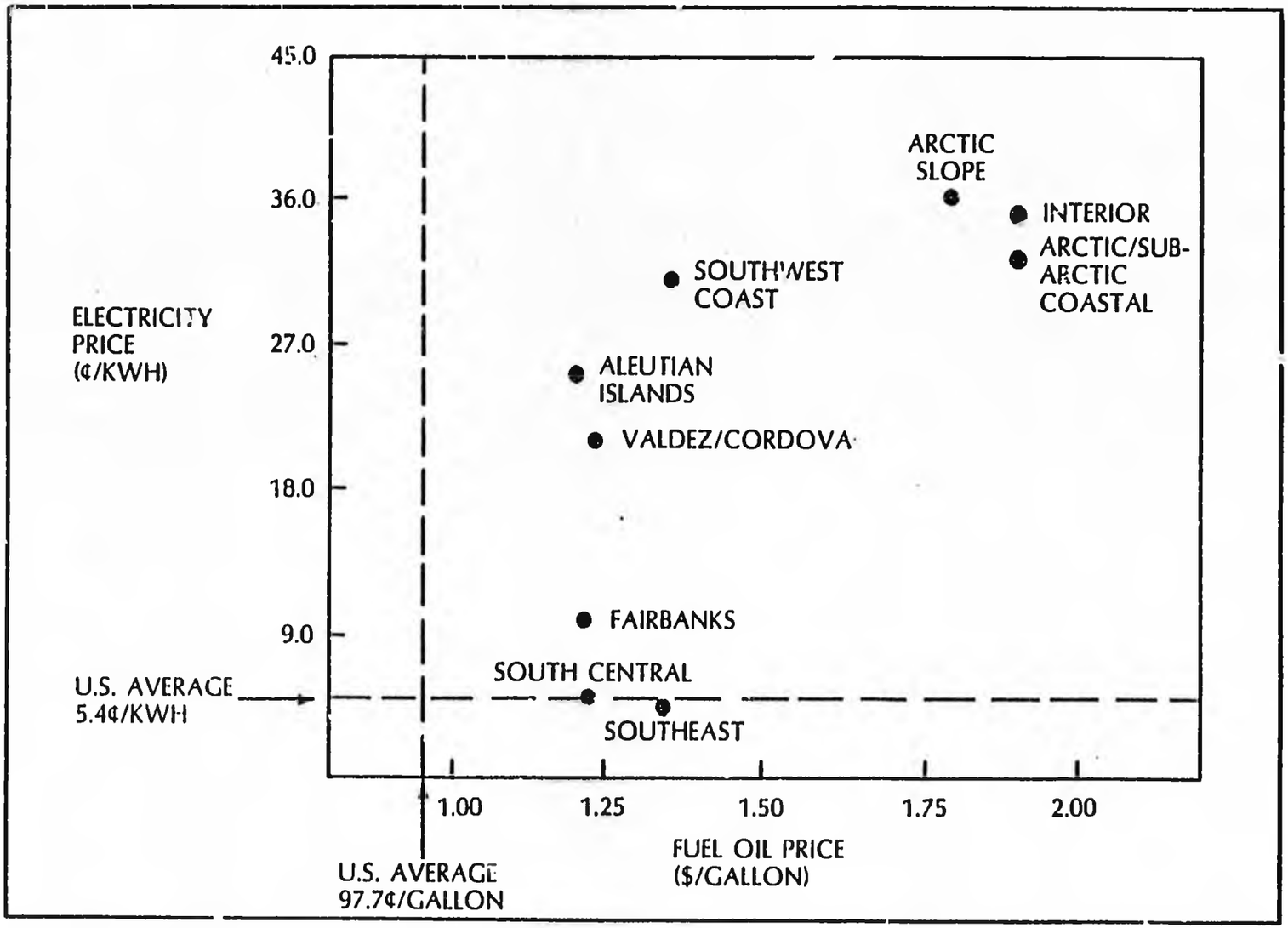
To illustrate these differences and evaluate their implications for energy planning, this plan provides as much detail as possible at a regional level given existing energy data. It is recognized that these data are often incomplete and different sources are likely to be inconsistent. Because of the current data problems, this year's report should be viewed as a preliminary description of detailed regional energy problems. However, the plan does provide an operational regional framework that can be utilized as a basis for energy planning from the state level all the way down to the local and community level.

In conducting the analysis to support this year's report three basic questions are used to provide a means for focusing the existing information and to provide a better understanding of the policy and program options available to the state. These questions are:

- What type of energy problem does Alaska face (where, when, why, how severe)?
  - An energy price problem
  - A resource exhaustion problem or energy production constraints
  - An energy vulnerability/reliability problem?
- What technology options are most attractive for reducing each problem?

EXHIBIT 2

COMPARISON OF RESIDENTIAL OIL AND ELECTRIC PRICES IN ALASKA: 1980



SOURCE: DEPD COMMUNITY ENERGY SURVEY
ALASKA PUC ANNUAL REPORT
EIA 1980 ANNUAL REPORT TO CONGRESS

- What is the most effective set of state energy projects and programs?

By focusing directly on existing and potential energy problems it is possible to establish a close link between the energy needs of Alaskans and the potential technological solutions and state programs that address these needs. This process will provide a basis for determining whether or not individual projects are directed towards the most pressing problems. The remaining portions of the Overview and Summary describe the most pressing existing and potential energy problems, the most attractive technological alternatives and provide recommendations for future state activities.

1. HIGH PRICES REPRESENT ALASKA'S MAJOR NEAR AND MID TERM ENERGY PROBLEM

Energy prices vary substantially throughout the state (illustrated in Exhibit 2, above). The most populated areas the--South Central and Southeast--currently pay relatively low electricity prices. Much of the natural gas used to generate electricity in the South Central region, is purchased under long-term contracts negotiated in the early 1960s. The Southeast region benefits from hydropower facilities which were built prior to recent large cost increases.

Similarly, fuel oil prices in the South Central and Southeast regions are only 25 to 30 percent higher than the U.S. average. These cost differentials are not out of line with many consumer goods, which, also cost more in Alaska than in the lower 48 states.

This is not the case for Alaska's rural consumers--with almost total reliance upon petroleum products--who are hit the hardest by high energy prices. Based on regional averages, they pay up to 8 times more for electricity than urban Alaskans and up to double for fuel oil. These high costs are a result of two key factors:

- High Petroleum Distribution Costs--In the bush, small volumes of diesel fuel must be shipped long distances between communities The product changes hands many times, driving up its cost. Large inventories must be financed and kept on hand, especially during the winter, when the waterways are icebound.

- Low Conversion Efficiencies--In many communities, generating equipment has a conversion efficiency of

only 12 to 18 percent. Larger bush communities such as Kotzebue have diesel generating efficiencies approaching 32 percent, and correspondingly lower electricity costs.

Since bush region consumers pay high energy prices, they use substantially less energy to meet electrical and thermal energy needs than do consumers in the Extended Railbelt and Southeast region. This outcome results for several reasons:

- Higher electricity and fuel oil prices mandate conservation
- Dwellings are of a smaller size
- Fewer electrical appliances are used.

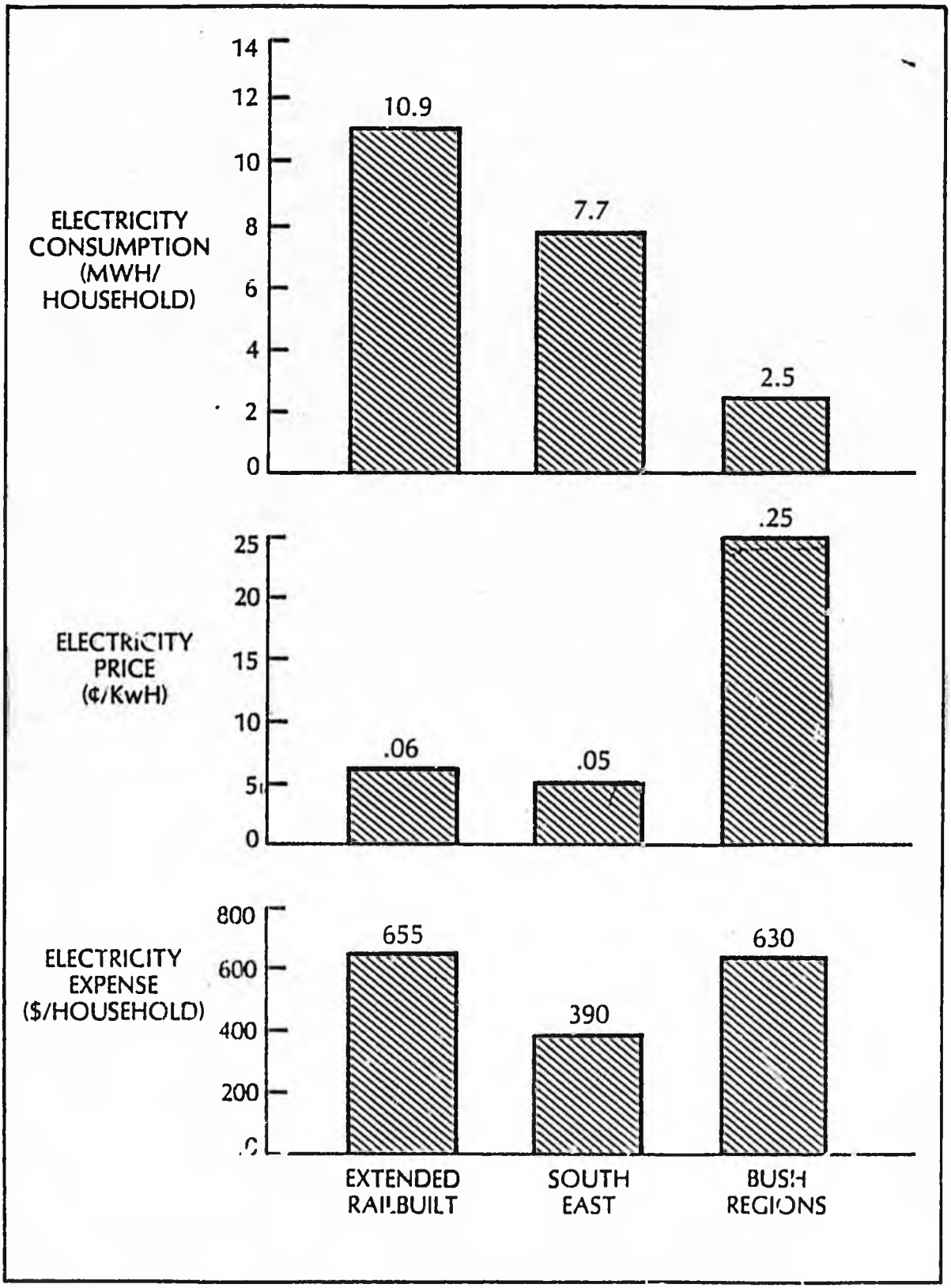
Even though substantially less electrical and thermal energy is used in the bush regions, bush households spend approximately the same annual amount for electricity and spend substantially more to meet their thermal needs than residents of the Extended Railbelt. Electricity and thermal energy consumption patterns--including average household consumption, prices and expenditures--for the three regions are shown in Exhibits 3 and 4.

The relatively large household thermal energy consumption in the Southeast results from per capita thermal consumption slightly lower than that in the Extended Railbelt, but larger households. In addition, only the cost of heating with fuel oil was considered for the Southeast, while both oil and natural gas were considered in determining the thermal energy prices in the bush and Extended Railbelt regions. The fuel oil prices used for the bush region include those in major population centers, which are substantially lower than those in outlying areas.

All Alaskans, urban and rural, will be affected by oil and natural gas price trends in the coming years. It appears that crude oil prices will remain level or even decline during the next few years. Current world economic conditions coupled with a substantial increase in energy use efficiency have greatly reduced world oil demand. Worldwide economic recovery, which would stimulate oil demand, is not likely to take place for at least a year. An excess demand for oil, which would push prices upward, may not be felt in the world oil markets until after 1985. These conditions suggest that excess oil supplies will continue until the late 1980s.

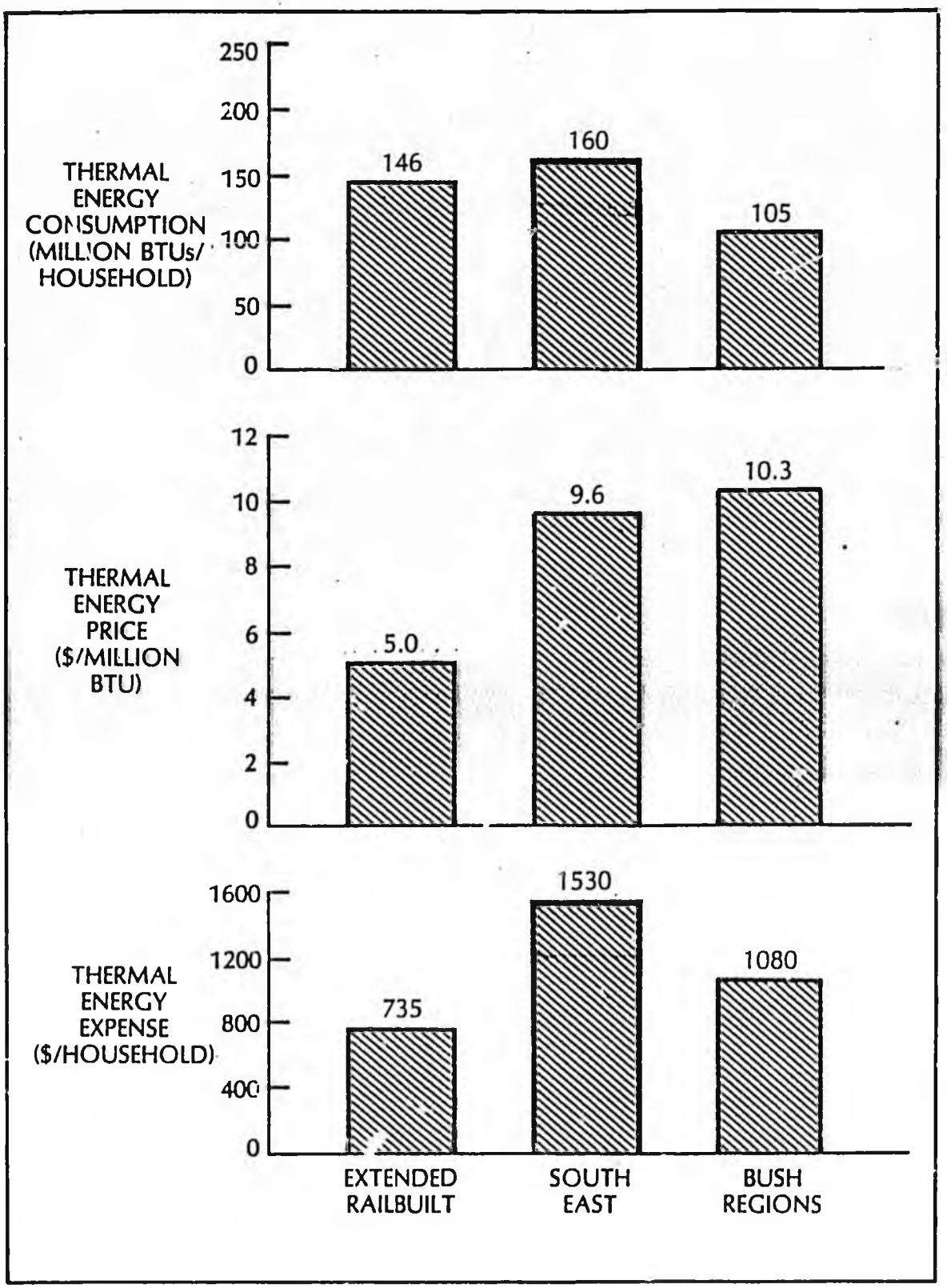
EXHIBIT 3

HOUSEHOLD RESIDENTIAL ELECTRICITY EXPENSE



SOURCE: DEPD COMMUNITY ENERGY SURVEY APPENDIX I-A, STATE ENERGY BALANCE

EXHIBIT 4
HOUSEHOLD RESIDENTIAL THERMAL ENERGY EXPENSE



SOURCE: DEPD COMMUNITY ENERGY SURVEY
APPENDIX I-A, STATE ENERGY BALANCES

During the late 1980s and 1990s, world energy prices can be expected to increase, but at a more moderate rate than that experienced during the 1970s. Alaskan oil prices can be expected to track this more moderate real annual growth rate of about 2.5 percent through the year 2000.

High oil prices mean that Alaskan's also pay more for transportation fuels than residents of the lower 48 states. Even though approximtely 50 percent of transportation fuel is used for international and domestic jet aviation, high prices for highway gasoline and diesel have a substantial impact on individual energy expenditures. If a household used 1,000 gallons of fuel annually, their expenditures would range between $1,400 and $1,700 depending upon exact fuel prices. This is roughly equal to the amount spent on thermal energy and not quite twice the amount spent on electricity.

Alaskan natural gas prices are expected to stay relatively level through the early 1980s, for a special reason. Currently the Anchorage area relies primarily on Cook Inlet natural gas to meet its thermal and electrical needs. Many 20 year contracts for this gas were initiated in the 1960s. The gas purchased today under these contracts is very low-priced (e.g., 18¢ to 25¢/MCF) compared with other energy sources. When these contracts expire in the mid-1980s, prices should rise to $2.00 to $2.68 per MCF.

2. ELECTRICITY AND THERMAL ENERGY USE PROVIDE THE GREATEST OPPORTUNITY FOR NEAR AND MID TERM ENERGY COST SAVINGS

Electricity use currently represents the smallest portion of total state energy use. However, it represents one of the fastest growing uses, approximately 10 percent annually over the last decade. The commercial/industrial sector was the dominant user of electricity in each of the three regional groups (see Exhibit 5). That sector accounted for over half of the states total electricity consumption.

Although electricity costs for most Alaskans are low, bush region residents have very high power costs. Substantial improvements can be made in the efficiency of electricity generation in the bush regions. There are two ways that these high costs can be mitigated:

- Fuel Substitution--Wind power, hydropower, and fossil fuels have the potential to generate electricity at a lower cost