

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 8672
969 SCOMM44: HOUSE POWER ALTERNATIVES STUDY COMM. 1979-80 969

Chenoweth

Original sponsors: Kerttula, Ziegler,
Ferguson, et al

Funding Information

General Fund \$519,987,500
Other Funds -0-
\$519,987,500

1 IN THE SENATE BY THE RESOURCES COMMITTEE

2 HOUSE CS FOR CS FOR SENATE BILL NO. 26 (Resources)

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 TWELFTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act making appropriations to various state agencies
7 for energy-related projects, and repealing an appro-
8 priation for a hydroelectric project; and providing
9 for an effective date."

10 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

11 * Section 1. The sum of \$261,600,000 is appropriated from the general
12 fund to the power project fund of the Alaska Power Authority (AS 44.83.170)
13 for loans in the amounts specified for the following listed power projects:

14	(1) Green Lake	\$ 5,000,000
15	(2) Ouzinkie	1,700,000
16	(3) Port Lions	1,400,000
17	(4) Snettisham (Crater Lakes)	4,500,000
18	(5) Solomon Gulch	29,000,000
19	(6) Swan Lake	65,000,000
20	(7) Terror Lake	100,000,000
21	(8) Tyee Lake	55,000,000

22 * Sec. 2. The sum of \$14,624,500 is appropriated from the general fund
23 to the power project fund of the Alaska Power Authority (AS 44.83.170) for a
24 loan to the Fairbanks North Star Borough for the following purposes:

25	(1) energy management program	\$ 12,152,077
26	(2) solar collector retrofit	1,211,760
27	(3) waste heat greenhouses	1,260,663

28 * Sec. 3. The sum of \$6,795,000 is appropriated from the general fund to
29 the Alaska Power Authority for Fairbanks district heating.

1 * Sec. 4. The sum of \$4,000,000 is appropriated from the general fund to
2 the power project fund of the Alaska Power Authority (AS 44.83.170) for a
3 loan to Alaska Electric Light and Power Company for construction of trans-
4 mission lines.

5 * Sec. 5. The sum of \$3,000,000 is appropriated from the general fund to
6 the power project fund of the Alaska Power Authority (AS 44.83.170) for a
7 loan to Alaska Electric Light and Power Company for rehabilitation of Salmon
8 Creek II.

9 * Sec. 6. The sum of \$85,000,000 is appropriated from the general fund
10 to the Alaska Power Authority for acquisition of a right-of-way for and
11 design and construction of a high voltage electrical transmission system
12 connecting Anchorage and Fairbanks.

13 * Sec. 7. The sum of \$2,000,000 is appropriated from the general fund to
14 the power project fund of the Alaska Power Authority (AS 44.83.170) for
15 acquisition of a right-of-way for and design and construction of an electri-
16 cal transmission system connecting Craig and Klawock.

17 * Sec. 8. The sum of \$5,800,000 is appropriated from the general fund to
18 the power project fund of the Alaska Power Authority (AS 44.83.170) for
19 acquisition of a right-of-way for and design and construction of an electri-
20 cal transmission system connecting Sitka (Green Lake power project) and
21 Kake.

22 * Sec. 9. The sum of \$200,000 is appropriated from the general fund to
23 the Alaska Power Authority for a single ground wire return between Kotzebue
24 and Shungnak.

25 * Sec. 10. The sum of \$5,600,000 is appropriated from the general fund
26 to the Alaska Power Authority for reconnaissance studies for proposed power
27 project sites for the following rural communities: Akhiok, Ambler, Angoon,
28 Aniak, Atka, Atkasook, Brevig Mission, Buckland, Chefnak, Chignik, Chignik
29 Lagoon, Chignik Lake, Chuathbaluk, Cold Bay, Craig, Diomedes, Elim, False

1 Pass, Galena, Golovin, Goodnews Bay, Grayling, Gustavus, Hoonah, Hooper Bay,
2 Hydaburg, Ivanoff Bay, Kalskag, Kaltag, Karluk, Kiana, King Cove, Klawock,
3 Kotlik, Kotzebue, Koyuk, Larsen Bay, Lower Kalskag, Mekoryuk, Metlakatla,
4 Newtok, Nightmute, Nikolski, Nome, Old Harbor, Perryville, Ruby, St. Mary's,
5 St. Michael, St. Paul, Savoonga, Scammon Bay, Shageluk, Shishmaref, Shungnak,
6 Stebbins, Teller, Tenakee Springs, Togiak, Toksook Bay, Tununak, Unalakleet,
7 Unalaska, and White Mountain.

8 * Sec. 10. The sum of \$30,850,000 is appropriated from the general fund
9 to the Alaska Power Authority for feasibility studies under AS 44.83.181, to
10 be allocated to the following proposed power project sites:

11	(1) Black Bear Lake	2,000,000
12	(2) Bradley Lake	4,000,000
13	(3) Chester Lake	1,000,000
14	(4) Chakachamna Lake	1,000,000
15	(5) Grant Lake	1,000,000
16	(6) Kisaralik	1,000,000
17	(7) Power Creek	700,000
18	(8) Susitna	18,100,000
19	(9) Takatz Lake	50,000
20	(10) Tazimina Lake	2,000,000

21 * Sec. 12. The sum of \$440,000 is appropriated from the general fund to
22 the Alaska Power Authority for a feasibility study of the Fairbanks district
23 heating extension.

24 * Sec. 13. The sum of \$996,000 is appropriated from the general fund to
25 the Alaska Power Authority for a feasibility study examining design and
26 construction of an electrical transmission system between Hoonah and Juneau.

27 * Sec. 14. The sum of \$42,000 is appropriated from the general fund to
28 the Alaska Power Authority for a feasibility study examining the rehabilita-
29 tion and improvement of hydroelectric facilities for Pelican.

* Sec. 15. The sum of \$4,500,000 is appropriated from the general fund to the Alaska Power Authority for a feasibility study for the Lake Elva hydroelectric project.

* Sec. 16. The sum of \$20,000 is appropriated from the general fund to the Alaska Power Authority for payment as a grant to the City of Fairbanks for sewer plant energy conservation and management.

* Sec. 17. The sum of \$400,000 is appropriated from the general fund to the Alaska Power Authority for payment as a grant to the Kuskokwim Native Association for electrification projects in Chuathbaluk, Crooked Creek, Sleetmute, and Stony River.

* Sec. 18. The sum of \$4,800,000 is appropriated from the general fund to the Alaska Power Authority for the power production cost assistance fund (AS 44.83.162).

* Sec. 19. The sum of \$10,000,000 is appropriated from the general fund to the Alaska Power Authority for the rural electrification revolving loan fund.

* Sec. 20. The sum of \$5,000,000 is appropriated from the general fund to the Alaska Power Authority for geothermal well drilling at Unalaska.

* Sec. 21. The sum of \$4,000,000 is appropriated from the general fund to the Department of Administration for payment of rural electrification grants to municipalities.

* Sec. 22. The sum of \$1,580,000 is appropriated from the general fund to the Department of Commerce and Economic Development, division of energy and power development, for programs under AS 44.33.030 - 44.33.060, to be allocated as follows:

- | | |
|--------------------------------------|-----------|
| (1) preparation of state energy plan | \$500,000 |
| (2) regional energy planning | 100,000 |
| (3) state-federal liaison | 100,000 |
| (4) citizens' information and | |

1 assistance 100,000

2 (5) data collection and computer

3 application 700,000

4 (6) professional seminars 80,000

5 * Sec. 23. The sum of \$12,800,000 is appropriated from the general fund
6 to the Department of Commerce and Economic Development, division of energy
7 and power development, for energy conservation refunds, grants and audits,
8 to be allocated as follows:

9 (1) performance of energy audits \$4,000,000

10 (2) energy conservation grants and refunds 8,800,000

11 * Sec. 24. The sum of \$16,200,000 is appropriated from the general fund
12 to the Department of Commerce and Economic Development, division of energy
13 and power development, for regional energy planning, energy audits, weather-
14 ization and conservation, community training, and reconnaissance studies
15 under the low-income energy conservation program.

16 * Sec. 25. The sum of \$20,000,000 is appropriated from the general fund
17 to the Department of Commerce and Economic Development, division of small
18 business loans, for alternative energy and energy conservation loan pro-
19 grams, to be allocated as follows:

20 (1) alternative energy and energy

21 conservation loans \$10,000,000

22 (2) alternative energy business loans 10,000,000

23 * Sec. 26. The sum of \$2,400,000 is appropriated from the general fund
24 to the Department of Community and Regional Affairs for the bulk fuel storage
25 facilities grant fund (AS 44.47.145).

26 * Sec. 27. The sum of \$1,000,000 is appropriated from the general fund
27 to the Department of Community and Regional Affairs for payment of rural
28 electrification grants to unincorporated communities.

29 * Sec. 28. The sum of \$200,000 is appropriated from the general fund to

1 the Department of Education for teacher training and curriculum development
2 and for satellite television relating to energy-related subjects in elemen-
3 tary and secondary school curricula.

4 * Sec. 29. The sum of \$60,000 is appropriated from the general fund to
5 the Department of Natural Resources for an aquifer drilling project at
6 McGrath.

7 * Sec. 30. The sum of \$2,300,000 is appropriated from the general fund
8 to the Department of Natural Resources for a northwest Alaska coal resources
9 investigation.

10 * Sec. 31. The sum of \$2,650,000 is appropriated from the general fund
11 to the Department of Transportation and Public Facilities for construction
12 of a road between the Nome area road system and Pilgrim Hot Springs.

13 * Sec. 32. The sum of \$550,000 is appropriated from the general fund to
14 the Department of Transportation and Public Facilities for installation of
15 coal-fired heating systems in the schools of the Railbelt and Delta-Greeley
16 regional educational attendance areas.

17 * Sec. 33. The sum of \$250,000 is appropriated from the general fund to
18 the Office of the Governor for the fuel emergency fund (AS 44.19.052).

19 * Sec. 34. The sum of \$350,000 is appropriated from the general fund to
20 the University of Alaska for energy conservation improvements.

21 * Sec. 35. The sum of \$150,000 is appropriated from the general fund to
22 the University of Alaska for upper division and graduate courses related to
23 energy courses and professional studies.

24 * Sec. 36. The sum of \$200,000 is appropriated from the general fund to
25 the University of Alaska, division of community colleges and rural education,
26 for development of energy studies within community college curricula.

27 * Sec. 37. The sum of \$500,000 is appropriated from the general fund to
28 the University of Alaska, division of community colleges and rural education,
29 for vocational and job training programs related to energy.

1 * Sec. 38. The sum of \$6,400,000 is appropriated from the general fund
2 to the Alaska Energy Center for expenses of operations of the center during
3 the fiscal year ending June 30, 1982.

4 * Sec. 39. The sum of \$830,000 is appropriated from the general fund to
5 the Alaska Energy Center for the following feasibility studies relating to
6 energy projects of the center:

(1) Angoon tidal power project	\$500,000
(2) Kotzebue district heating and coal utilization study	100,000
(3) Kotzebue waste heat study	150,000
(4) Mary's Igloo -- design of an energy efficient community in conjunction with relocation	50,000
(5) St. Mary's waste heat and district heating study	30,000

16 * Sec. 40. The sum of \$500,000 is appropriated from the general fund to
17 the Alaska Energy Center for wind reconnaissance studies and research state-
18 wide.

19 * Sec. 41. The sum of \$1,100,000 is appropriated from the general fund
20 to the Alaska Energy Center for the following projects:

(1) Pilgrim Hot Springs geothermal test well	\$ 700,000
(2) Sheldon Point wind project	300,000
(3) Skagway construction of wind generating system	100,000

26 * Sec. 42. The sum of \$300,000 is appropriated from the general fund to
27 the Legislative Affairs Agency for the Joint Gas Pipeline Committee for a
28 study of alternative methods of transporting Prudhoe Bay natural gas to
29 market.

1 * Sec. 43. Section 1(1), ch. 54, SLA 1980 is repealed.

2 * Sec. 44. Section 22 of this Act takes effect on the effective date of
3 an Act entitled "An Act establishing assistance and information programs on
4 energy in the Department of Commerce and Economic Development; and providing
5 for an effective date."

6 * Sec. 45. Sections 25 - 27 of this Act take effect on the effective
7 date of an Act entitled "An Act relating to departments and programs of
8 state government which are concerned with energy; and providing for an
9 effective date."

10 * Sec. 46. Section 42 of this Act takes effect on the effective date of
11 an Act or resolution by which the First Session of the Twelfth Legislature
12 directs its Joint Gas Pipeline Committee to prepare a report concerning
13 alternative methods of transporting Prudhoe Bay natural gas to markets.

14 * Sec. 47. This Act takes effect immediately in accordance with AS 01.-
15 10.070(c).
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Senator Gilman ✓
Representative Malone
Representative Gardiner

Introduced: _____
Referred: _____

IN THE: _____

By: _____

JOINT RESOLUTION NO. _____

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWELFTH LEGISLATURE-FIRST SESSION

Proposing that the U. S. Congress take
certain actions to permit timely con-
struction of the Bradley Lake Hydroelec-
tric Project.

BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

WHEREAS, the U. S. Army Corps of Engineers is completing a General Design
Memorandum on the Bradley Lake Hydroelectric Project; and

WHEREAS, the U. S. Army Corps of Engineers is requesting authorization and
funding from Congress to initiate construction of the Project; and

WHEREAS, the Congress may not appropriate funds for the Project in a manner
to permit expeditious construction of the Project; and

WHEREAS, the Bradley Lake Hydroelectric Project is an economically, environ-
mentally, and technically feasible renewable energy project which should be
constructed as early as possible; and

WHEREAS, the State of Alaska through the Alaska Power Authority desires to
develop the Project as early as possible;

BE IT RESOLVED that the Alaska State Legislature respectfully requests the
U. S. Congress to authorize the Bradley Lake for construction, authorize the U. S.
Army Corps of Engineers to accept non-federal ^{lands} for construction of the Pro-
ject, and establish that the General Design Memorandum prepared by the U. S. Army
Corps of Engineers satisfies all requirements for a Federal Energy Regulatory
Commission License to construct the Project.

COPIES of this resolution shall be sent to the

PROPOSED APA-RURALCAP ELECTRIC POWER FINANCING PROGRAM

The following program emphasizes (1) reduced electricity costs for all Alaskans beginning immediately, (2) equity in the distribution of benefits from State financial aid, (3) efficiency in electricity consumption, and enhanced conservation incentives, (4) selection of the most efficient mix of projects, (5) cost-effectiveness in the use of State money, (6) State-ownership of State-assisted power projects, and (7) a return to the State's investment in such projects.

Reduced Electricity Costs for All Alaskans
Equity in the Distribution of Benefits

Lifeline quota. Every residential electricity customer in Alaska will receive up to, say, 500 kilowatt-hours per month (the "lifeline quota")¹ without charge.² The State would pay the cost of this lifeline quota partly (a) through the Alaska Power Authority's financial contribution to new generating projects and partly (b) through a remodeled Power Production Cost Assistance program.

1. 500 kwh is just an illustrative figure that might be adjusted upward or downward, depending on how deeply the Legislature wants to subsidize electric power generation and consumption. 500 kwh per household per month is enough to cover all current electricity needs of most rural Alaskans, but is not enough to encourage the use of electricity for space-heating where it is not truly the lowest-cost source of energy.

A possible variation would be to graduate the size of each household's lifeline quota according to the number of persons in the household --- e.g., 250 kwh per month for one person plus 50 kwh for each additional person up to five. This approach seems more equitable, but it would probably invite fraud and would be difficult to administer. Another variation would be to graduate the size of the lifeline block according to climate --- for example, 1 kwh for every 2 degree-days.

2. Consumers would receive only the wholesale generating costs of the lifeline quota free. Each customer would continue to pay his share of local distribution and administrative costs --- partly to keep pressure on local utilities to operate efficiently.

In contrast with the provisions of SB 25-26 and their House counterparts, benefits under this program will not be limited to customers of new projects or hydro-based generating capacity; they will be equal throughout Alaska, regardless of the actual local cost of generation; and they will begin immediately, rather than waiting on the completion of new projects.³

Efficiency in Electricity Consumption Enhanced Conservation Incentives

Marginal-cost pricing. The State's subsidy of electric power generation and consumption will be limited to paying, directly or indirectly, for the lifeline quota of all Alaska households. Consumers would, however, pay the full cost⁴

3. The lifeline concept might be phased in with the completion of new, more efficient generating capacity statewide, however, in order to reduce the total State outlay for power production assistance in the early years of the program. The initial lifeline quota might begin at 100 kwh per month in fiscal 1982, for example, and increase 100 kwh per month each year (or 10 kwh per month per month) until 500 kwh per month was reached in 1986 (1985).

4. The appropriate structure of electric rates for power in excess of a consumer's lifeline quota will differ depending on the way the power is generated, the amount of surplus generating capacity, and the nature of local demand. Where excess hydro generating capacity exists, it is in the community's interest to use as much of that capacity as possible by establishing promotional rates for residential and small-commercial space-heating, and for interruptible industrial service.

The details of rate design for consumption in excess of the lifeline quota can be left to the APUC or to contractual arrangements between the Power Authority and unregulated utilities, under two general rules: (a) that rates for power consumption not covered by any customer's lifeline quota should cover the entire cost of that additional consumption, and (b) that no class of customer should pay less per additional kwh than the variable operating costs for generating that additional kwh. (See note 5 below.)

of any power they consume in excess of 500 kwh per month, and would never pay less for additional kilowatt-hours than the cost of fuel and other variable operating costs necessary to generate those additional kilowatt-hours.^{5,6}

Selection of the Most Efficient Mix of Projects
Cost-Effectiveness in the Use of State Money

The immediate reduction in basic electricity costs for all Alaska consumers would reduce the urgency that consumers and legislators now feel to fund specific projects which may or may not be the lowest-cost alternatives, and which may or may not be ripe for construction.

5. This provision is necessary (1) to discourage consumers from heating with oil or gas-generated power when they could have used much less oil or gas if they had burned it directly as a heating fuel, and (2) to create the right conservation incentives.

If a state subsidy permitted consumers to pay only (say) 3 cents per additional kwh, when it actually cost the utility an additional 15 cents for fuel to generate an additional kwh, many consumers would use electricity in place of oil even if it would have cost them much less than 15 cents to get the same heat directly from oil. Households would, in addition, have no reason to spend more than 3 cents per kilowatt-hour to conserve energy, despite the fact that the community as a whole would save 15 cents for every kwh that did not have to be generated.

6. Granting every residential customer 500 kwh per month without charge would in itself remove any incentive for households to conserve energy unless they were already consuming more than 500 kwh. In order to offset this undesirable effect, each customer who used less than 500 kwh would receive a monthly conservation credit equal to the value of one-half of the fuel and other variable operating costs avoided by the utility.

The conservation credit would be applied first against the customer's electric bill. [Recall from note 2 that consumers are spared only the generating costs for their first 500 kwh, but still have to pay their share of distribution and administrative costs.] If the conservation credit exceeded these components of a customer's electric bill, the balance of the credit would be paid out in a voucher that could be used to buy oil, gas, firewood, or approved energy conservation devices or improvements.

Project selection and evaluation would take place according to the procedures already established in AS 44.83.180+ rather than in ad hoc pork barrel trading among legislators. The legislature would retain final authority, however, over the appropriation of funds for specific projects.⁷

7. The present law assumes that project selection will be made using sound methods of feasibility analysis. Valid economic comparisons between alternative generation technologies or alternative projects require the use of the best current estimates of future fuel and construction-cost inflation, market interest rates, and the like. §5 of CSSSSB 25 would make valid cost comparisons impossible by requiring the Alaska Power Authority to use assumptions which, even if they were the best possible assumptions today, would probably be false and misleading at the time any particular feasibility determination was made.

The provisions of §5 are not even valid today, however, and seem to be expressly designed to give misleading results. The combination of (A) "a general inflation factor for construction and operating costs of seven percent annually" and (C) "an escalation factor for measuring the comparative cost of oil, gas or coal; the rate to be applied is 11 percent annually . . ." implies a long-term increase in constant-dollar fuel prices of about 4 percent. This is a highly questionable estimate for future oil-price escalation, and a grossly excessive one for future coal and natural gas prices in Alaska.

The assumptions stipulated in the Senate bill may have been deliberately selected to favor hydro projects over coal, oil, or gas-fired projects, even where expected life-cycle costs in an unbiased analysis would favor thermal generation. If this is to be the policy of the legislature, the proper way to express such a policy is directly and openly with a provision that "the hydroelectric or other renewable energy project with the lowest constant-dollar life-cycle cost of electricity shall be the preferred alternative unless the average constant-dollar life-cycle cost of power from the hydroelectric or other renewable energy project exceeds that of the best fossil-fired alternative by [say] 15 percent or more."

Legislation such as §5 of SB 25, requiring the Alaska Power Authority to assume that two and two make five will serve no legitimate public purpose. It would utterly destroy the credibility of the Authority's feasibility determinations, and would very likely compel a future legislature that wanted to understand a proposed appropriation to contract for its own unbiased analysis.

State Ownership of State-Subsidized Power Projects
A Return to the State's Investment

All new state-assisted electrical generating plants will be built and owned by the Alaska Power Authority, and financed with appropriated equity, revenue bonds, or both.⁸ The Authority may either (a) operate such plants and sell the power to utilities at wholesale, (b) contract for utilities to operate the plants in behalf of the Authority, which would sell the power at wholesale, or (c) lease the plants to the utilities.

In each case, the utility will pay the Authority a wholesale price for electricity, or a lease payment for the plant made up of (a) all fixed and variable costs incurred by the Authority in connection with the project, including operation and maintenance costs, depreciation, interest on debt, and return to appropriated equity at market rates⁹,

8. Some of the rationale for State ownership of State-subsidized projects is set out in the Power Authority's "Proposed Energy Program for Alaska" (undated). The Authority will have responsibility for financing and construction, because as the representative of all the people of Alaska, it is presumably less responsive to local pressures to build oversized, goldplated, or otherwise non-optimal projects at State expense.

9. There are three reasons to require payment of a return on State-supplied equity: (a) A market rate of return to appropriated equity reflects the actual life-cycle cost of the project to the people of Alaska; ignoring or discounting this cost can give misleading signals and lead project sponsors to select excessively capital-intensive technologies or oversized projects, when some alternative could produce the same power at lower costs. (b) Part of the earnings on State-supplied equity can be used to offset the cost of providing 500 kwh per month free to each residential consumer. (c) Funds will be needed in the future for expansion and replacement of electrical generating facilities, and for other public purposes, but the State's long-term oil-revenue outlook is uncertain; the return of and on equity can build up a reserve fund for future energy investments.

less (b) credit for the value of all electricity consumed under the lifeline quotas of the utility's residential customers.

The Power Authority would schedule return of and on the State's equity investment so as to reduce unreasonably high front-end power costs, and to levelize constant-dollar electric rates over the project's life.¹⁰

9 (continued). The rate of return on an amount of appropriated equity which, together with externally-bonded debt, accounts for less than 75 percent of project cost, would be the AAA utility revenue bond rate at the time of financing; the rate of return on equity contributions in excess of 75 percent of project cost would be the AAA utility revenue bond rate plus 2 percentage points.

Providing a direct subsidy for one part of a project's fixed costs, and charging a full market rate of return for the remainder as proposed here is in principle equivalent to a below-market interest rate for the whole investment, as provided in the House Resources Committee bill. Isolating the subsidy element is the better policy, we believe, because it is easier to determine the amount of the subsidy and who benefits from it.

10. One of the obstacles to revenue-bond financing of hydropower and other capital-intensive generating technologies in Alaska is the fact that conventional financing and ratemaking methods result in highly "front-end-loaded" debt-service schedules, which require electric rates in the first few years of project life to be several times higher than the project's long-term constant-dollar average cost per kwh. Governor Hammond's power project financing proposal includes one method for levelizing project debt-service in constant dollars. Earlier proposals by the Authority and Turning contained alternative means for accomplishing the same end.

re: Hydro

Swick & Plain
Rhode

4/13

Senate bill - grants

Gov bill - equity grants

levelized payback

Rhode plan - a) $\frac{1}{2}$ cost of project as grant

$\frac{1}{2}$ must be taken to bond market

rigorous cost estimates

rigorous economic analysis

b) feasibility studies are moved out of APA
to Off of Gov

If project can't make it w/o some bond market test
What can Senators live with - they want individual
credit

Gov looking at overhauling office

Need 2 lines of defense - feasibility study
- bond market

Costs of electricity - substitute subsidy on good projects

"not everyone lives in ^{the} shadow of a dam."



Official Business

Alaska State Legislature

Senate

Office of the President

Mark
Pouch V
State Capitol
Juneau, Alaska 998.1

April 17, 1981

Dear Legislator:

I do not like to be critical of my colleagues; however, a member of the House of Representatives recently sent you a letter questioning the necessity of \$500 million for hydro development. In all fairness to this critical issue, I felt it necessary to respond because this legislation provides the first step in creating an energy-independent Alaska.

The statistic he used that electrical generation presently is 12% of the total Alaskan energy consumed is blatantly false. In some rural areas, it is only 12%; however, by way of example, the railbelt consumes as much as 30%. Practically speaking, the average for the state as a whole is closer to 20%.

He indicated a concern that low cost electricity will create a demand for electricity for heating homes and operating cars. It would certainly have that effect. However, I see that as a great plus because it will transfer the energy consuming patterns from being based on diesel or gas, nonrenewable resources, to electricity, a renewable resource.

He argues that low cost energy (electricity) will double or triple the amount of capacity of these projects. He has consistently attacked the hydro projects because of their excess capacity. In fact, by his own admission he has criticized the project in his own district (Swan Lake) because of its excess capacity. This excess capacity simply means that these projects would be used more efficiently from the start.

His closing statement that \$500 million funding for the various projects in Senate Bills 25 and 26 is a "flash in the pan" is ridiculous. A typical hydro project has a life expectancy of approximately 100 years.

It is a common fact that these projects will hold their value better than the dollars would. For the sake of argument, let's assume

that the "doom and gloom" people are correct in that by the year 2000 we will not have the revenue that could be used to finance future projects. As a practical matter, the value and the potential revenue these projects represent could be pledged along with proposed new projects that are needed at that time and obtain absolutely the very best bond rating for raising the needed revenue. Once the initial investment in these projects is made, the state has perpetually created a base from which to raise money whenever it is needed for future projects.

In closing, I would like to leave you with this most critical point: the energy proposal does not propose to solve all the energy problems of the State, and no one has claims it will. It is the first step in the development of a complete energy plan that will provide the necessary energy needs for future generations of Alaskans.

The ultimate solution to some of our energy needs are not even known yet.. The fact that the hydro proposal does not solve every energy problem must not be permitted to be accepted as an excuse for not doing what we can now. Gregg Erickson recently completed a study for the Legislative Affairs Agency titled, Natural Gas and Electric Power: Alternatives for the Railbelt. In considering possible alternatives to the Susitna Project, he noted that it will "produce power for centuries, whereas the life of Alaska's known gas resources, as any reasonably projected rate of consumption, are measured in decades." We should not allow imprudent legislation to take the place of a program which can provide up to 50% of our energy needs for future generations of Alaskans.

Sincerely,



Senator Palmer Kerttula
Senate President

JK/GT/aj

STATE OF ALASKA
THE LEGISLATURE

LEGISLATIVE AFFAIRS AGENCY

POUCH Y. STATE CAPITOL
JUNEAU, ALASKA 99811
907-465-3800

MEMORANDUM

April 20, 1981

SUBJECT: HCS CSSB 26 (Resources)

TO: Representative Terry Gardiner
Attn: Mark Wittow

FROM: John B. Chenoweth
Legislative Counsel

You cannot do anything about it in this appropriations bill, but you may want to verify that the two legislative committees receiving substantial sums in this bill have authority to operate during the forthcoming interim. Specifically, is it clear that the Joint Gas Pipeline Committee and the [House] Special Coal Committee are constituted with the powers of interim committees?

I should take the opportunity to remind you, again, that Sec. 32, appropriating for road construction, does not fit the bill title. I suspect the governor has an excuse to veto this appropriation not because it is without merit but to hold harmless the rest of the bill against a claim that it contains matter not noted in its title, a violation of Article II, section 13.

JBC:ljb

Enclosure

Bd -
This went to
me by mistake
MW

Original sponsors: Kerttula, Ziegler,
Ferguson, et al

Funding Information

General Fund \$572,202,500
Other Funds -0-
\$572,202,500

1 IN THE SENATE

BY THE RESOURCES COMMITTEE

2 HOUSE CS FOR CS FOR SENATE BILL NO. 26 (Resources)

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 TWELFTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act making appropriations to various state agencies
7 for energy-related programs and projects, and repealing
8 an appropriation for a hydroelectric project; and pro-
9 viding for an effective date."

10 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

11 * Section 1. The sum of \$309,100,000 is appropriated from the general
12 fund to the power project fund of the Alaska Power Authority (AS 44.83.170)
13 for loans in the amounts specified for the following listed power projects:

14	(1) Green Lake	\$ 52,500,000
15	(2) Ouzinkie	1,700,000
16	(3) Port Lions	1,400,000
17	(4) Snettisham (Crater Lakes)	4,500,000
18	(5) Solomon Gulch	29,000,000
19	(6) Swan Lake	65,000,000
20	(7) Terror Lake	100,000,000
21	(8) Tyee Lake	55,000,000

22 * Sec. 2. The sum of \$14,624,500 is appropriated from the general fund
23 to the power project fund of the Alaska Power Authority (AS 44.83.170) for a
24 loan to the Fairbanks North Star Borough for the following purposes:

25	(1) energy management program	\$ 12,152,077
26	(2) solar collector retrofit	1,211,760
27	(3) waste heat greenhouses	1,260,663

28 * Sec. 3. The sum of \$6,795,000 is appropriated from the general fund to
29 the Alaska Power Authority for Fairbanks district heating.

1 * Sec. 4. The sum of \$4,000,000 is appropriated from the general fund to
2 the power project fund of the Alaska Power Authority (AS 44.83.170) for a
3 loan to Alaska Electric Light and Power Company for construction of trans-
4 mission lines.

5 * Sec. 5. The sum of \$3,000,000 is appropriated from the general fund to
6 the power project fund of the Alaska Power Authority (AS 44.83.170) for a
7 loan to Alaska Electric Light and Power Company for rehabilitation of Salmon
8 Creek II.

9 * Sec. 6. The sum of \$85,000,000 is appropriated from the general fund
10 to the Alaska Power Authority for acquisition of a right-of-way for and
11 design and construction of a high voltage electrical transmission system
12 connecting Anchorage and Fairbanks.

13 * Sec. 7. The sum of \$2,000,000 is appropriated from the general fund to
14 the power project fund of the Alaska Power Authority (AS 44.83.170) for
15 acquisition of a right-of-way for and design and construction of an electri-
16 cal transmission system connecting Craig and Klawock.

17 * Sec. 8. The sum of \$5,800,000 is appropriated from the general fund to
18 the power project fund of the Alaska Power Authority (AS 44.83.170) for
19 acquisition of a right-of-way for and design and construction of an electri-
20 cal transmission system connecting Petersburg (Tyee Lake power project) and
21 Kake.

22 * Sec. 9. The sum of \$200,000 is appropriated from the general fund to
23 the Alaska Power Authority for construction of a single ground wire return
24 between Kotzebue and Shungnak.

25 * Sec. 10. The sum of \$215,000 is appropriated from the general fund to
26 the Alaska Power Authority for construction of a single wire ground return
27 transmission line between Napaskiak and Oscarville.

28 * Sec. 11. The sum of \$5,600,000 is appropriated from the general fund
29 to the Alaska Power Authority for reconnaissance studies for proposed power

1 project sites for the following rural communities: Akhiok, Ambler, Angoon,
2 Aniak, Atka, Atkasook, Brevig Mission, Buckland, Chefnak, Chignik, Chignik
3 Lagoon, Chignik Lake, Chuathbaluk, Cold Bay, Craig, Diomede, Elim, False
4 Pass, Galena, Golovin, Goodnews Bay, Grayling, Gustavus, Hoonah, Hooper Bay,
5 Hydaburg, Ivanoff Bay, Kalskag, Kaltag, Karluk, Kiana, King Cove, Klawock,
6 Kotlik, Kotzebue, Koyuk, Larsen Bay, Lower Kalskag, Mekoryuk, Metlakatla,
7 Newtok, Nightmute, Nikolski, Nome, Old Harbor, Perryville, Ruby, St. Mary's,
8 St. Michael, St. Paul, Savoonga, Scammon Bay, Shageluk, Shishmaref, Shungnak,
9 Stebbins, Teller, Tenakee Springs, Togiak, Toksook Bay, Tununak, Unalakleet,
10 Unalaska, and White Mountain.

11 * Sec. 12. The sum of \$30,850,000 is appropriated from the general fund
12 to the Alaska Power Authority for feasibility studies under AS 44.83.181, to
13 be allocated to the following proposed power project sites:

14	(1) Bethel regional study - Kisaralik	1,000,000
15	(2) Black Bear Lake	2,000,000
16	(3) Bradley Lake	4,000,000
17	(4) Chester Lake	1,000,000
18	(5) Chakachamna Lake	1,000,000
19	(6) Grant Lake	1,000,000
20	(7) Power Creek	700,000
21	(8) Susitna	18,100,000
22	(9) Takatz Lake	50,000
23	(10) Tazimina Lake	2,000,000

24 * Sec. 13. The sum of \$440,000 is appropriated from the general fund to
25 the Alaska Power Authority for a feasibility study of the Fairbanks district
26 heating extension.

27 * Sec. 14. The sum of \$996,000 is appropriated from the general fund to
28 the Alaska Power Authority for a feasibility study examining design and
29 construction of an electrical transmission system between Hoonah and Juneau.

1 * Sec. 15. The sum of \$42,000 is appropriated from the general fund to
2 the Alaska Power Authority for a feasibility study examining the rehabilita-
3 tion and improvement of hydroelectric facilities for Pelican.

4 * Sec. 16. The sum of \$4,500,000 is appropriated from the general fund
5 to the Alaska Power Authority for a feasibility study and design for the
6 Lake Elva hydroelectric project.

7 * Sec. 17. The sum of \$20,000 is appropriated from the general fund to
8 the Alaska Power Authority for payment as a grant to the City of Fairbanks
9 for sewer plant energy conservation and management.

10 * Sec. 18. The sum of \$400,000 is appropriated from the general fund to
11 the Alaska Power Authority for payment as a grant to the Kuskokwim Native
12 Association for electrification projects in Chuathbaluk, Crooked Creek,
13 Sleetmute, and Stony River.

14 * Sec. 19. The sum of \$4,800,000 is appropriated from the general fund
15 to the Alaska Power Authority for the power production cost assistance fund
16 (AS 44.83.162).

17 * Sec. 20. The sum of \$10,000,000 is appropriated from the general fund
18 to the Alaska Power Authority for the rural electrification revolving loan
19 fund.

20 * Sec. 21. The sum of \$5,000,000 is appropriated from the general fund
21 to the Alaska Power Authority for geothermal well drilling at Unalaska.

22 * Sec. 22. The sum of \$4,000,000 is appropriated from the general fund
23 to the Department of Administration for payment of rural electrification
24 grants to municipalities.

25 * Sec. 23. The sum of \$1,580,000 is appropriated from the general fund
26 to the Department of Commerce and Economic Development, division of energy
27 and power development, for programs under AS 44.33.030 - 44.33.060, to be
28 allocated as follows:

29 (1) preparation of state energy plan \$500,000

(2)	regional energy planning	100,000
(3)	state-federal liaison	100,000
(4)	citizens' information and assistance	100,000
(5)	data collection and computer application	700,000
(6)	professional seminars	80,000

* Sec. 24. The sum of \$12,800,000 is appropriated from the general fund to the Department of Commerce and Economic Development, division of energy and power development, for energy conservation refunds, grants and audits, to be allocated as follows:

(1)	performance of energy audits	\$4,000,000
(2)	energy conservation grants and refunds	8,800,000

* Sec. 25. The sum of \$16,200,000 is appropriated from the general fund to the Department of Commerce and Economic Development, division of energy and power development, for regional energy planning, energy audits, weatherization and conservation, community training, and reconnaissance studies under the low-income energy conservation program.

* Sec. 26. The sum of \$20,000,000 is appropriated from the general fund to the Department of Commerce and Economic Development, division of small business loans, for alternative energy and energy conservation loan programs, to be allocated as follows:

(1)	alternative energy and energy conservation loans	\$10,000,000
(2)	alternative energy business loans	10,000,000

* Sec. 27. The sum of \$2,400,000 is appropriated from the general fund to the Department of Community and Regional Affairs for the bulk fuel storage facilities grant fund (AS 44.47.145).

* Sec. 28. The sum of \$1,000,000 is appropriated from the general fund

1 to the Department of Community and Regional Affairs for payment of rural
2 electrification grants to unincorporated communities.

3 * Sec. 29. The sum of \$200,000 is appropriated from the general fund to
4 the Department of Education for teacher training and curriculum development
5 and for satellite television relating to energy-related subjects in elemen-
6 tary and secondary school curricula.

7 * Sec. 30. The sum of \$60,000 is appropriated from the general fund to
8 the Department of Natural Resources for an aquifer drilling project at
9 McGrath.

10 * Sec. 31. The sum of \$2,300,000 is appropriated from the general fund
11 to the Department of Natural Resources for a northwest Alaska coal resources
12 investigation.

13 * Sec. 32. The sum of \$2,650,000 is appropriated from the general fund
14 to the Department of Transportation and Public Facilities for construction
15 of a road between the Nome area road system and Pilgrim Hot Springs.

16 * Sec. 33. The sum of \$550,000 is appropriated from the general fund to
17 the Department of Transportation and Public Facilities for installation of
18 coal-fired heating systems in the schools of the Railbelt and Delta-Greeley
19 regional educational attendance areas.

20 * Sec. 34. The sum of \$250,000 is appropriated from the general fund to
21 the Office of the Governor for the fuel emergency fund (AS 44.19.052).

22 * Sec. 35. The sum of \$350,000 is appropriated from the general fund to
23 the University of Alaska for energy conservation improvements.

24 * Sec. 36. The sum of \$150,000 is appropriated from the general fund to
25 the University of Alaska for upper division and graduate courses related to
26 energy courses and professional studies.

27 * Sec. 37. The sum of \$200,000 is appropriated from the general fund to
28 the University of Alaska, division of community colleges and rural education,
29 for development of energy studies within community college curricula.

* Sec. 38. The sum of \$500,000 is appropriated from the general fund to the University of Alaska, division of community colleges and rural education, for vocational and job training programs related to energy.

* Sec. 39. The sum of \$6,400,000 is appropriated from the general fund to the Alaska Energy Center for research, development, and demonstration projects.

* Sec. 40. The sum of \$3,330,000 is appropriated from the general fund to the Alaska Energy Center for the following feasibility studies relating to energy projects of the center:

(1) Angoon tidal power project	\$ 500,000
(2) Kodiak waste heat cogeneration project	2,500,000
(3) Kotzebue district heating and coal utilization study	100,000
(4) Kotzebue waste heat study	150,000
(5) Mary's Igloo -- design of an energy efficient community in conjunction with relocation	50,000
(6) St. Mary's waste heat and district heating study	30,000

* Sec. 41. The sum of \$500,000 is appropriated from the general fund to the Alaska Energy Center for wind reconnaissance studies and research state-wide.

* Sec. 42. The sum of \$1,100,000 is appropriated from the general fund to the Alaska Energy Center for the following projects:

(1) Pilgrim Hot Springs geothermal test well	\$ 700,000
(2) Sheldon Point wind project	300,000
(3) Skagway construction of wind	

generating system

100,000

* Sec. 43. The sum of \$2,000,000 is appropriated from the general fund to the Legislative Council for the House Special Committee on Coal for a feasibility study concerning site selection and rail and road connections for a major coal export facility.

* Sec. 44. The sum of \$300,000 is appropriated from the general fund to the Legislative Council for the Joint Gas Pipeline Committee for a study of alternative methods of transporting Prudhoe Bay natural gas to market.

* Sec. 45. Section 1(1), ch. 54, SLA 1980 is repealed.

* Sec. 46. The unexpended and unobligated portion of the appropriation made to the Legislative Council in sec. 43 of this Act lapses into the general fund June 30, 1982.

* Sec. 47. Section 23 of this Act takes effect on the effective date of an Act entitled "An Act establishing assistance and information programs on energy in the Department of Commerce and Economic Development; and providing for an effective date."

* Sec. 48. Sections 26 - 28 of this Act take effect on the effective date of an Act entitled "An Act relating to departments and programs of state government which are concerned with energy; and providing for an effective date."

* Sec. 49. Section 44 of this Act takes effect on the effective date of an Act or resolution by which the First Session of the Twelfth Legislature directs its Joint Gas Pipeline Committee to prepare a report concerning alternative methods of transporting Prudhoe Bay natural gas to markets.

* Sec. 50. This Act takes effect immediately in accordance with AS 01.-10.070(c).



Alaska State Legislature

House of Representatives

Committee on Resources

Terry Gardiner, Co-Chairman
Fred F. Zharoff, Co-Chairman
465-3715

Pouch V
State Capitol
Juneau, Alaska 99811

MEMORANDUM

TO: Sen. Jay Kerttula
Sen. Ed Dankworth

FROM: Rep. Terry Gardiner

DATE: April 15, 1981

RE: Energy

Here's starting from scratch.

THE GOALS:

- A. Invest large sums of surplus State cash in renewable energy (targeting on hydro)
- B. Insure enough funds in future years for (i.e. Susitna and future energy projects)
- C. Make sure only good projects are built
- D. Lower extreme high energy costs in rural Alaska in short run and long run

Specifically, I am starting to draft a plan according to the above goals and following the outline below:

- A. Cash fund existing energy projects ready to go to construction.
- B. These projects would make an equity payment for the life time of the project when the projects are operational (the rate will be determined by matching it to needs for future projects and future subsidies for rates)
- C. Rural subsidy set at 200% of average State electrical rate
 - 1. interim finance by State appropriation to Power Production Assistance Program
 - 2. long-term finance from equity return program
- D. Review APA to make sure we have economic projects with this new plan.

Also I am reviewing the schedule of funding to complete all stages of Susitna construction to insure funding will be available for that project.

1.) Fund conservation
 &
 Weatherization

2.) G.F. Power Pool

3.) Fund R & D

Alaska State Legislature

HYDRO



Official Business

Speaker of the House of Representatives

Pouch V
State Capitol
Juneau, Alaska 99811

MEMORANDUM

TO: Representative Terry Gardiner, Co-Chairman
House Committee on Resources

FROM: Representative Jim Duncan
Speaker of the House

DATE: April 13, 1981

RE: Equity Return Financing for Hydro-Electric Projects

One of the most critical issues facing this and subsequent legislatures is the need to provide reliable, low-cost power to citizens of the state, for this and future generations. Development of our renewable hydro-electric resources can give us the opportunity to do this. I think it is important that the benefits derived from hydro-electric power be equitably distributed to provide parity in power costs on a state-wide basis. Therefore, at my request, Eric Yould and Terry McGuire have developed a financing proposal for hydro-electric projects based on a fixed rate of return on equity. It appears to be a sound, viable alternative to both grant and loan financing, as it provides not only a return on our investment but, when fully operational in 1989, equity in power costs for all Alaskans as well.

As envisioned, projects built with state capital and owned by the state (APA), would be required to return a percentage of the project value annually to APA over the useful life of the project. At a 5% rate of return, for example, local utilities operating the facilities could cover operation and maintenance expenses and forward the remainder to APA. The Authority estimates that if all the projects listed on page two of the attached summary were operational, wholesale power could be produced for 3.8¢ per kilowatt-hour (without Susitna), while still allowing a 5% return on equity, less an average of 1.5% for annual operating and maintenance expenses.

This figure (3.8¢) would be the wholesale power rate charged for Green Lake and Solomon Gulch when they come on line in 1982, with money from the equity return used to bring the wholesale cost of power from these projects down to this amount. When Swan Lake and Lake Tyee come on line in 1984, followed by Terror Lake in 1985 and Bradley Lake in 1986, sufficient power will be produced to allow a 3.8¢ wholesale charge per kilowatt-hour, with the additional revenue produced by a 5% return on equity then being available to subsidize power production costs and other energy-related projects (i.e., conservation, weatherization, etc.) on a statewide basis. The basis of this is the fact that the larger projects will produce much larger amounts of power at a cheaper wholesale rate than the initial (Solomon Gulch and Green Lake) projects. In this sense, the program is dependent on a few large power producers which have readily available markets.

It should be emphasized that the 3.8¢ per kilowatt-hour rate is for wholesale costs. Only power production is subsidized, with the retail rate to consumers being adjusted upward to account for the varying distribution and administrative costs incurred by the different local utilities to whom the wholesale power is sold. It would then be in the interest of the local utilities to encourage and promote conservation, efficient management practices and distribution to control their retail rates. Susitna start-up in the 1990's would both increase the amount of return on investment and lower wholesale power costs from 3.8¢ to 3¢ per kilowatt-hour. Susitna is the long-term anchor in this program.

The funds generated by an equity return would be available by legislative appropriation for essential and related energy programs such power production assistance, weatherization, development of other renewable energy resources, enforcement of building codes and other projects which promote the efficient use of energy while subsidizing the rates of those who must continue using expensive energy such as diesel. This program would create the mechanism to not only reduce energy costs statewide but also create parity in energy costs on a statewide basis when the projects on page 2 are fully operational in 1989.

Success of an equity return scheme depends on state ownership of projects, a strong commitment to energy conservation, development only of feasible projects, and in all likelihood, a separate rate structure for industrial users.

Hydro-Electric Financing
Page 3---

I strongly support an equity return method of hydro-electric financing in concept, realizing that many details are yet to be worked out. I would strongly recommend that this method of financing be worked into a committee substitute for SB 25. I think it will answer the Senate's desire for direct investment, while at the same time provide the state with a return on investment over the life (not just 30 - 50 years) of a project. All of the projects listed on page 2 of the attached summary are feasible under an equity return scheme, indicating that the feasibility of future projects would be protected as well.

I have asked Legislative Attorney Billy Berrier to draft the appropriate language for inclusion in SB 25 establishing the program at a 5% return on equity.

I urge consideration of this concept by the Resources Committee and would be willing to appear before the Committee in support of the concept.

JD:jp

Attachment

ALASKA POWER AUTHORITY

ENERGY PROGRAM FOR ALASKA (EPA)

The following pages are an attempt to address diverse energy issues, concerns, and strategies with a comprehensive program. It has the potential of being supported by all Alaskans, eliminate regional differences, provide reasonable cost energy statewide, and ensure financing of energy development. The potential benefits to Alaskans could exceed the benefits provided by other distribution programs of the state's non-renewable income.

The institutional framework exists to establish this program, as do the revenues to finance the program. It would require legislation to empower the Public Utilities Commission and the Alaska Power Authority to implement some aspects of the program.

The program should be evaluated today while major decisions on state investment in, or subsidy of, capital intensive renewable energy projects are being debated. The program should be comprehensive and rational, provide equitable benefits to all Alaskans and regions of Alaska, and provide a basis for sound decisions and future development. The program would not produce results overnight. The projects which may be developed would require years to construct, and the benefits of the program could only be distributed as the return on state investments increase. In the meantime, financial resources are available and means can be found to meet near-term needs until such time as the program is fully functioning.

This paper analyzes some implications of a comprehensive state subsidy of power development. A major impact of the program would be to lower energy costs statewide to benefit all Alaskan consumers. The program would also levelize the power production cost of energy statewide. This analysis would not have been performed in previous years when limited state assistance in financing of power projects was considered. Today, there is considerable support for state investment in, and subsidy of, renewable energy projects in the form of low interest loans or grants. A program of state investment can provide reasonable cost energy for all areas of Alaska. It can promote economic development and provide a benefit that directly impacts the disposable income of Alaskans without being subject to taxation. A program of this nature would be unique in that it has never been, to our knowledge, attempted on a statewide basis anywhere else in the United States. The question is, how can the distribution of the benefits from state investment in renewable energy projects be equitably distributed to all Alaskans?

The Power Production Cost Assistance Program was created to address the current high cost of energy in predominantly rural areas of Alaska. This program, no matter what its ultimate form may be, was established in the Power Authority since there was some consideration that operating subsidies provided through the program could be, eventually, offset by capital investment in renewable energy development. Although, the concept is commendable, the fact must be recognized that for many areas of rural Alaska, the most economic solution may be limited to weatherization, increased efficiency in diesel generation, and waste heat utilization. This situation will make termination of the Power Production Cost Assistance Program extremely difficult, particularly since Alaskans in these areas would not receive the benefits of state investment in renewable energy projects.

In past years, the concept of raising the cost per kilowatt hour of energy sold from power projects owned by the state by an amount necessary to subsidize rural energy costs was not supported since state assistance in development of the projects was not significant. However, if state assistance increases significantly, a policy to equitably distribute the benefits of state investment could be established. The renewable energy projects represent a state resource in most cases, and they do not necessarily exist for the benefit of a single community or region. State investments in energy should to the extent possible equitably benefit all Alaskans. But this investment has implications beyond the ability to equitably distribute the benefits. It will encourage economic development which must be controlled, and industrial energy demand should not necessarily be provided the same benefits from state investment in power projects as other classes of Alaskan consumers, except when it will create an industry that would otherwise not materialize and has an overall positive state benefit. It will also provide less incentive for conservation, when conservation through increased efficiency and weatherization may be in many cases the most economically feasible area for state investment or subsidy. Therefore, any policy which artificially lowers the price of energy must support an effective program of energy conservation.

A policy of state investments must be directed only toward projects which are economically feasible, to include both renewable energy generation projects and conservation. The potential size and impact of transfer payments for rural operating subsidies and conservation measures from a return on state investments could be substantial. The following analysis is based upon current dollar estimates and is intended to illustrate the program and issues surrounding it.

In FY 82, the Power Production Cost Assistance Program is estimated to cost approximately \$4.5 million as it is presently established. The program is funded with general fund appropriations. Assistance could be expanded in various ways by broadening the base of eligible customers, by increasing the percentage of assistance beyond 85% of the portion of power production costs eligible for assistance, or by lowering the base power production cost escalator from 7¢ to 6¢. Any one measure or a combination of these measures could increase the FY 82 cost of the program to \$10, \$20, or even \$30 million per year. Assuming the latter figure, there is also potential for price induced increases in demand, which could be assumed over time to cause the cost of the program to increase significantly to, perhaps, \$90 million per year. General fund appropriations for this program would be extremely difficult to continue.

If the State invested in renewable energy projects, it would be possible to establish an equity return on that investment. The advantage of an equity return is that it can be established to minimize the cost of energy impact on the consumers of energy from the project, and provide a constant source of revenue to fund other programs, like the Power Production Cost Assistance Program and conservation. Where as a grant provides no return and a low interest loan provides a limited return for the 30 to 50 year repayment period, an equity return continues for the useful life of the project. The amount of this return in current dollars based upon a 5, 7, and 9% equity return on the construction cost of various projects is shown below. The equity rates of return approximate the principal and interest payments respectively on 3.0%, 5.7%, and 8.0% loans for a 30 year term to finance construction. The table is in millions of 1981 dollars.

Project(s)	Capital Construction Cost (1981 \$)	Annual Equity Return		
		5%	7%	9%
Black Bear Lake	\$ 28.0	\$ 1.40*	\$ 1.96	\$ 2.52
Tazimina	123.0	6.15*	8.61	11.07
Bradley Lake	170.0	8.50	11.90	15.30*
Green Lake	55.0	2.75	3.85	4.95*
Port Lions	1.4	.07*	.10	.14
Solomon Gulch	68.0	3.40*	4.86*	6.12
Chester Lake	9.0	.45	.63*	.81
Terror Lake	85.0	4.25	5.95*	7.65
Lake Tyee	60.0	3.00	4.20*	5.40
Swan Lake	87.0	4.35	6.09*	7.83
SUB-TOTAL	\$ 686.4	\$ 34.12	\$ 48.15	\$ 61.79
Susitna	3,500.0	175.00	245.00	315.00*
TOTAL	\$4,186.4	\$209.12	\$293.15	\$376.79

The above table does not reflect all the potential projects which may be found feasible and subsequently developed. The table does not reflect that from 1% to 2% of the capital construction cost will represent the annual Operation and Maintenance costs for each project. In addition, the cost of energy from individual projects, due to varying project costs per kilowatt or the amount of excess capacity in the early years of operation, may not permit the same rate of return for each project at initial operation. The asterisks in the table for each project represent an estimate of the return that would be possible without adversely impacting the cost of energy in each project area in the early years of operation. Clearly, the potential exists to more equitably distribute the benefits of state investment in energy projects. Without Susitna, an expanded Power Production Cost Assistance Program could be funded with the equity return on feasible energy projects. Including Susitna, power costs could be considerably reduced or stabilized statewide with a potential for a return to the general fund.

If all projects were funded with grants, the wholesale cost of energy would only have to recover the annual operation, maintenance and administrative costs of the projects, or approximately 1.5% of the capital costs of construction. The grant funding alternative would require \$10.24 million in revenue from the projects excluding Susitna, and \$70.54 million including Susitna. The wholesale cost of energy in cents per kilowatt hour for this situation (which is equivalent to an equity return rate of 1.5%) is depicted below along with the cost of energy for various other rates of return.

	<u>1.5%</u>	<u>5%</u>	<u>7%</u>	<u>9%</u>
Without Susitna	1.3	3.8	5.4	6.9
With Susitna	1.1	3.0	4.2	5.4

Under the 5% return situation, \$34.12 million is recovered excluding Susitna, and \$209.12 million is recovered with Susitna. Of the return with Susitna, \$70.54 million would again pay for O&M and administration, and \$138.58 million would be available for power production cost assistance, conservation, new project construction, or a return to the general fund.

The various rates of return are illustrated to demonstrate the approximate wholesale cost of energy from the system, and the amount of the generated return which could be made available for alternative purposes. The overall rate of return could be adjusted to provide statewide benefits through other projects and programs and still result in a low cost of energy. Again, the rate of return associated with individual projects could be established in direct relation to the economic feasibility of the project and the relative power production costs in the project market area.

Many actions would be necessary to implement this statewide program.

1. State investment should only be made in those projects that are economically feasible. If a community or region can be provided electric power in a least cost manner only through more efficient diesel generation and conservation, then state assistance should be provided to stabilize the cost. The assistance would be through a power production cost assistance program and a conservation program funded with the return on equity from projects which were feasible for development.
2. The projects developed through state investment must be owned by the state as capital projects of the state. Individual projects can be leased for operation and maintenance to utilities in the market area served by the projects. It is necessary to establish the project owner as the state since the renewable resource projects would be constructed with state funds (non-renewable income), the renewable resources should benefit all Alaskans, and a common wholesale power cost for the energy produced from all projects could only be established for those projects owned by the State.
3. With lower energy costs, the demand for energy could increase in areas of the state currently experiencing the highest cost of energy production. It is likely that conservation efforts would be diminished unless energy efficiency standards for building construction are adopted, diesel generation efficiency standards are adopted, and energy conservation programs are strongly supported. Examples may include inefficient use of electric heat in poorly weatherized

buildings, or poor maintenance and inefficient use of diesel generation. Electric heat could be restricted to buildings that meet certain standards and where it is a more efficient use for heating purposes. A minimum of 8 kwh's per gallon of fuel could be established as a standard for diesel generation, and efficiency that is attainable for even small diesel generators. Individual consumers who fail to meet the weatherization standards for electric heat could be charged a premium, and communities which fail to maintain and efficiently operate their diesel generation could be provided assistance based solely on the minimum efficiency standards.

4. Separate rate structures for industrial uses could be established to either encourage or discourage industrial consumption dependent upon state policy. However, this policy would have to be consistently applied and studied further before it is established.

Both the Power Production Cost Assistance Program and the Energy Conservation Program could be continuously funded from the return on the economically feasible renewable resource projects. The opportunity exists today to establish Alaska's renewable energy future. State investment in renewable energy could prove to be a valuable State asset for the future. The program could equitably distribute benefits in the form of reasonable cost energy to all Alaskans. The capital energy projects of the State are an infrastructure investment which can provide a measurable return to the State and its residents while assisting in economic development.

This conceptual program would not impact the existing generation, transmission, and distribution systems of the retail utilities. Local control would be maintained wherever possible. The project selection and development process would be controlled as currently provided in A.S. 44.83 and in Power Authority regulations. Only the feasible projects based upon technical, economic, and environmental evaluation parameters would be proposed for State investment.

Swick & Plains' s ?
 testing only
 We want to sell bonds
 but...

Duncan

penalizes good projects
 subsidizes bad projects

But Encouragement →

use earnings
 not principle

No ceiling on
 pte/ amount
 of bonding

50% grants
 50% loans - interest
 rates

construction
 cost
 averaging

PROTECT
 Financing

tax-exempt

debt ratio

grants/requi
 loans

→ ratepayers → other state residents

grant → project
 ↓
 enough
 to make
 project
 viable
 opp. 50%

revenue bond to project

equal amount
 deposited in TF
 to provide interest
 earnings for TF

Need limit
 on amount
 that can funded
 50%
 flat edit
 better

① Certain projects
 will get built

② low rates

③ bond taken care of
 (\$ for future)

double
 earning
 (taxable earnings
 tax-exempt
 rates)

spare for
 large → but const. limit
 on spending

Only ways to screen out
 some projects

create bureaucratic

duration - separate liability
 studies

interest rates →
 can act as screen

regionally adjust
 per capita income

~~Paul~~ - please return
Royce to me

This has funding
for district projects
in it - see p. 4

m

JOSEPH McINTIRE
Executive Director

SKIP ROY
Technical Director

Alternative Energy Technical Assistance Program

1577 "C" Street
Anchorage, Alaska 99501

Phone 277-5151

FUND REQUEST

1982

The Alternative Energy Technical Assistance Program, Inc. requests \$161,500 for FY-82 to continue and expand its programs in order to meet the large number of requests for its services.

AETAP was funded by the Alaska State Legislature in 1980 to provide the bridge between interested decision makers around the state and the practicing alternative energy professional community. The appended quarterly report of the Technical Director summarizes the projects AETAP has facilitated during its first three months of operation. It was envisioned as an "action organization", with a commitment to springboard as many projects into existence as possible, utilizing its funds and staff to help small businesses, government agencies, individuals and non-profit corporations plan and implement alternative energy programs. The central philosophy of the AETAP Board of Directors is to limit the number of projects carried out in-house to a minimum, thus freeing staff time and funds to facilitate projects. This also avoids unfair competition between AETAP, a state-funded non-profit corporation, and private businesses.

In addition to serving as a catalyst for projects, AETAP is providing the following services:

- Promoting statewide awareness of the technical and economic feasibility of alternative energy technologies by one-on-one counselling with decision makers, by facilitating educational forums on existing alternative energy projects, by teaching technical classes at the community colleges, and by facilitating seminars for alternative energy professionals.
- Promoting the mainstreaming of alternative energy technologies into the relevant professions-planners, architects, engineers, government agencies, builders, real estate appraisers and sales, and financial officers.
- Providing technical counsel and referral services for existing alternative energy businesses.
- Increasing the number of qualified alternative energy professionals working in Alaska.
- Providing direct technical and hands-on counselling to DOE/AT and Northern Technology Grant recipients (on referral from the Division of Energy and Power Development).

- Providing critical analysis and evaluation for state energy policy development.
- Identifying barriers to the development of alternative energy in Alaska, including implementation of existing state programs, and working to remove them.
- Serving as a clearing house for project information, people seeking employment and those needing employees with an alternative energy background.
- Facilitating neighborhood groups interested in energy projects, including energy-efficient food production.

This request for FY-82 will increase AETAP's professional/technical staff to three, with a fourth person as half-time clerical and half-time research assistant. The new technical position will be working in the field with grant recipients and other individuals who have initiated alternative energy projects and need additional design or hands-on knowledge in order to complete their projects. Among the projects AETAP hopes to facilitate next year are an energy demonstration project in conjunction with a Point McKenzie dairy farm, a summer intern program for college students interested in alternative energy, a state policy ensuring good energy conservation standards for federally subsidized rural housing, and facilitating developemnt of a communications network for local energy-efficient food production projects. AETAP openly seeks suggestions for needed projects from everyone and will devote the remainder of its efforts to facilitating programs suggested to us.

The resume of the Acting Director is also appended.

1982 Budget Summary

Salary, Leave, Benefits	\$118,290.00
Travel and Transportation	15,000.00
Services and Contractual	24,110.00
Commodities & Supplies	1,700.00
Education and Reference Material	1,200.00
Equipment Capitalized	<u>1,200.00</u>
TOTAL	\$161,500.00

For further information, please contact:

Skip Roy, Acting Director
 Alternative Energy Technical Assistance Program
 1577 "C" Street, Suite 298
 Anchorage, Alaska 99501
 (907) 277-5151 / 279-8215

QUARTERLY PROJECT SUMMARY, April 6, 1981
Technical Director
Alternative Energy Technical Assistance Program

The Technical Director is currently involved in the following projects:

Anchorage Integral Urban House

This project was initiated by Skip Roy during October, 1980 and was brought to AETAP by him on January 5, 1981. Funding commitments have been received from the Division of Energy and Power Development and the Alaska Energy Center. Funds in hand total \$100,000 of discretionary funds provided by Clarissa Quinlan, D.E.P.D. These funds are being handled by Don Markle, Contracts Officer. Markle has asked Skip Roy to select a five-person interim board to decide how the project should be structured. Besides Roy and Markle, commitments have been received from Sharon Davidoff, architect, and Ann Wieland, Science Coordinator, Anchorage City Schools. Other candidates include Jeff Lowenfels, garden columnist, Anchorage Daily News, (and local attorney), and Mrs. Lowell Thomas. A large Advisory Committee will be selected by the board. The first stage in planning the project will be to bring consultants from the New Alchemists to Alaska for brainstorming. Authorization for this is in process and final arrangements will be announced soon.

Anchorage Solar Home Tour

This project, initiated by AETAP, is actively co-sponsored by AERC, AAE, and the Energy Extension Service, and passively sponsored by a number of professional groups such as the Multiple Listing Service, the Alaska Home Builders Association, The American Society of Landscape Architects. The date is May 2, 1981. A one credit hour class will be offered through Anchorage Community College starting April 15. This class will meet for four 2-hour sessions before the tour, include the tour, and then meet for two 2-hour sessions after the tour. Public speaking arrangements have been arranged for two of the passive sponsor organizations, and at least three others will be scheduled. Permission has been received from one homeowner and is expected from three others this week.

Anchorage Solar Feasability Study

This project was instigated by Skip Roy during September, 1980 discussions with Bob Shipley, Western Sun's Alaska representative. This is a \$10,000 contract; AETAP has been selected, but no contract has been signed. A copy of AETAP's proposal is appended. AETAP will instigate a strong community participation effort in conjunction with this project by training as many interested citizens in the process of solar site assessment as possible. The goal is to locate and assess at least 300 homes with solar potential and then inform the owners of the possibilities. If a large enough pool of projects emerge, efforts will be coordinated with one of the business development projects to start a solar construction and installation firm. Discussions with the Alaska Public Interest Research Group holds promise for joint efforts in the community outreach aspects.

Alternative Energy Projects for the Alaska State Park System

The State Parks are seeking funding to include three alternative energy projects in the 1981 construction budget. Chip Dennerlein, head of parks, and Sandy Rabinowltch, Facilities Planner, have met with the Technical Director to select three possible projects and develop budget proposals for the Legislature. Projects include retrofitting passive solar into the Morgan's Landing Ranger Station, wind power for water pumping at Clam Gulch, and an \$8,000,000 wind and solar Administration and Public Use Facility for Kachemak Bay State Park on the Homer Spit. AETAP has also supplied technical information on these projects to the appropriate legislators. By incorporating alternative energy into an existing agency budget, we have been able to make wind and solar consideration part of standard planning processes, thus profiting from the educational benefits without creating separate "Demonstration Projects."

Bering Straits Native Corporation Wind Project

This project was referred to AETAP by AERC. Bob Whisenhunt, Director of Ancillary Business Development, BSNC, determined that alternative energy represented the best business opportunities for BSNC as a result of standard business planning procedures. He had no previous interest in alternative energy and the decision was based on profit motives. After a series of conversations, a meeting between Whisenhunt and Mark Nevell was arranged. They are currently developing a \$60,000 feasibility study to examine franchise manufacturing of a leading wind generator in Anchorage. If results are positive, BSNC may commit \$5-10 million to the project. Skip Roy has been asked to work with Whisenhunt on an advisory capacity as the project continues.

Local Food Production

Recent meetings in Juneau with staff of the Small Agriculture Subcommittee have resulted in incorporation of several important projects in pending legislation. First, the idea of a library of high latitude agriculture literature, translation, indexing, digesting and distribution has been made part of a new position in the Division of Natural Resources. Second, a program of \$50,000 grants will be available for rural and urban community gardening projects. Third, the subcommittee will try to have a state-wide meeting of garden project leaders so they can develop an organizing structure. And fourth, they are seeking state land for a combined research and demonstration facility. The committee will be operating as an interim committee through the summer. Discussions with Sue Greene, Governor Hammond's Aide on Commerce, revealed that Bob Palmer, Director of Agricultural Development is being pressured by the Governor to include plans for local food production. This is a result of efforts by Sue Greene and Bella Hammond. Sue Greene was placed in contact with the Small Agriculture Subcommittee by AETAP and they are working together on pending legislation. A related project, a Point McKenzie Energy Demonstration Farm is being pursued in conjunction with the Audobon Society. This is still in an incipient phase, pending outcome of legal action.

Anchorage Alternative Energy Hands-On Shop

This project, originally suggested as an in-house AETAP project for 1982, has been placed on Senator Fischer's priority list for funding. We are providing funding levels and back-up documentation to Sumner Putnam, Fischer aide. It is fairly certain to be funded; it will be necessary to find an existing non-profit to carry out the project.

McGrath Community Plan

The planning firm of Parbyshire & Associates has asked for assistance in including alternative energy in the development plan for McGrath. Initial discussions indicate that some education will be necessary in addition to providing a bridge to existing experts. Discussions are underway to make alternative energy a standard item in their planning menu.

Solar Planning Seminar for the Alaska Chapter, American Society of Landscape Architects

Work with Sandy Rabinowitch on the State Parks project has resulted in an invitation to address the local A.S.L.A. meeting on April 7, 1982. Landscape architects are traditionally the professionals responsible for the siting of houses and other aspects. Rules of thumb and economics will be presented, hopefully using the Homer Spit Facility (State Parks) as a working example.

Solar Planning, State Division of Lands

This project is a result of a year long effort by Susan Heikkala, formerly a planner, DNR, Terry Dale, formerly with DEP, and Skip Roy. Contact with Ted Smite, Director, Division of Lands, led to a meeting with the Planning Committee. At that time, Helen Neinhauser, Director of Planning, appointed Bill Betlock of the South Central office as liason. The project will actually begin on April 6, with choice of a 1982 unit for solar planning. This unit will serve as a basis for developing solar planning constraints for all future disposal.

Village Energy Demonstration Project

AETAP is providing technical consultation to Rural CAP to develop a proposal for a large scale energy retrofit project, incorporating all possible local energy resources into one demonstration village. The Alaska Energy Center has committed a large sum for this project.

THE ANCHORAGE SOLAR FEASIBILITY STUDY

A Proposal by

The Alternative Energy Technical Assistance Program, Inc.

The Alternative Energy Technical Assistance Program (AETAP) proposes to determine statistically the number of residential applications for active solar space heating, active solar water heating, passive solar space heating and passive solar water heating that exist in the Anchorage area. In addition, AETAP will donate in-kind services in order to carry this project beyond the level of study outlined in the scope of work.

Outline of Work

These tasks are essential for meaningful results:

Task 1: Determine the month-by-month net Btu yield of each of the four technologies, using nationally-recognized state-of-the-art, Alaska-specific computer programs developed by Davis Alternative Technology Associates, via phone link (Telenet) from Anchorage to Davis and Berkeley, California. (The computer facilities of Wind Systems Engineering will be used as Anchorage terminal, word processor and data processor.)

Task 2: Determine the calendar period of relevance by subjecting the results of Task 1 to detailed economic analysis.

Task 3: Select a statistically valid sample population of 300 sites using a simple cartesian process utilizing a map base as opposed to a name-list. This is important because site-specific solar access is determined by a combination of physical geography and the built environment, not economic or ethnic population demography.

Task 4: Perform a field visit to each site, recording solar access and obstructions for each of three possible collector sites: roof mount, south wall mount, and separate collector (garage, yard or other). Recording will be photographic, utilizing a standard SLR 35mm camera with a special reticle that superimposes the Anchorage sun chart. Photographic records of the south facade of the building will also be collected in order to assess physical problems that might be present in solar retrofitting.

Task 5: Analyze and summarize the data into a format suitable for use in developing a small business marketing plan using the Alaska Renewable Resource Corporation guidelines. This process will weigh such site factors as bare branch and leaf shading coefficients, natural reflectance, and nature of the existing building.

Task 6: Select areas of Anchorage with high solar potential and develop a map outlining them. Define combinations of physical geography and the built environment that yield high solar potential. Develop planning rules of thumb and guidelines in cooperation with the municipal planning authorities. Outline areas of future growth potential that have high solar potential.

Task 7: Prepare a 10-page report designed for real estate developers, financial community, municipal officials, and entrepreneurs presenting the findings in an easily understood graphic form. The technical and statistical research will be available as appendices.

AETAP believes that the great inherent value of the study as outlined above will be greatly enhanced by the following in-kind service contributions by AETAP staff:

Task 8: Train 20 community people in solar site selection and evaluation; in return, each person will be asked to locate 10 houses with good solar potential, thus creating a bank of potential applications.

Task 9: Each site with good potential located by Task 5 and Task 8 will be contacted outlining possibilities for projects, available state and federal subsidies, sources of further information, and design and construction firms specializing in solar products and projects.

Personnel:

AETAP believes that one of the major difficulties in AE development in Alaska is the lack of suitably trained professionals working in the state. AETAP will use this contract as a lever to bring a solar energy specialist with a national reputation to Alaska as a project manager and researcher. Bruce Melzer, a solar consultant who worked in Alaska for about 6 months in 1979-80 has agreed to relocate permanently in Alaska after managing the project (see attached resume'). He is recognized as a national

solar consultant who worked in Alaska for about 6 months in 1979-80 has agreed to relocate permanently in Alaska after managing the project (see attached resume'). He is recognized as a national authority on solar access and planning, solar retrofit hands-on programs, as well as being a professional journalist and photographer. He has great experience in interpreting computer analysis and has managed several projects with budgets in excess of the \$10,000 available for this project. Melzer has suggested that he personally perform the solar research, the field work, the analysis and the reporting in order to thoroughly familiarize himself with the access and construction problems, to maintain the highest possible control over the data, and to minimize overhead costs. Working with Melzer on an advisory basis will be Skip Roy, Technical Director of AETAP. Dr. Matt Berman, an energy economist very familiar Railbelt solar problems, will be hired as a consultant to provide economic structure and review, as well as statistical design consultation (see attached resume'). Marketing input, structure and control will be developed using Alaska Renewable Resource Corporation guidelines. Bob Whisenhunt, director of Ancillary Business Development for Bering Straits Native Corporation, has agreed to act as an advisor on the business developing and marketing aspects of the project. He brings 16 years experience in all aspects of business development, planning and financing to the project. He has recently completed a study of alternative energy business opportunities for BSNC. Financial coordination will be by the AETAP budget process, which is identical to the state budgeting procedure, insuring maximum accountability. Joe MacIntire, Executive Director of AETAP will have ultimate financial responsibility.

This information in this proposal is proprietary; use for any purpose other than selection of contractor by Western Sun is prohibited without permission.

For clarification or further information contact:

Skip Roy, Technical Director
Alternative Energy Technical Assistance Program, Inc.
1577 "C" Street, #297
Anchorage, Alaska 99501
277-5151(W) 276-0711(H)

CHARLES "SKIP ROY

Technical Director and Acting Executive Director
Alternative Energy Technical Assistance Program
1577 "C" Street, #298
Anchorage, Alaska 99501
(907) 277-5151 / 279-8215 / 276-0711

DATE OF BIRTH: February 22, 1945

MARITAL STATUS: Unmarried

ALTERNATIVE ENERGY EXPERIENCE:

January 1981 - Present

Technical Director and current Acting Executive Director, Alternative Energy Technical Assistance Program, Inc., a state funded non-profit corporation.

May 1979 - January 1981

Founder and Manager, Alaska Renewable Energy Associates (formerly Alaska Solar Project).

Projects include:

The Homer House, Alaska's first passive solar home

Energy Conservation package for Cutler residence

Passive Solar Addition for the Homer Middle School

Passive Solar for Delta Junction Community Education Building

Dillingham Elderly Housing Project-Passive Solar Feasibility

Passive Solar for Petersburg Elderly Housing Project

Economic Feasibility of the Double Envelope House, 6 Alaskan cities

Energy Conservation for Kake, Chevak and Kwethluk Headstart Schools

Wind Generator for Chevak - project supervision in progress

Solar Research, Development and Education package for Weatherization staff, Rural CAP

Passive Solar Design Seminar, Copper Center Branch, Prince William Sound Community College and Anchorage Community College

Eaglewood II, preliminary calculations for Jimmy Anderson, Architect

Energy-efficient greenhouse design for 12 Alaska communities in progress

D.O.T.P.F./Rural CAP

Malick double-envelope greenhouse addition, Juneau

Passive Solar home designs in Anchorage area for Frichtl, Weeldreyer, Buehl,

Schleiff, Stogsdill, Puckett, Kimball, Dotson, Whitney and Wallace

Mann residences.

Design Analysis for Thompson residence

Steering Committee, First Alaskan Alternative Energy Conference

Resource Person, Citizen's Participation Conference, Energy Committee

Horizontal to Vertical & Tilt Conversion Computer Program "HV", for 17 Alaska Communities

Breadbox hot water heater construction project, Palmer, Alaska

Passive & Active Solar for the Bethel Senior Citizens Community Center

Technical Reviewer, 1980 Department of Energy Appropriate Technology Grant Program

Power Alternatives Subcommittee, Alaska Legislature

Wind Power Potential for Railbelt Area

Passive Solar Feasibility for Railbelt area research document

Funding proposals for Conservation, Renewable Energy Research & Development, Demonstration, Education and Outreach.

Alternatives to Susitna, subcontract to Battelle N.W., Inc.
Village Energy Reconnaissance Study: Shungnak, Kiana, and Ambler,
Subcontractor.

August 1978 to June 1979

Davis Alternative Technology Associates, Davis, California.
Project Manager, Energy Analyst, Writer/Editor.
Projects include:
California Energy Code Compliance calculations, 24 buildings.
Impact of Passive Solar, 6 major growth areas of California.
Passive Solar Tax Credit Development, Analysis & Critique.
Breadbox hot water heater design, analysis and installation,
Farm Labor Center, Indio, California.
Monitoring Project/Maeda-Nittler Residence.
Passive Solar Media Package (Preliminaries).
Experiment design for underground pipe cooling project.
Underground house monitoring project.
Double envelope house monitoring project.
Alaska Research Project.

February 1978 to August 1978

Living Systems, Winters, California, Writer/Editor.
Planning Solar Neighborhoods draft, Winner of a national award for
energy conservation, 1978, for American Society of Planning
Officials and HUD.
Base line research document for 2 HUD publications:
Site Planning for Solar Access, HUD PDR 481.
Solar Access for Residential Development, HUD PDR 485.
The Suncatcher & The Cool Pool, with Jonathan Hammond.

PREVIOUS EXPERIENCE INCLUDES:

Farming/Homesteading, Georgetown, Arkansas, 1971-1978.
Surveying, Ozark Mtn. Surveyors, Huntsville, Arkansas, 1975-1978.
Concrete Construction and Management, Fritz Concrete, 1973-1974.
Teacher, Science and Math, Elkins Public Schools, 1972-1973.
Archeology, Geology & Speleology
Various expeditions and project employment, 1965-1978.
Commercial Diver, Ft. Lauderdale, Florida, 1968-1971.
Copper tube bending and other factory work.

EDUCATION INCLUDES:

Graduate work in Archeology, University of Arkansas.
B.S., Indiana University, 1971, concentration in Geology,
Anthropology and Creative Writing.
Senior Research Project: "Fredericksburg Cave, Hydrology and Stratigraphic
Control of Cavern Formation." Dean's List, 1971.
Other Publications include about 25 articles on cave exploration and speleology,
including 6 national awards. 50,000 words completed on novel in progress.

REFERENCES ON REQUEST

STATE OF ALASKA

OFFICE OF THE GOVERNOR

DIVISION OF POLICY DEVELOPMENT AND PLANNING

POUCH AD
JUNEAU, ALASKA 99811
PHONE: 465-3573

April 16, 1981

Honorable Hugh Malone
Alaska State Legislature
Pouch V
Juneau, Alaska 99811

Dear Representative Malone:

I would like to invite you and your staff to attend a briefing on the status of the Railbelt Electrical Power Alternatives Study. The briefing will be conducted by the prime contractor, Battelle Northwest Laboratories, and will describe the purpose and design of the study and progress made to date. While a firm date and location have not yet been established, we expect to hold the briefing during the second week in May. Notices will be posted around the Capitol announcing the time and place of the briefing.

The Railbelt Electrical Power Alternatives Study is part of the State's effort to investigate the hydroelectric potential of the Susitna River, as well as other alternatives available to meet the electrical power needs of Alaska's Railbelt region. During the 1979 session of the Alaska Legislature, \$8.2 million was appropriated to the Alaska Power Authority to begin a feasibility analysis of developing the hydroelectric potential of the Susitna River. In September, 1979, a major engineering and construction firm, Acres American, Inc., was selected to perform this Study and work commenced. During the 1980 session, an additional \$12.2 million was appropriated for further phases of the Study. However, \$1.365 million of this amount was appropriated to the Office of the Governor for the purposes of obtaining an independent assessment of all viable alternatives for providing electric power to the Railbelt. The appropriation specifically requested that the assessment of alternatives be deleted from the Acres American contract to insure the appearance as well as the substance of an impartial study of alternatives.

In late June, 1980, Governor Hammond established an interagency committee to manage the Railbelt Electrical Power Alternatives Study. The Committee consists of: Mr. Ron Lehr, Director of the Division of Budget and Management; Ms. Clarissa Quinlan, Director of the Division of Energy and Power Development; Mr. Charles Conway, Chairman of the Board of Directors of the Alaska Power Authority; and Ms. Frances A. Ulmer, Director of the Division of Policy Development and Planning. In addition to oversight of the "Alternatives Study," the Committee has responsibility for management of the Cook Inlet Tidal Power Study which was funded by the 1980 Legislature. The Committee has retained the services of Arthur Young and Co. of Anchorage to serve as Project Manager for these studies. The Project Manager is responsible for the day-to-day administration of both studies, for insuring coordination among interested parties, and for providing other staff services to the Committee as needed.

April 16, 1981

During July, 1980, existing staff in the four agencies represented on the Policy Review Committee cooperated in preparing a request for proposals which was mailed to approximately 125 engineering, economics, and planning consulting firms throughout the nation. Advertisements were also placed in statewide and national newspapers. As the request for proposals required that proposals cover the entire Study effort and not simply individual tasks, firms were encouraged to joint venture to put together teams providing all of the necessary expertise.

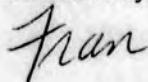
On August 29, 1980 (the due date for proposals), fourteen proposals were received by the Committee. In order to keep the "Alternatives Study" on track with the concurrent Susitna Feasibility Study, an accelerated selection process was pursued. After intensive review by the staff, the Policy Review Committee on September 4, 1980, selected four proposals for more in-depth evaluation and oral presentations.

The four finalists brought their teams to Anchorage for a question and answer session with the Committee and the public. Immediately following these briefings, the Committee met and selected Battelle Pacific Northwest Laboratories as the prime contractor for the "Alternatives Study." Other members of the Battelle team include: the Institute of Social and Economic Research of the University of Alaska; Ebasco Services/Envirosphere Company (engineers); Haggard, Tousley, and Brain (attorneys); and Preston, Thorgrimson, Ellis, Holman, and Fletcher (attorneys). Additional subcontractors, including Alaskan firms and individuals able to provide Alaskan expertise, will be added to the team as necessary.

An important part of the "Alternatives Study" is a public participation program designed to allow interested Alaskan organizations and individuals to participate closely in the development of this Study. During the week of April 6, three workshops were held in Anchorage and Fairbanks to allow organizations expressing an interest in the electric power future of the Railbelt to comment on several aspects of the Study. During the week of May 4, Battelle will conduct a series of community meetings throughout the Railbelt to inform the general public about the Study and receive comments.

The Railbelt Electrical Power Alternatives Study is scheduled for completion in March, 1982, to coincide with completion of the Susitna Feasibility Study being conducted by Acres American, Inc., for the Alaska Power Authority. These two studies will provide the information needed by the Legislature and the Governor to make a decision about whether the State should proceed with development of the Susitna project or pursue other alternatives. Your active interest and participation in the development and review of this study will help to insure its quality and ultimate utility.

Sincerely,



Frances A. Ulmer
Director

Keggs
Cotton Gardner
Duncan Fuller
Mackin Smith
Freeman Malone

Hydro 3/16

~~scribble~~

Hydro - ① Energy is one of few areas
where we could put \$ and Malone
get something back in return.

Loans & grants - if they're free, everyone wants one
unlimited demand
Krems + Lopez

market test
demand a
function of
interest

Coal adds more benefits than hydro
Hydro - just provides electricity
main need - transportation

Subsidy to equalize costs of power? Miller

Cotton - market test needed / has APA turned down
any project's

Gov's bill - equitable grants will provide some help in rates
+ leverized payments - 3% at beginning - 9% at end

Gardner - problems w/ SB 25

Project Priority

Which do you
fund first, given
cutoff

- ① Payback - several exceptions
- ② Which offers best returns / potential benefits

Consider benefits (ends) then
select best project (means)

Original sponsors: Kerttula, Dankworth,
Ziegler, et al

Offered: 3/5/81
Referred: Rules

1 IN THE SENATE

BY THE FINANCE COMMITTEE

2 CS FOR SPONSOR SUBSTITUTE FOR SENATE BILL NO. 25 (Finance)

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 TWELFTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act establishing a power project development fund
7 in the Alaska Power Authority and amending the Alaska
8 Power Authority Act; and providing for an effective
9 date."

10 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

11 * Section 1. AS 44.83.030(a) is amended to read:

12 (a) The authority shall consist of the following directors:

13 (1) four directors at large to be appointed by the governor
14 and confirmed by the legislature;

15 (2) the commissioner of commerce and economic development;

16 (3) the commissioner of natural resources;

17 (4) the commissioner of revenue;

18 (5) the commissioner of transportation and public facilities;

19 (6) the commissioner of community and regional affairs.

20 * Sec. 2. AS 44.83.040 is amended to read:

21 Sec. 44.83.040. OFFICERS AND QUORUM. The directors [DIRECTOR]
22 shall elect one of the directors at large as chairman and other officers
23 they determine desirable. The powers of the authority are vested in
24 the directors, and five [THREE] directors of the authority constitute a
25 quorum. Action may be taken and motions and resolutions adopted by the
26 authority at a meeting by the affirmative vote of at least five [THREE]
27 directors. The directors of the authority serve without compensation,
28 but they shall receive the same travel pay and per diem as provided by
29 law for board members.

1 * Sec. 3. AS 44.83.110(g) is amended to read:

2 (g) When the authority has created and established a capital
3 reserve fund, the commissioner of revenue may lend surplus money in the
4 general fund to the authority for deposit in a capital reserve fund in
5 an amount equal to the capital reserve fund requirement. The loans
6 shall be made on such terms and conditions as may be agreed upon by the
7 commissioner of revenue and the other members of the authority, includ-
8 ing without limitation terms and conditions providing that the loans
9 need not be repaid until the obligations of the authority secured and
10 to be secured by the capital reserve fund are no longer outstanding.

11 * Sec. 4. AS 44.83.100 is amended by adding a new subsection to read:

12 (e) The authority shall issue bonds the principal and interest of
13 which are paid only from the money derived from the project financed
14 with the proceeds of those bonds for a power project previously financed
15 from the power project development fund (AS 44.83.400). Bonds may be
16 issued under this subsection only if

17 (1) the appropriations to the power project development fund
18 for that power project, and interest earned on those appropriations,
19 are insufficient to cover the cost of the power project; and

20 (2) the rate of interest which the authority will pay on the
21 bonds is not more than alternative costs of securing money to pay for
22 the power project.

23 * Sec. 5. AS 44.83.181(b) is amended by adding a new paragraph to read:

24 (5) a recommendation as to whether the proposed project is
25 economically feasible; a power project is "economically feasible" if
26 the authority determines that the total costs of the power project are
27 cheaper for the estimated life of the project than other alternatives;
28 in making a determination of economic feasibility under this paragraph,
29 the authority shall evaluate the estimated life of the power project

1 and its alternatives applying the following standard factors:

2 (A) a general inflation factor for construction and
3 operating costs of seven percent annually;

4 (B) an interest rate of 10 percent for money borrowed
5 for the power project; and

6 (C) an escalation factor for measuring the comparative
7 cost of oil, gas or coal; the rate to be applied is 11 percent
8 annually, and the rate shall be applied to the current fuel cost
9 at the date of determination of economic feasibility.

10 * Sec. 6. AS 44.83 is amended by adding new sections to read:

11 ARTICLE 8. POWER PROJECT DEVELOPMENT FUND.

12 Sec. 44.83.400. FUND ESTABLISHED. (a) A power project develop-
13 ment fund is established in the Alaska Power Authority to carry out the
14 purposes of AS 44.83.400 - 44.83.480.

15 (b) The fund includes

16 (1) all money appropriated to it by the legislature; and

17 (2) interest earned by investment of money in the fund by
18 the Department of Revenue.

19 Sec. 44.83.410. USE OF FUND BALANCE. (a) The fund may be used
20 by the authority to provide money for

21 (1) reconnaissance and feasibility studies and power project
22 finance plans prepared under AS 44.83.177 - 44.83.181; and

23 (2) the cost of a power project, including but not limited
24 to costs of acquiring necessary licenses, preparing engineering designs,
25 obtaining land, and constructing the power project.

26 (b) Money in the fund may be used under (a) of this section only
27 for a power project which

28 (1) meets the operation and revenue requirements of AS 44.-
29 83.460; and

1 (2) operates or will operate

2 (A) on renewable energy resources; or

3 (B) on coal, peat or wood, if the authority determines

4 that

5 (i) the source of the fuel for the project is
6 abundant; and

7 (ii) renewable energy resources to operate the
8 power project are not available or are not economically
9 feasible; or

10 (C) on fossil fuel if none of the other resources or
11 fuels listed in this subsection are economically feasible.

12 Sec. 44.83.420. INVESTMENT OF FUND. The Department of Revenue
13 shall invest the balance of the fund which exceeds the amount the
14 authority determines is necessary to meet requirements of AS 44.83.410
15 during the current fiscal year. An investment by the Department of
16 Revenue under this subsection shall be made in accordance with AS 37.-
17 10.070 and 37.10.075.

18 Sec. 44.83.430. ALLOTMENT TO PROJECTS. (a) The authority shall
19 maintain records of power project allocations from the fund for each
20 power project

21 (1) approved in accordance with AS 44.83.185; and

22 (2) for which an allocation is made from an appropriation
23 made by the legislature without specifying a project.

24 (b) Income earned from investment of money appropriated to the
25 fund under AS 44.83.400(b) shall be allotted by the authority to power
26 projects for which appropriations have been made by law. The allotment
27 shall be based on the amount of investment income earned during each
28 state fiscal year in or after which the legislature has appropriated
29 money to the fund. An allotment of income under this subsection shall

1 be made to each power project for which a specific appropriation has
2 been made in proportion to the amount appropriated for that project as
3 a percentage of the total amount appropriated by the legislature to the
4 fund.

5 Sec. 44.83.440. REALLOCATION OF FUND BALANCE. (a) If a power
6 project designated by the legislature by law is not constructed, the
7 amount appropriated to it may be reappropriated to other power projects
8 by the legislature.

9 (b) The legislature may allocate money under (a) of this section
10 only for a power project which is economically feasible under AS 44.83.-
11 181(b) if the project will serve the market area that is to be served
12 by the power project designated by the legislature and not constructed.

13 Sec. 44.83.450. LAPSE OF EXCESS FUNDS. If appropriations for a
14 power project exceed the amount required for construction of the power
15 project, the excess lapses into the general fund.

16 Sec. 44.83.460. OPERATION AND REVENUE REQUIREMENTS. The authority
17 may not use money in the fund for a power project unless the authority
18 determines that, after construction, operation of the power project
19 will provide revenue sufficient to cover

20 (1) operation, maintenance, and equipment replacement costs
21 of the power project;

22 (2) debt service costs associated with the power project;
23 and

24 (3) the costs of safety inspections and investigations of
25 the power project by the authority.

26 Sec. 44.83.470. OPERATION OF POWER PROJECT BY QUALIFIED UTILITY.
27 If, after construction, a power project that is constructed with pro-
28 ceeds from the fund will be operated by a qualified utility, the author-
29 ity shall enter into an agreement with the qualified utility

1 (1) to assure that operation of the power project by the
2 qualified utility will provide sufficient revenue to meet the require-
3 ments of AS 44.83.460; and

4 (2) to assure that the power project is operated in a safe
5 manner.

6 Sec. 44.83.480. DEFINITIONS. In AS 44.83.400 - 44.83.480,

7 (1) "fund" means the power project development fund;

8 (2) "qualified utility" means any of the following which the
9 authority determines is capable of operating and maintaining a power
10 project of the kind and magnitude which has been constructed or is to
11 be constructed to provide power for a market area:

12 (A) a corporation organized under the Alaska Nonprofit
13 Corporation Act (AS 10.20);

14 (B) an electric cooperative organized under the Electric
15 and Telephone Cooperative Act (AS 10.25);

16 (C) a utility owned and operated by a municipality; and

17 (D) a regional electrical authority (AS 18.57);

18 * Sec. 7. AS 44.83.410(b), added by sec. 6 of this Act, is amended by
19 adding a new paragraph to read:

20 (3) upon completion, charges rates for power which it sells
21 which provide a rate of return to the authority of seven percent a year
22 of the amount allocated to the power project by the authority from the
23 fund .

24 * Sec. 8. AS 44.83.460, added by sec. 6 of this Act, is amended by
25 adding a new paragraph to read:

26 (4) payment to the authority of a rate of return of seven
27 percent a year of the amount allocated to the power project by the
28 authority from the fund.

29 * Sec. 9. AS 44.25.020 is amended by adding a new paragraph to read:

1 (5) invest and manage the balance of the power project
2 development fund in accordance with AS 44.83.420.

3 * Sec. 10. Sections 1, 2, and 3 of this Act take effect immediately in
4 accordance with AS 01.10.070(c).

5 * Sec. 11. Sections 4, 5, 6 and 9 of this Act take effect July 1, 1981.

6 * Sec. 12. Sections 7 and 8 of this Act take effect July 1, 1986, if on
7 that date the total amount appropriated by the legislature to the power
8 project development fund (AS 44.83.400) is less than \$5,000,000,000.

Original sponsors: Kerttula, Ziegler,
Ferguson, et al

Offered: 3/5/81
Referred: Rules

Funding Information

General Fund \$512,500,000
Other Funds -0-
\$512,500,000

1 IN THE SENATE

BY THE FINANCE COMMITTEE

2 CS FOR SENATE BILL NO. 26 (Finance)

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 TWELFTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act making special appropriations to the Alaska
7 Power Authority for energy projects and for the power
8 production cost assistance program; and providing for
9 an effective date."

10 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

11 * Section 1. The sum of \$354,900,000 is appropriated from the general
12 fund to the power project development fund of the Alaska Power Authority
13 (AS 44.83.400 - 44.83.480), to be expended by the authority in the amounts
14 specified for the following listed power projects:

15	(1) Bradley Lake	\$40,000,000
16	(2) Chester Lake	6,000,000
17	(3) Green Lake	46,000,000
18	(4) Port Lions	1,400,000
19	(5) Snettisham	20,000,000
20	(6) Solomon Gulch	62,000,000
21	(7) Swan Lake	53,000,000
22	(8) Terror Lake	81,500,000
23	(9) Tyee Lake	45,000,000

24 * Sec. 2. The sum of \$40,000,000 is appropriated from the general fund
25 to the power project development fund of the Alaska Power Authority (AS 44.-
26 83.400 - 44.83.480) to be allocated by the authority to the following areas
27 for development and construction of power projects under AS 44.83.187:

28 (1) \$10,000,000 for projects in senate district M
29 (2) \$10,000,000 for projects in senate district N

(3) \$10,000,000 for projects in senate district P

(4) \$10,000,000 for projects in other areas of the state.

* Sec. 3. The sum of \$85,000,000 is appropriated from the general fund to the Alaska Power Authority for acquisition of a right-of-way for and design and construction of a high voltage electrical transmission system connecting Anchorage and Fairbanks.

* Sec. 4. The sum of \$27,800,000 is appropriated from the general fund to the Alaska Power Authority for feasibility studies under AS 44.83.181, to be allocated to the following proposed power project sites:

(1)	Black Bear Lake	\$ 1,400,000
(2)	Grant Lake	1,000,000
(3)	Kisaralik	1,000,000
(4)	Kotzebue	850,000
(5)	Power Creek	700,000
(6)	Scammon Bay	200,000
(7)	Susitna	15,000,000
(8)	Takatz Lake	50,000
(9)	Tazimina Lake	2,000,000
(10)	Rural community studies: Akhiok, Ambler, Angoon, Atka, Chignik, Chignik Lagoon, Chignik Lake, Cold Bay, Elim, False Pass, Goodnews Bay, Grayling, Gustavus, Ivanoff Bay, Kaltag, Karluk, Kiana, King Cove, Larsen Bay, Nikolski, Old Harbor, Ouzinkie, Perryville, Shungnak, Tenakee Springs, Togiak, Unalaska	5,600,000

* Sec. 5. The sum of \$4,800,000 is appropriated from the general fund to the Alaska Power Authority for the power production cost assistance fund

1 (AS 44.83.162).

2 * Sec. 6. Sections 1 and 2 of this Act take effect on the effective
3 date of an Act entitled "An Act establishing a power project development
4 fund in the Alaska Power Authority and amending the Alaska Power Authority
5 Act; and providing for an effective date."

6 * Sec. 7. Sections 3 - 5 of this Act take effect immediately in accor-
7 dance with AS 01.10.070(c).

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Original sponsor: Ferguson

Funding Information

General Fund	\$3,590,000
Other Funds	-0-
	<u>\$3,590,000</u>

Offered: 3/4/81
Referred: Rules

1 IN THE SENATE

BY THE FINANCE COMMITTEE

2 CS FOR SENATE BILL NO. 174 (Finance)

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 TWELFTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act making supplemental appropriations to the
7 Alaska Power Authority; and providing for an effective
8 date."

9 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

10 * Section 1. The sum of \$1,050,000 is appropriated from the general fund
11 to the Alaska Power Authority, power production cost assistance fund (AS 44.-
12 83.162), to cover costs of the power production cost assistance program for
13 the fiscal year ending June 30, 1981.

14 * Sec. 2. The sum of \$2,540,000 is appropriated from the general fund to
15 the Alaska Power Authority for the study of the Susitna River hydroelectric
16 project for the fiscal year ending June 30, 1981.

17 * Sec. 3. This Act takes effect immediately in accordance with AS 01.10.-
18 070(c).



Alaska State Legislature

House of Representatives

Committee on Resources

Terry Gardiner, Co-Chairman
Fred F. Zharoff, Co-Chairman
465-3715

PROPOSED HOUSE ENERGY PROGRAM

Pouch V
State Capitol
Juneau, Alaska 99811

I. POWER (ENERGY) PROJECT REVOLVING LOAN FUND

- A. APPROPRIATION: \$400,000,000
- B. Fund shall be used as a financing source for the development of utility scale energy projects around the state
 - 1. May be used for reconnaissance studies, feasibility studies, pre-construction and construction phases
 - 2. Loans must be authorized by the Legislature
 - 3. All projects funded through the legislative process must go through the existing feasibility determination process under the statutes governing the Alaska Power Authority
 - 4. Renewable energy-based projects shall be given preference over those using fossil fuels
- C. Governor shall submit annually in his budget a list of projects ready to be funded for reconnaissance, feasibility, and construction phases
 - 1. Feasibility shall be determined according to existing statutes (AS 44.83.181), a least-cost life-cycle formula, and responsible load growth projections
 - 2. Separation of powers in regard to planning and financing roles among state agencies, to prevent conflict of interest
 - 3. Equal consideration, perhaps in competitive arrangement between the Alaska Power Authority and the Alaska Energy Center, of large-scale, centralized power production, and small-scale, decentralized power production
 - 4. Load growth analysis shall include end use analysis, which will include planning for energy conservation and best use of available energy resources
- D. Loan terms
 - 1. Interest shall be (x) percent, determined to be the average return to the general fund over the past ten years
 - 2. Term of the loan shall be 35 years, but may be extended to 50 years
 - 3. Repayment may be delayed
 - 4. Repayment of interest shall be leveraged, providing for low interest rates in the beginning, gradually escalating over time
 - a. This provides for low interest rates for today's residents
 - b. Will tend to ensure that future residents help pay a more realistic share of the project cost
 - c. Increasing rate base and inflation should offset the graduated increase in interest charges
- E. Final bill should include, as the Governor's bill does, a mechanism to ensure that this leveraged interest payback does not unduly burden future residents of communities where growth does not meet projections, or if for some other reason residents cannot meet the debt obligation easily

II. ENERGY DEVELOPMENT FUND

- A. APPROPRIATION: \$50,000,000
- B. Funds may be appropriated annually by the Legislature from the interest income of the fund for the Alaska Energy Center or other entity, for energy development projects which show promise to benefit the nation as a whole
 - 1. The fund is intended to be part of Alaska's commitment to help develop a secure national energy base, and to demonstrate that Alaska is using part of its oil wealth to benefit the nation as a whole
 - 2. The board of directors of the Alaska Energy Center and the governor may suggest to the Legislature projects which they consider appropriate for consideration
 - 3. Projects may involve research and development of technologies, demonstration projects, or commercialization of feasible projects
 - 4. Preference shall be given to renewable energy-based technologies, but may extend to any non-nuclear technology which offers measurable and cost-effective promise to reduce the nation's dependence on foreign fossil fuels
 - 5. Projects considered may be directed toward any manner in which energy is used or consumed, such as generation of electricity, transportation and other fuels, space heating or cooling, industrial processes, energy transfer or transport, architecture, engineering, or community planning
- C. The Governor shall submit annually in his budget requests for appropriation of the fund

III. ALASKA ENERGY CENTER

- A. APPROPRIATION: \$12,000,000; of which approximately half shall be a continuation of funding appropriated for FY 81, and half shall be new appropriation
- B. Alternative Technology and Energy grant and loan fund shall be transferred to the center; funding provided for FY 81 shall be carried over to FY 82
- C. Management of state-funded demonstration projects and research and development
- D. Architectural design for northern climates
- E. Fossil fuel research, development and demonstration (R, D & D)
- F. Renewable energy and conservation R,D&D
- G. Transportation fuel and technology R,D&D
- H. Agricultural energy production and consumption R,D&D
- I. Center for Innovation
- J. Assist with Northern Technology grant program
- K. Stabilizing rural Alaska's energy future (self-sufficiency)
- L. Become fiscally self-sufficient for own operating budget within ten years
- M. Create new businesses and jobs in Alaska's private sector

IV. RURAL ENERGY SELF-SUFFICIENCY and interim stabilization

A. APPROPRIATIONS: existing programs

1. Existing programs (funding is as appropriated in FY 81)
 - a. Governor's fuel emergency fund (AS 44.19.179) \$ 250,000
 - b. Bulk fuel revolving loan fund (AS 45.87.010) 1,604,500
 - c. Bulk fuel storage facilities grant fund (AS 44.47.140) 1,173,000 #2-
 - d. Power Production Cost Assistance Program (AS 44.56.162) 4,800,000
 - e. SUB TOTAL \$7,891,500

2. federal energy assistance program (administered by the Department of Health and Social Services; state will probably be required to pick up full costs 7,367,600

- a. program was funded in FY 81 with \$7,183,800 in federal funds, and \$183,800 in state match
- b. designed to assist low-income people pay their energy bills, both URBAN AND RURAL
- c. funding figure shown indicates the entire state's account, both urban and rural
- d. best way to offset this cost is through an effective weatherization and energy conservation program

3. SUBTOTAL: existing programs at FY 81 funding levels \$15,259,100

- ##### B. APPROPRIATIONS: new programs (see below) 15,000,000

- ##### * C. TOTAL APPROPRIATIONS * \$30,259,100 *

1. does not include project development costs, which will come from the POWER PROJECT REVOLVING LOAN FUND (see: I.A.)

2. does not include demonstration projects or other benefits to be derived from the ALASKA ENERGY CENTER (see III.)

D. NEW PROGRAMS: COMPREHENSIVE RURAL ENERGY DEVELOPMENT PLAN

1. Regional planning to assist communities, with technical assistance from the state
2. Energy audit program designed for rural application; complete community audit/weatherization program, to save implementation cost; will offset future fuel needs
3. Weatherization and retrofit, partially funded by the state on a sliding scale based upon ability to pay
4. Reconnaissance studies
5. Community involvement: education, employment, emphasis on local self-help and employment/training
6. Project development
 - a. Demonstration projects by Alaska Energy Center
 - b. Feasibility analysis and construction through Alaska Power Authority, Alaska Energy Center, etc.
 - c. Entire communities would be considered as "projects," since the goal would be to integrate each community so as to minimize energy waste and develop new energy technologies adapted to local conditions and needs
7. Integrate energy-efficient design into new housing construction
8. Consider transportation energy component as integrated part of the whole.

V. ENERGY CONSERVATION

- A. APPROPRIATION: \$20,000,000
- B. Audit, weatherization and retrofit program as exists in state law (AS 45.89.010-100)
- C. State should extend its life-cycle costing requirements to include its vehicle fleet and other equipment (legislation to be introduced this session)

VI. STATE ENERGY PLAN

- A. APPROPRIATION: \$1,000,000
- B. Plan to be prepared by the Division of Energy and Power Development
 - 1. Resource reconnaissance as energy resources apply to needs and potential utilization by nearby communities
 - 2. Technical assistance regionally, or to municipalities
 - a. May contract with municipalities, regional associations, etc., for the regional/local plans to be done locally to meet requirements of the overall state energy plan
 - b. May do the plans directly, in which case political subdivisions are required to cooperate
 - 3. Energy emergency preparedness as component of state plan
 - a. Preparation of contingency action plan to meet localized, statewide, or national energy emergencies
 - b. Several phases of energy emergency, only the most severe of which would require full use of emergency powers by the governor; others would be met with lesser authority (legislation to be introduced this session)
 - c. Energy emergency planning to be done by DEPD and the Division of Emergency Services, Dept. of Military Affairs
 - 4. Energy data collection, interpretation, dissemination and retrieval
 - a. DEPD is lead agency for energy planning,
 - b. DEPD is state repository of energy data, with efficient retrieval system and dissemination process
 - c. All state agencies involved in energy must cooperate with DEPD in this effort
 - d. Confidentiality clause where appropriate to protect private or commercial interests under existing standards
 - 5. Plan to be completed as a high-priority need, and the top priority of the division

VII. ENERGY AGENCY REORGANIZATION

- A. Existing administration of energy planning, research, development and other elements necessary to attack the state energy problems, suffers from a lack of direction and coordination, being spread over nearly every department of state government
- B. Administrative reorganization is necessary, but is too complex to be tackled on a large scale this year; however some things can and should be done

(Agency reorganization, continued from page 4)

- C. In 1980, the House of Representatives approached Governor Hammond to try to resolve the problem
 - 1. Gov. Hammond agreed that a problem exists, and assigned the problem to the Division of Planning and Policy Development (DPDP) in his office
 - 2. The House, through the House Research Agency, commissioned the National Conference of State Legislatures to investigate the problem
 - 3. There was agreement that these two efforts would be done on a cooperative, though separate, basis
 - 4. Results
 - a. Governor's investigation: not yet available, though both DPDP and the Commissioner of Commerce and Economic Development are currently concluding their efforts
 - b. House investigation (NCSL): NCSL found this project to be more complex than they had anticipated, and have suggested a two-phase approach with more work to be done next interim; however, their initial report is forthcoming and likely to be available before April
- D. Suggested interim solutions
 - 1. Create a new position, Deputy Commissioner of Energy, in the Department of Commerce and Economic Development
 - a. Prime duty: state energy planning function, as outlined in VI above
 - b. work in conjunction with the Alaska Energy Center, the Alaska Power Authority, and the various departments with responsibilities in energy
 - (1) Department of Natural Resources (resource mapping, resource leasing, permits, etc.)
 - (2) Department of Environmental Conservation (lead agency in many permit application procedures for resource development; environmental protection, air and water quality, control over hazardous substances, etc.)
 - (3) Department of Fish and Game (protection of game and fish and their habitat; permit application review, etc.)
 - (4) Department of Military Affairs: Division of Emergency Services
 - (5) Department of Health and Social Services (low-income and elderly energy assistance programs, some weatherization funds (federal))
 - (6) Department of Transportation and Public Facilities (design and construction, energy auditing and retrofit, transportation research (currently), research into methods of energy conservation and power, heating, and lighting: etc.)
 - (7) Department of Education (education curricula; design and construction of school and recreation facilities for the department
 - (8) Department of Community and Regional Affairs (local government assistance, bulk fuel facilities, etc.)

(Agency reorganization, continued)

- (9) University of Alaska (research and resource mapping)
- 2. Redefine the role of the Division of Energy and Power Development, and the division's responsibilities
 - a. energy planning under the deputy director
 - b. data bank
 - c. liaison with federal government, and with Alaskan communities, other agencies, etc., especially in regard to potential or actual impacts of federal proposals or policies
 - d. energy education and public information
 - (1) work with UA, the community colleges, and the Department of Education to develop energy education curricula for the public schools, CC and university programs (including graduate study), and vocational training programs in the energy field
 - (2) work with UA, the CC's, and vocational schools to develop vocational education, professional seminars and other adult services
 - (3) work with professions and trade unions to develop informational and educational programs to suit the needs of those who would attend
 - (4) public outreach, information dissemination, referral services
 - e. Energy Extension Service (existing, modeled after the agricultural extension service)
 - f. state audit/grant/retrofit program implementation and oversight

VIII. ENERGY AS A FUNDAMENTAL PLANNING COMPONENT

- A. Extend life-cycle costing and energy efficiency standards now applicable to state construction, to include all aspects of state purchasing, such as its vehicle fleets where possible, equipment and appliance purchasing
- B. Adopt a program emphasizing energy end-use
- C. Energy demand should be a fundamental planning component when assisting the development of new industries and programs; including site selection, energy supply, availability, demand, and price impact; transportation modes and delivery systems, etc.
- D. Examples:
 - 1. Land disposal program: how to provide energy for remote parcels
 - 2. agricultural development: energy sources, supply and cost, and how this will relate to crop and livestock economics and the small family farm (energy costs are putting a record number of family farms out of business in the Lower 48)
 - 3. fisheries development: remote ports, harbors and processing plants; vessel fuels; electricity and other energy needs (the U.S. shrimp fleet in the Gulf States are tied up and out of business because of fuel prices)

RURAL ENERGY PROGRAM

- I. Regional planning
 - A. Fundamental part of state energy planning effort
 - B. Stress should be on local control, with technical support provided by state energy offices (DEPD, APA, AEC, APUC, etc.)
 - C. Hire regional energy planners for each ANCSA region
 - D. Planning based on local needs, local resources, and concept of end-use analysis and energy conservation in seeking options
- II. Energy auditing
 - A. Apply state auditing program to rural Alaska in an organized manner, community by community, as determined by the region
 - B. Apply state grant and loan programs for weatherization/retrofit to rural Alaska in appropriate manner, as determined regionally
 - 1. Added costs must be taken into consideration
 - 2. Work to be performed by local residents to the ultimate extent possible, as determined regionally and by program contractors and contracting authority
- III. Weatherization and retrofit
 - A. Apply state grant and loan program, adapted for rural Alaska
 - B. To be done on community-by-community basis, to take advantage of most cost-efficient means of accomplishing the goal
 - C. Rural conditions must be taken into account
 - 1. Program cost will be more because of transportation of people and materials to isolated villages
 - 2. Materials must be ordered early, and in one lot, so most efficient and cost-effective transportation method can be used
 - 3. Impress upon the Governor the need to expedite administrative processing of this program, especially the first year, so the work can start before the winter stops work; by the second year, contracting and other procedures should be smoother and not in need of extraordinary pressure to meet this deadline
 - D. Partial, but not total, financial assistance by the state
 - 1. State audit and basic (\$300 plus perhaps a rural differential) grant program to be made available in the Bush thru program
 - 2. State to offset loss of federally funded weatherization programs if necessary, for low-income, elderly, etc.
 - 3. State loan program (\$5,000 maximum, at 5% interest thru 1984) as a component of the financing mechanism
 - a. grants may supplement 1 and 2 on a sliding scale based on ability to pay
 - b. the ability of this program to offset other public assistance should be a criterion for determining the financial arrangements

IV. Resource Reconnaissance

- A. Collection of data on existing energy supplies, resources potentially available for use with renewable resources taking precedence; and on conversion processes, waste heat utilization and co-generation, end use analysis, existing and potential residential, commercial, and industrial demand
 - a. Energy audits will be part of this process
 - b. Focus will be to study each community as a complete energy system
- B. Demand forecast for residential, commercial, industrial, and public service (schools, city offices, recreational, health, utility) sectors, and for transportation requirements
- C. Development of most appropriate resource bases and technologies to create a stable energy delivery system, based on local preference, economics, resource supply and demand, end use, and other factors important to project development

V. Community involvement

- A. Education, both in schools and vocational institutions, and for members of the public as to what they can do to conserve energy, and why this will benefit them directly; including job training.
- B. Local employment is to be a primary consideration to the utmost extent possible
- C. Technologies adopted should be ones which can employ local people, either untrained or with public training (which is a component of the overall state energy plan)
- D. Village leaders and members of the community should be involved in deciding how best to resolve their energy problems in a manner that is consistent with their lifestyles, cultural considerations and traditions, and local needs and preferences

VI. Project development

- A. Alaska Energy Center
 - 1. Architectural design for northern climates for new housing
 - 2. Integrated village energy planning (lead agency with the \$\$\$)
 - 3. Energy demonstration projects, leading to commercialization with APA, ARRC, etc.
- B. Utility scale project development with existing technology where available, with APA as lead agency and AEC and other agencies providing integrated energy planning
- C. Integrated approach
 - 1. Power production
 - 2. Appropriate design for new housing
 - 3. village gardening as a component, including attached solar greenhouses and use of waste heat to warm soil for planting
 - 4. transportation component, unaddressed up to now
 - 5. Local social needs taken into consideration

Rural Energy
Memo: 3/16/81
page 4

- VII. Continuation of existing assistance programs
 - A. Continue funding for power production assistance program
 - B. Continue funding for bulk fuel storage program, as necessary
- VIII. Energy emergency preparedness, rural component (part of overall state energy planning process)

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Alaska State Legislature

House of Representatives

Committee on Resources

Terry Gardiner, Co-Chairman
Fred F. Zharoff, Co-Chairman
465-3715

Pouch V
State Capitol
Juneau, Alaska 99811

MEMO: March 23, 1981
(revises memo of March 20, 1981)

TO: Rep. Terry Gardiner
Co-Chairman

FROM: Bob Speed, *BA*

RE: House energy plan: breakdown of delivery cost
\$513,259,100, tentative total

Your instructions were that the House Leadership estimates that about \$500 million is available for appropriation to energy this year, and that I should base my assumptions on that.

My revised budget comes to \$513 million, after correcting some estimates upward after further investigation, rather than the earlier figure of \$499.8 million.

The breakdown is as follows:

- \$400,000,000 appropriation to the Power Project Rev. Loan Fund
- 50,000,000 appropriation to the Energy Development Fund
- 12,000,000 appropriated to the Alaska Energy Center
- 30,259,100 estimated for rural energy needs (basic services)
- 20,000,000 for the conservation audit/grant-refund/retrofit prog.
- 1,000,000 for development of a state/local energy plan
- \$513,259,100 TOTAL

I might add that the \$400 million for the power project revolving loan fund is more than sufficient to cover the needs of expected project development this year, including reconnaissance studies for Bush communities, and feasibility studies, as well as construction funding for projects ready to be built.

These figures do not reflect departmental operating or capital budget requests for anticipated operations and projects for FY 82 which are requested in the Governor's budget request. The figures do not include costs of adding a deputy commissioner of energy in the Department of Commerce, or any other costs of restructuring the agency delivery system which is being discussed in various quarters.

Furthermore, any new demonstration projects legislators want to include would be at additional cost. These, however, should be discouraged this year, as the Energy Center is probably maxed out as far as its ability to handle additional work. The projects they plan should provide good results; further projects would probably only decrease their effectiveness.

12-1115
Chenoweth✓

1 IN THE HOUSE

BY THE RESOURCES COMMITTEE

2 HOUSE BILL NO.

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 TWELFTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act relating to energy: establishing a power
7 project revolving loan fund in the Alaska Power
8 Authority, transferring the alternate energy and tech-
9 nology loan fund, and establishing an energy develop-
10 ment fund; and providing for an effective date."

11 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

12 * Section 1. AS 44.83 is amended by adding new sections to read:

13 ARTICLE 8. POWER PROJECT REVOLVING LOAN FUND.

14 Sec. 44.83.400. FUND ESTABLISHED. (a) A power project revolving
15 loan fund is established in the Alaska Power Authority to carry out the
16 purposes of AS 44.83.400 - 44.83.500.

17 (b) The fund includes

18 (1) all money appropriated to it by the legislature; and

19 7 → (2) amounts paid, as principal and interest, on loans made
20 by the authority from the fund.

21 Sec. 44.83.410. USE OF FUND BALANCE. The fund may be used by the
22 authority to make loans for the cost of a power project, including but
23 not limited to costs of acquiring necessary licenses, preparing engi-
24 neering designs, and construction of the power project.

25 Sec. 44.83.420. ADMINISTRATION OF FUND. The authority shall make
26 loans from the fund for purposes authorized by AS 44.83.410 for a power
27 project designated by the legislature by law, in an amount determined
28 by the legislature by law, if and the power project

29 (1) operates or will operate on renewable energy resources;

1 or

2 (2) operates or will operate on coal, oil, oil shale, natural
3 gas, peat or wood, and the authority determines that renewable energy
4 resources to operate the power project are not available in amounts
5 sufficient to sustain the power project.

6 Sec. 44.83.430. INVESTMENT OF FUND BALANCE. (a) The Department
7 of Revenue shall invest and manage the balance of the fund which exceeds
8 estimated loan and grant requirements under AS 44.83.410 for the current
9 fiscal year.

10 (b) An investment by the Department of Revenue under this subsec-
11 tion shall be made in accordance with AS 37.10.070 and 37.10.075.
12 Income earned from investment of money appropriated to the fund shall
13 be deposited by the commissioner of revenue in the general fund.

14 Sec. 44.83.440. DESIGNATION OF PROJECTS. (a) The provisions of
15 AS 44.83.177 - 44.83.183 apply to power projects proposed for construc-
16 tion with a loan provided from the fund established in AS 44.83.400.

17 (b) The governor shall submit a proposal for a power project to
18 the legislature. When the report of the division of budget and manage-
19 ment examining the feasibility study and plan of finance is completed
20 as required by AS 44.83.183, it shall be submitted to the legislature.

21 (c) The legislature shall consider and must approve each proposal
22 for a power project. The legislature may approve a power project only
23 by enacting law authorizing that project.

24 Sec. 44.83.450. LIMITATION ON ACTIVITIES OF AUTHORITY ON POWER
25 PROJECTS. (a) The authority may not proceed with work on the engineer-
26 ing or design phase of a power project proposed by the governor under
27 AS 44.83.440 until the legislature approves the proposed new project.
28 However, the authority may proceed with the engineering or design work
29 necessary to meet the requirements for submission of a license applica-

1 tion for the proposed new project to the Federal Energy Regulatory
2 Commission without obtaining legislative approval of the proposed new
3 project.

4 (b) The authority may not proceed with engineering, design, or
5 construction of a power project not presented under AS 44.83.440 for
6 which the legislature has appropriated money until a feasibility study
7 has been completed in accordance with AS 44.83.181.

8 Sec. 44.83.460. ALLOTMENT TO PROJECTS. The authority shall
9 maintain records of loans from the fund for power projects designated
10 by the legislature.

11 Sec. 44.83.470. LOAN TERMS AND CONDITIONS. (a) Except as pro-
12 vided in (d) of this section, a loan for a power project under AS 44.-
13 83.400 - 44.83.500 may not be made for a period in excess of 35 years.

14 (b) The average rate of interest on the entire outstanding balance
15 of a loan made under AS 44.83.400 - 44.83.500 may not exceed the average
16 rate of return to the state of amounts invested under AS 37.10.070
17 during the 10 state fiscal years preceding the date on which a law
18 appropriating from the fund to the power project becomes effective.

19 (c) The authority shall make a loan for a power project under
20 this section only if the borrower agrees to repay the loan in accord-
21 ance with a graduated repayment schedule. The period during which the
22 borrower's payments may increase, the rate of increase and the interest
23 rate applicable shall be fixed for the term of the loan at the time of
24 its origination. The amount of each payment may not be changed more
25 often than once each year, and the first change may not occur sooner
26 than one year after the due date of the first scheduled payment on the
27 loan.

28 (d) When the rate of interest applicable to a loan installment
29 due under (c) of this section equals the average rate of interest

1 determined under (b) of this section, the board of directors of the
2 authority and the borrower may agree to extend the repayment schedule
3 for the loan by not more than 15 years, with repayment to continue
4 during the period in which the loan is extended at the rate of interest
5 determined under (b) of this section. The duration of an extension
6 agreed to under this subsection may not exceed a number of months
7 necessary to obtain a rate of return for the loan equal to the rate of
8 interest determined under (b) of this section. The commissioner of
9 revenue must consent in writing to an extension of a repayment schedule
10 agreed to under this subsection.

11 (e) Unless adjusted under (d) of this section, the interest
12 payment calculated on any installment may exceed the average rate of
13 interest determined under (b) of this section.

14 (f) Principal and interest payments payable on a loan made under
15 AS 44.83.400 - 44.83.500 begin on the date that the borrower certifies
16 to the authority that the power project for which the loan was made is
17 producing power. The date for payment of the first installment on a
18 loan may be postponed if the commissioner of revenue and the board of
19 directors of the authority recommend a postponement, and the governor
20 agrees to the postponement and notifies the legislature of his approval
21 of the postponement.

22 Sec. 44.83.480. LOAN LIMITATIONS. The amount which may be loaned
23 by the authority for a power project under AS 44.83.420 may not exceed
24 the amount of money appropriated by the legislature to the power
25 project.

26 Sec. 44.83.490. REALLOCATION OF FUND BALANCE. (a) Amounts
27 repaid by a borrower for a loan made for a power project under AS 44.-
28 83.400 - 44.83.500 may be reallocated to other power projects only by
29 law.

1 (b) If a power project designated by the legislature by law is
2 not constructed, the amount appropriated to it may be reallocated to
3 other power projects only by law.

4 Sec. 44.83.500. DEFINITIONS. In AS 44.83.400 - 44.83.500,

5 (1) "fund" means the power project revolving loan fund;

6 (2) "graduated repayment schedule" means a loan repayment
7 schedule having scheduled payments to be made directly by the borrower
8 which begin at a level lower than that necessary to fully amortize the
9 loan within its term and which gradually increase to a predetermined
10 level, after which the amount of each payment remains constant.

11 * Sec. 2. AS 44.25.020 is amended by adding a new paragraph to read:

12 (5) invest and manage the balance of the power project
13 revolving loan fund in accordance with AS 44.83.430.

14 * Sec. 3. AS 45.88.010 is amended to read:

15 Sec. 45.88.010. FUND ESTABLISHED. There is established in the
16 Alaska Energy Center [DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT]
17 the alternative technology and energy revolving loan fund to carry out
18 the purposes of this chapter. Loans made under this chapter may be
19 used

20 (1) to develop means of energy production utilizing energy
21 sources other than fossil or nuclear fuel, including, but not limited
22 to, windmills, water and solar energy devices; and

23 (2) to develop and implement methods of energy production,
24 waste disposal, recycling, food production, transportation, building
25 design, and industrial enterprise which may be more efficient, less
26 costly, and less energy intensive than those methods presently utilized
27 and which are appropriate to the Alaska environment.

28 * Sec. 4. AS 45.88.020 is amended to read:

29 Sec. 45.88.020. POWERS AND DUTIES OF THE ALASKA ENERGY CENTER

1 [DEPARTMENT] IN ADMINISTERING THE FUND. (a) The Alaska Energy Center
2 [DEPARTMENT] may

3 (1) make loans for the purchase, construction, and installa-
4 tion of alternative energy systems and for the development and imple-
5 mentation of more efficient, less costly, less energy intensive, and
6 more appropriate technologies;

7 (2) promulgate regulations necessary to carry out the provi-
8 sions of this chapter.

9 (b) The Alaska Energy Center [DEPARTMENT], in coordination with
10 the Alaska Council on Science and Technology, shall develop eligibility
11 standards for loans made under this chapter and adopt guidelines for
12 the determination of loan terms.

13 * Sec. 5. AS 45.88.040(a) is amended to read:

14 (a) The Board of Directors of the Alaska Energy Center [COMMIS-
15 SIONER] may sell or transfer at par value or at a premium or discount
16 to any bank or other private purchaser for cash or other consideration
17 the mortgages and notes held by the Alaska Energy Center [DEPARTMENT OF
18 COMMERCE AND ECONOMIC DEVELOPMENT] as security for loans made under
19 this chapter.

20 * Sec. 6. AS 46.12.120 is amended by adding new paragraphs to read:

21 (6) administer the alternative technology and energy re-
22 volving loan fund (AS 45.88);

23 (7) administer the energy development fund (AS 37.17).

24 * Sec. 7. AS 37 is amended by adding a new chapter to read:

25 CHAPTER 17. ENERGY DEVELOPMENT FUND.

26 Sec. 37.17.010. FUND ESTABLISHED. An energy development fund is
27 established. The fund includes

- 28 (1) all money appropriated to it by the legislature; and
29 (2) interest earned by the investment of money in the fund.

1 Sec. 37.17.020. INVESTMENT OF FUND BALANCE. The Department of
2 Revenue shall invest and manage the balance of the fund in accordance
3 with AS 37.10.070. Income earned from investment of money appropriated
4 to the fund shall be redeposited in the fund, unless appropriated by
5 the legislature under AS 37.17.030.

6 Sec. 37.17.030. USE OF FUND BALANCE. The fund may be used

7 (1) as a source of appropriations for the operation of the
8 Alaska Energy Center (AS 46.12); and

9 (2) for developing and implementing advanced energy tech-
10 nology which, in the judgment of the legislature, is of national signi-
11 ficance.

12 Sec. 37.17.040. INCLUSION IN ANNUAL BUDGET. The governor shall
13 include in the operating and capital improvements programs and plans
14 which he recommends to the legislature under AS 37.07.020 his recom-
15 mendations for use of the interest earned by the investment of money in
16 the fund.

17 Sec. 37.17.050. DEFINITION. In this chapter, "fund" means the
18 energy development fund.

19 * Sec. 8. This Act takes effect July 1, 1981.
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6 For an Act entitled: "An Act relating to power development financing."

7 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

8 * Section 1. AS 44.83 is amended by adding new sections to read:

9 Sec. 44.83.172. POWER PROJECT EQUITY FUND. (a) There is estab-
10 lished the power project equity fund which is separate from any other
11 money or funds of the authority.

12 (b) The equity fund consists of money appropriated by the legis-
13 lature and interest earned from investment of money in the equity fund.
14 The commissioner of revenue shall invest any surplus in the equity fund
15 in the manner specified in AS 37.10.070.

16 (c) If the legislature approves a project as provided in AS 44.-
17 83.185 and makes an appropriation from the equity fund for the project,
18 the authority shall make a grant to a qualified utility. A qualified
19 utility may receive more than one grant under this section. However,
20 all grants received by a qualified utility under this section may not
21 exceed \$2,000 for each person residing in the service area of the
22 project. The authority shall determine the population of the service
23 area of a project based on the latest census prepared by the United
24 States Census Bureau. If the power produced by a project will be sold
25 to more than one qualified utility, the authority shall prorate the
26 amount of a grant according to the percentage of use of the power by
27 each qualified utility served by the project. The authority shall
28 consult with the appropriate municipalities and utilities before it
29 prorates a grant under this subsection if projects are interconnected.

(d) A qualified utility may only use a grant under this section to finance capital improvements for power generation or distribution systems. A grant under this section may not be used to pay the cost of operating, maintaining, or purchasing fuel for a project. A grant under this section may not be included in the rate base for a qualified utility.

(e) In this section,

(1) "project" means a plant, facility, works, or system which produces power from renewable sources or fossil fuels if the feasibility study establishes that a renewable source for the production of power is not economically feasible; and

(2) "qualified utility" means

(A) a utility as defined in AS 42.05.701(2)(A) including a utility exempted under AS 42.05.711;

(B) a nonprofit organization determined by the authority to be capable of operating and maintaining a project of the size and type for the community or region served by the project.

(f) The dollar amount in (c) of this section changes, according to and to the extent of changes in the consumer price index for the state compiled by the Bureau of Labor Statistics, United States Department of Labor (the index). The index for November, 1980 is the reference base index. If the index is revised, the change is calculated on the basis of the revised index.

(g) Before a project which produces 1.5 megawatts of power or less may receive a grant under this section:

(1) the authority shall make a feasibility study which includes the information required by AS 44.83.181(b)(1) -- (3) to determine if the project is economically feasible; and

(2) the division of budget and management shall review the

1 feasibility study for compliance with (1) of this subsection and submit
2 a report of its findings to the governor.

3 Sec. 44.83.174. DEBT ASSISTANCE. (a) The authority shall

4 (1) estimate the annual debt service of bonds to be issued
5 for the project, including an estimate of the amount financed, interest
6 rate, and term of bonds;

7 (2) obtain an estimate from the division of budget and manage-
8 ment of the long-term rate of inflation during the term of the bonds;
9 and

10 (3) using (1) and (2) of this subsection, the authority shall
11 estimate the amount of money needed by the owner of a project to pay the
12 difference between the debt service which would be paid to bond holders
13 and that debt service adjusted according to constant dollar terms.

14 (b) If requested by the division of budget and management, the
15 authority shall prepare an alternate to the estimate of the amount
16 determined in (a)(3) of this section. The estimate must be based on
17 the annual debt service of the project calculated on the basis of a
18 rate of interest provided by the division of budget and management.

19 (c) The authority shall include the amounts determined in (a) and
20 (b) of this section as a part of the plan of finance required by AS 44.-
21 83.181, if required for the project.

22 Sec. 44.83.175. DEBT ASSISTANCE LOANS. (a) The authority
23 shall establish a separate account for each project for which an ap-
24 propriation is made by the legislature for a debt assistance loan.
25 The authority shall make loans from the account to the owner of a pro-
26 ject so that the payment of debt service made by the owner of the pro-
27 ject on bonds is level in constant dollar terms. The authority may
28 increase or decrease the amount of the loan to reflect the terms estab-
9 lished at the sale of bonds if those terms are different from those

1 used to make the estimates required in AS 44.83.174(a). If the appro-
2 priation made for debt assistance for a project exceeds the payments
3 made under this subsection, the excess lapses into the general fund.

4 (b) The authority shall set the terms for repayment of the loan
5 after consulting with the division of budget and management. The rate
6 of interest set for repayment of the loan is the same as the rate of
7 interest set for the bonds issued for the project.

8 (c) The authority shall pay any money received in repayment of a
9 loan under this section to the commissioner of revenue for deposit in
10 the general fund.

11 Sec. 44.83.176. POWER PROJECT COMPLETION LOAN FUND. (a) There
12 is established the power project completion loan fund. This loan fund
13 consists of appropriations from the legislature and payments of princi-
14 pal and interest on loans made from the loan fund. The commissioner of
15 revenue may invest any surplus in the loan fund. Interest earned on
16 investments made by the commissioner of revenue shall be deposited in
17 the general fund.

18 (b) The purpose of the loan fund is to provide financing for a
19 project if

20 (1) the cost of completing the project exceeds the money
21 available for the project for a reason established by regulations
22 adopted by the authority under (f) of this section; or

23 (2) the project is unable to pay the cost of redeeming bonds
24 issued for the project because of a natural disaster which impairs the
25 ability of the project to earn enough revenue to redeem the bonds as
26 they become due.

27 (c) Subject to appropriations for this purpose, the authority
28 shall determine the amount to be loaned for a project and, if the gov-
29 ernor approves, may make a loan from the loan fund.