

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 86/2

972 SCOM44: HOUSE POWER ALTERNATIVES STUDY COMM. 1979-80⁹⁷²

None of my individual conferees could give a coherent explanation of these apparently irrational traits. In my judgment, this situation called for employment of the "nine sober men" test: There is a Russian proverb that says, "When nine sober men say you are drunk, you better lie down." Near-unanimity must have a reason. While none of my informants had a clear, coherent explanation, I have inferred the market's ruling principles from the group as a whole.

The capital market abhors innovation. The most important investment features of industrial, municipal, and other bonds include their easily ascertainable market value at all times, their marketability, and hence their liquidity. Investors, trustees, auditors, readers of annual statements, and the like want to know whether a bond is non-recourse (revenue) or fully backed by its sponsor (general obligation), its coupon and term, and its rating by Moodys and/or Standard & Poor's. Most buyers or holders don't need or want to know anything more.

Investors don't want personally to read through official statements, or pay their own lawyers to interpret indentures. They don't want to establish new categories in their portfolio schedules, or new chapters in the Bond Buyers Handbook. Even more importantly, they know that the next buyer probably doesn't want any of these things either: The liquidity and efficiency of the market for debt depends upon standardization, and the typical investor is not necessarily being irrational to shun bond issues with gimmicks, fine print and footnotes. One corollary of the market's abhorrence of innovation is ---

Revenue bonds are revenue bonds, G.O. bonds are G.O. bonds, and never the twain shall meet. If a bond has two sources of payment, the market will probably take it for granted that the first is significantly less reliable than the other. If Alaska guarantees its revenue bonds, people will assume that the bonds are backstopped only because project revenue can't be counted on.

We may be aware that Alaska's government is exceptionally creditworthy for at least ten years, while the proposed hydro projects get financially sounder as time goes on. But most institutional investors won't understand it --- they may well shun 30-year Alaska G.O. bonds, because who knows what's going to happen to the State's economy after 1987. Ironically, the same investors might readily buy exactly the same securities on longer terms and at comparable repayment schedules, if they were repackaged as non-recourse (revenue) debt.

GOVERNOR'S PROPOSAL

for

FINANCING

of

POWER PROJECTS

2-5-81

Power Project Financing

I. Introduction

This paper provides a brief overview of a proposed method for financing power projects. The approach consists of three separate but interrelated parts. The entire program is based upon the premise that the State of Alaska will act to encourage power development, particularly that based on renewable power sources; and, that the purpose of this involvement is to provide lower power costs to the final consumers. The two underlying assumptions that form the foundation for this approach are:

- (1) that State subsidies for power projects should be explicit and equitable; and
- (2) that for the portion of power projects that are to be financed with revenue bonds, the State's involvement should be designed to minimize the cost of this source of financing, both to the State and to the project.

The three parts of the financing proposal are: a state funded equity grant; a state loan to restructure debt service; and a state funded project contingency completion fund. These are each explained briefly below.

II. State Equity Grant

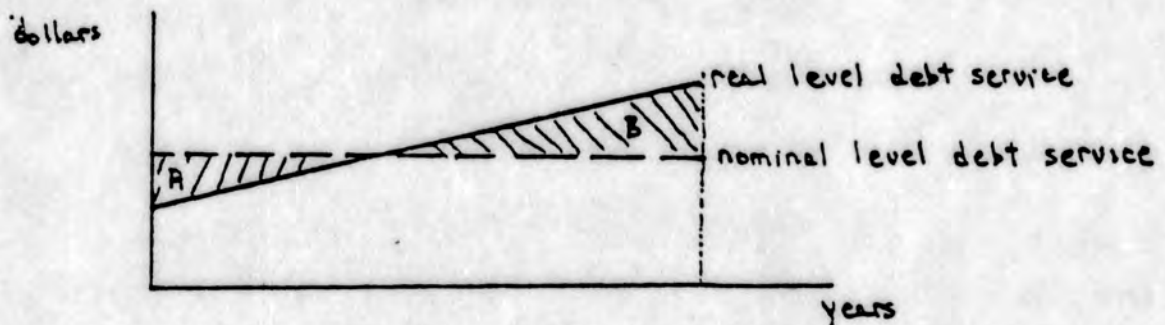
The intent of the State Equity Grant is to provide an equitable subsidy, in the form of an equity grant, to help finance power projects, and thus to provide lower cost power. The grant is based upon a fixed amount per capita for the entire population of the service area of the project. The grant would be of a one-time only nature, in that once an area had utilized its total entitlement under this program, it would not be eligible for future equity grants. In the case of projects which provide power for more than one service area, the amount of the grant would be prorated, based on the power allocation and the populations of the areas involved. The Governor and the Legislature would be the final arbiters of the proper proration formula.

The amount of the grant would be \$2,000.00 per capita in 1981 dollars, with the nominal value increasing at the rate of the Alaska consumer price index increase. An appropriation would be made to capitalize this grant fund, and the grant appropriations for specific projects would be made by the Legislature from this fund. Although this grant would be used by a utility (or the Alaska Power Authority) as one source of funds for financing power projects, it would not become part of the utility's rate base.

III. Debt Restructuring Program

The intent of the Debt Restructuring Program is to approximately levelize revenue bond debt in real (constant dollar) terms, rather than in nominal terms. This restructuring should: (1) help increase the financial viability of power projects by lowering revenue requirements in the early years of the project; and (2) more equitably spread out the repayment burden by requiring future consumers of power to pay a more equal share, in real terms, relative to present rate payers.

This debt restructuring would be accomplished by providing a state loan for the project that could be used to pay for a portion of the revenue bond debt service in the early years of the project. This loan would be repaid in future years, when the project is more capable of generating additional revenues. This loan has the effect of 'tilting' the amount that the project must pay, lowering the required amount at first, and increasing it later, as is shown in the figure below.



The dashed line shows a level debt service in nominal terms - that is, a constant payment amount each year, such as on State G.O. Bonds. The solid line shows the 'tilting' affect of debt service in real terms - i.e., when inflation is taken into account. Under this debt restructuring program, the project would issue revenue bonds according to the dashed line (since this is the conventional method), however the State loan would pay the amount of debt service shown in area A (and be repaid in area B). Hence, from the viewpoint of the project, its true debt service requirements are shown by the solid line, not the dashed line.

Although there are additional technical details that will not be addressed in this paper, two specific details are pertinent to this discussion. First, the rate of interest on the State loan would be the same as the revenue bond rate. And second, although the figure shows the state loan to be paid off at the same time as the revenue bonds, there is no requirement for this to be the case. The State loan could be extended past the completion date of the revenue bonds, if that was appropriate.

IV. Power Project Completion Fund

The intent of this fund is to provide an immediate source of funds to: (1) complete eligible power projects that are under construction, and (2) make debt service payments for eligible projects that are unable to make payments because of a natural disaster.

Even though power project financing inevitably includes contingencies for possible cost overruns, it is still possible that unforeseen circumstances could create a situation where these contingency funds are exhausted and the project does not have enough funds for completion. The project then needs an immediate source of funds, but is in rather undesirable circumstances to utilize conventional financing mechanisms, such as the revenue bond market.

To deal with this potential need, a Power Project Completion Fund would be established and capitalized by an appropriation from the general fund. This fund would be created in the Alaska Power Authority and the non-loaned balance would be managed by the Department of Revenue. If a power project had an overrun such that it needed additional funds, it could apply to the A.P.A. for a loan from this fund. If the A.P.A. found that the project was eligible for a loan, then, with the Governor's approval, a loan, not to exceed 20% of the original estimate of the construction cost, could be made. The rate of interest on this loan would be equal to the revenue bond rate for the project.

Within five years of the date of the loan, the A.P.A. would issue revenue bonds for the amount of the loan, and these bonds would become additional revenue bond debt of the project. This new revenue bond debt would be eligible for debt restructuring, as explained in III above.

POWER PROJECT

FINANCING

Additional Detail

2-5-81

I. Power Project Equity Fund

A. Purpose

The purpose of the Power Project Equity Fund (PPEF) is to lower the cost of power to consumers. This is accomplished by providing a state grant for eligible projects that may be used as a equity share of the project.

B. Establishment and Management

The Power Project Equity Fund would be established in the APA. The fund would be capitalized by an appropriation from the general fund and could be added to by additional general fund appropriations. The fund would be managed by the Department of Revenue. Interest on investments of the fund would return to the fund.

C. Calculations

The PPEF is intended to provide an equity grant of \$2,000.00 per capita in 1981 dollars to eligible projects. The equity grant is to be of a "one time" only nature in that once an area's population has utilized all of their per capita allocation, they would not be eligible for future grants under this program. The amount of the grant is calculated as \$2,000.00 per capita in 1981 dollars for the population of the service area of the project. The population figure is based upon the latest available U.S. census figures. Each year the amount of the per capita grant will escalate at the rate of the Alaska Consumer price index increase. In the case of projects where the power production of the project will be utilized in more than one service area, the amount of the per capita subsidy is to be prorated according the estimated amount of the population of each service area to be served by the project. That is, assume a project is built by utility A, but a portion

of the power is sold to utility B. If the power from this project will provide 50% of the power for the service area of utility B, then 50% of the per capita subsidy for service area B may be applied in calculating the grant to be made for the project from the PPEF. The APA is to work with local governments and utilities to determine the proper proration formula for intertied projects. The final arbiters of all disputes will be the Governor and the Legislature, as evidenced by the size of the appropriation from the PPEF.

D. Appropriations

As part of a project's plan of finance, the APA will calculate the amount of the equity grant from the PPEF. This appropriation request will be submitted along with any other requests for the project in the APA's capital budget request. If approved by the Governor and Legislature, the amount of the equity grant will be appropriated from the PPEF to the APA for use for that project.

E. Uses

The equity grant can be used as one source of financing for construction of power projects. These funds are to be a grant to the utility via the APA, and the amount of the grant would not become part of the utility's rate base.

II. Debt Restructuring Program

A. Purpose

The purpose of the Debt Restructuring Program is to approximately levelize revenue bond debt in real (constant dollar) terms, rather than in nominal terms. This restructuring should:

1. help increase the financial viability of power projects by lowering revenue requirements in the early years of the project,
2. more equitably spread out the repayment burden by requiring future users to pay a more equal real share, as opposed to requiring present rate payers to fund a disproportionate share of the project.

B. Eligibility

Certain projects may qualify for the debt restructuring program. To be eligible, a project:

1. must issue a revenue bond through the APA,
2. must be based on a renewable power source (e.g. hydro, wind, geothermal), unless there is no viable renewable power source available, in which case thermal generation projects would qualify.

C. Plan of Finance

While preparing a feasibility study and plan of finance for a power project, the APA will determine if a project is eligible for the debt restructuring program. If a project is eligible, then as part of the plan of finance, the APA will calculate the amount of appropriation needed to restructure the revenue bond

debt of the project by the method in D. (below), and further will calculate the terms of the loan made by the state to restructure the revenue bond debt.

D. Debt Restructuring Appropriation (D.R.A.)

The Debt Restructuring Appropriation (D.R.A.) is the mechanism that attempts to approximately levelize revenue bond debt in real (constant dollar) terms, rather than in nominal terms. The amount of the D.R.A. is dependent upon the size of the revenue bond, the rate of interest charged by the state, the assumed long run rate of inflation, and the length of the loan. To calculate the D.R.A., the APA must:

1. estimate the size of the revenue bond issue,
2. estimate what the rate of interest will be on the revenue bond issue - this is the rate of interest the state will charge on its loan,
3. obtain from the Division of Budget and Management the estimated long run rate of inflation for the period to be covered by the revenue bond issue (here assumed to be 5%),
4. assume for calculation of the D.R.A. only that the length of the state restructuring loan is the same length as that of the revenue bond issue (the actual loan may have a different length).

From the above factors, a preliminary value of the D.R.A. can be calculated. However, since many of these factors are estimates, which may change by the time of the actual bond issue, a contingency factor may be added to the D.R.A. To estimate this contingency factor, the APA would utilize the same factors as above, except that the calculation would involve using larger

estimated rate of interest on the revenue bond rate. This larger estimated bond rate will be provided by the Division of Budget and Management. With the inclusion of this contingency factor, the estimate of the D.R.A. is complete. This is the figure which the APA would submit in their Capital Budget as the amount needed to restructure the revenue bond debt for the specific project. If this amount (and other necessary authorizations) are approved by the Governor and the Legislature, then the entire D.R.A. would be restricted, pending the results of the revenue bond sale. Once the bonds are sold and the actual amount that is needed is determined, then this required amount would be made available to the APA. The remainder (if any) of the D.R.A. would lapse into the general fund.

E. State Loan

The amount and terms of the D.R.A. are calculated by the formula in D. (above). The actual terms of the state loan represented by the D.R.A. may differ if the APA feels other loan terms may be more conducive to the project's viability. However, the present value of the loans repayment (using the rate of interest on the revenue bond as the discount rate) under alternative loan terms must be the same as the D.R.A. The APA should consult with the Division of Budget and Management if it wishes to adopt loan terms different from those of the D.R.A. calculations. Repayment of the state's restructuring loan is to be subordinate to repayment of the revenue bonds.

III Power Project Completion Fund

\$1,000,000,000

A. Purpose

The purpose of the fund is to provide an immediate source of funds to:

1. complete eligible power projects ~~that are under construction~~ which have exhausted all contingency funds
2. make debt service payments for eligible projects that are unable to make payments because of a natural disaster.

B. Establishment and Management

A power project completion fund (PPCF) would be established in the APA. The fund would initially be capitalized by an appropriation from the general fund, and could be added to by additional general fund appropriations. The account would be managed by the Department of Revenue and all interest earned would be deposited in the general fund.

C. Mechanics

If an eligible power project were in need of funds due to the reasons listed in A. (above), then it could apply to the APA for a loan of the required amount. The APA would specify by regulation what information would be required in the loan application. If the APA determines that the project is eligible for a loan from the PPCF, then the APA would provide this request to the Governor, along with backup information detailing the basis for the APA recommendation. If the Governor approves, the APA would make the loan to the project. The terms of the loan are:

1. The amount of the loan may not be more than 20% than the original estimate of the project cost.
2. The rate of interest on the loan shall be the same rate as the rate of the APA issued revenue bond rates for the project.
3. If the project was not financed with APA issued revenue bonds, then the rate of interest charged would be that rate which the APA estimates would have been the revenue bond rate for that project.
4. Within five years of the issuance of the loan, the APA must sell a revenue bond issue for the amount of the loan. The proceeds of the bond issue would be redeposited in the PPCF. The new debt of the power project (if eligible) could be financed according to the same terms as it was financed under the Debt Restructuring Program. If the project was not originally financed under the Debt Restructuring Program, but is eligible, then this new debt may be financed under that program.

1/16/81 ATSSG PPF meeting

Re: hydro
financing problems

leading - at market rates
full recovery

Green Lake - subordinated loan + ^{rev.} bonds

APA agrees - no subsidy - state ~~it~~ should be repaid - risks paid for
market principle simulation provides defense
against overbuilding, etc.

Decision moved to community, ratepayers, etc on size

(Bush is within, not utility problem)

50% maximum on state assistance - ^{guarantees or loans} should apply to budgeted
capital costs and not overruns

problems with full guarantee coverage - no incentive to hold down costs
predatory (user unions, ^{poor} management, etc.

Bank of Am wanted GO bonds - 'lower interest rates

but only diff. between is virtually nil

Real reason - ^{Comm. banks can} only underwrite GO &
not revenue

E Wohlfarth will draft legislation

Conleah - B. of Am resurrected old scheme

are the people of the
community willing to pay
more or pay to have a
large public works
project?

State will allow deferment
to have rates be as low as possible.

Mun. utilities - have flexibility
PUC - reasonable care

Great danger in putting future income at risk -
uncertainty ~~the~~ economy

Cash sink - sub. loans push income back

P.F. - content that P.F. should not be used
diversification

Energy policy

1/23

Henry Lee

^{Mon}
Dir of state energy office, Harvard

Therese
Sund
Sing

Intern program - for graduate students "project intern program"

most master's candidates

some JD, PhD candidates

work on specific project over summer, ret. to school in the fall

signed contracts to provide finished product

fails if sponsor doesn't know what they want

⇒ Energy Center?

School can get overly theoretical

projects are policy-oriented

Ratepayers or taxpayers

pay for oversizing of hydro projects

(eg low load factor) (eg Quebec desperate to export power)

What should they work on from the national perspective

energy technologies - low BTU coal gasification

* gas-based fuel cells

very efficient use of gas

TVA - Freeman

United States

Geo Research Institute - Chicago

EPRI

Palo Alto

Jim Orav

Distributive benefits

for Energy Center



force planned projects & justification into public forum

interviews

utilities submit long-term plan
various state agencies & localities

PUC
Siting Commission

SB 25,26,41

Introduced: 3/10/81
Referred: Resources and
Finance

1 IN THE HOUSE

BY THE RULES COMMITTEE BY
REQUEST OF THE GOVERNOR

2 HOUSE BILL NO. 310

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 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 in the general fund the power project equity fund which is
11 separate from any other money or funds.

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 \$2,500 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.

1 (d) A qualified utility may only use a grant under this section
2 to finance capital improvements for power generation or distribution
3 systems. A grant under this section may not be used to pay the cost of
4 operating, maintaining, or purchasing fuel for a project. A grant un-
5 der this section may not be included in the rate base for a qualified
6 utility regulated under AS 42.05. A utility which is not regulated
7 under AS 42.05 must set rates under procedures and by standards estab-
8 lished by contract between the authority and the owner of the project.
9 The rates established by an unregulated utility must be reasonable and
10 include adequate consideration of the state assistance provided under
11 this chapter.

12 (e) In this section,

13 (1) "project" means a plant, facility, works, or system
14 which produces power from renewable sources or fossil fuels if the fea-
15 sibility study establishes that a renewable source for the production
16 of power is not economically feasible;

17 (2) "qualified utility" means

18 (A) a utility as defined in AS 42.05.701(2)(A) includ-
19 ing a utility exempted under AS 42.05.711;

20 (B) a nonprofit organization determined by the author-
21 ity to be capable of operating and maintaining a project of the
22 size and type for the community or region served by the project;

23 (C) the authority if it owns the project; and

24 (3) "service area" means

25 (A) the area to which electric power can reasonably be
26 distributed to customers;

27 (B) if no distribution system exists, the area of the
28 municipality served by the electric power;

29 (C) if the project will not provide electric power to a

1 municipality, the area which can be economically served by the
2 project.

3 (f) The dollar amount in (c) of this section changes, according
4 to annual changes in the consumer price index for the state compiled by
5 the Bureau of Labor Statistics, United States Department of Labor. The
6 index for November 1980 is the reference base index. If the index is
7 revised, the change is calculated on the basis of the revised index.
8 The change takes effect 30 days after the index for November of each
9 year is published

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

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

15 (2) the division of budget and management, Office of the
16 Governor, shall review the feasibility study for compliance with (1) of
17 this subsection and submit a report of its findings to the governor.

18 Sec. 44.83.174. DEBT ASSISTANCE. (a) In the plan of finance
19 required by AS 44.83.181, the authority shall

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

23 (2) obtain an estimate from the division of budget and man-
24 agement, Office of the Governor, of the long-term rate of inflation
25 during the term of the bonds; and

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

1 (b) If requested by the division of budget and management, Office
2 of the Governor, the authority shall prepare an alternate to the esti-
3 mate of the amount determined in (a)(3) of this section. The estimate
4 must be based on the annual debt service of the project calculated on
5 the basis of a rate of interest provided by the division of budget and
6 management.

7 Sec. 44.83.175. DEBT ASSISTANCE LOANS. (a) The authority shall
8 establish a separate account for each project for which an appropria-
9 tion is made by the legislature for a debt assistance loan. The autho-
10 rity shall make loans from the account to the owner of a project so
11 that the payment of debt service made by the owner of the project on
12 bonds is level in constant dollar terms. The authority may increase or
13 decrease the amount of the loan to reflect the terms established at the
14 sale of bonds if those terms are different from those used to make the
15 estimates required in AS 44.83.174(a). If the appropriation made for
16 debt assistance for a project exceeds the payments made under this
17 subsection, the excess lapses into the general fund.

18 (b) The authority shall set the terms for repayment of the loan
19 after consulting with the division of budget and management, Office of
20 the Governor. The rate of interest set for repayment of the loan is
21 the same as the rate of interest set for the bonds issued for the
22 project.

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

26 Sec. 44.83.176. POWER PROJECT COMPLETION LOAN FUND. (a) There
27 is established the power project completion loan fund. This loan fund
28 consists of appropriations from the legislature and payments of princi-
29 pal and interest on loans made from the loan fund. The commissioner of

1 revenue may invest any surplus in the loan fund. Interest earned on
2 investments made by the commissioner of revenue shall be deposited in
3 the general fund.

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

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

9 (2) the project is unable to pay the cost of redeeming bonds
10 issued for the project because of a natural disaster which impairs the
11 ability of the project to earn enough revenue to redeem the bonds as
12 they become due.

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

16 (d) The terms for a loan under (b)(1) of this section are as fol-
17 lows:

18 (1) the rate of interest is the same rate set for the bonds
19 of the authority issued for the project;

20 (2) for a project which is not financed by bonds of the au-
21 thority, the rate of interest is the average weekly rate of interest
22 reported in the Weekly Bond Buyer for municipal revenue bonds for the
23 12 months preceding the loan application;

24 (3) the amount loaned may not exceed more than 20 percent of
25 the original estimate of the cost of constructing the project other
26 than the cost of debt service to redeem the bonds first issued for the
27 project; and

28 (4) the owner of the project shall agree to repay a loan
29 made under this section by the issuance of additional bonds or another

1 method of financing within five years after the loan is made.

2 (e) The terms for a loan under (b)(2) of this section are as fol-
3 lows:

4 (1) the amount loaned may not exceed the debt service on
5 bonds issued for the project for one year after the natural disaster
6 and other expenses of the project which are determined necessary by the
7 authority; and

8 (2) the rate of interest on the loan is the same rate set
9 for the bonds issued to finance the project.

10 (f) The authority shall adopt regulations under AS 44.62 which
11 prescribe the circumstances under which a project qualifies for a proj-
12 ect completion loan under (b)(1) of this section. These regulations
13 shall establish procedures for

14 (1) determining the costs of a project for which a loan may
15 be made under this section; and

16 (2) audits which will avoid unexpected costs.

17 (g) The owner of a project for which bonds of the authority are
18 issued for a purpose set out in (b) of this section is eligible for a
19 debt assistance loan under AS 44.83.174.

20 * Sec. 2. AS 44.83.181(c)(3) is amended to read:

21 (3) an appropriation from the power project equity [GENERAL]
22 fund

23 [(A) TO PAY DEBT SERVICE ON BONDS OR FOR OTHER PROJECT
24 PURPOSES; OR

25 (B)] to reduce the amount of debt financing for the
26 project;

27 * Sec. 3. AS 44.83.181(c)(4) is amended to read:

28 (4) a debt assistance loan under AS 44.83.175 [FROM THE
29 GENERAL FUND];

1 * Sec. 4. AS 44.83.181(c)(7) is amended to read:

2 (7) a loan from [THE POWER PROJECT FUND (AS 44.83.170(a)),
3 OR FROM] the renewable resources investment fund (AS 37.11.050); or

4 * Sec. 5. AS 44.83.185(a) is amended to read:

5 (a) The authority shall submit a feasibility study and plan of
6 finance for a proposed new project to the legislature. When the report
7 of the division of budget and management [EXAMINING THE FEASIBILITY
8 STUDY AND PLAN OF FINANCE] is completed as required by AS 44.83.183 or
9 44.83.172(g), it shall be submitted to the legislature.

10 * Sec. 6. AS 44.83.185(c) is amended to read:

11 (c) Before a project may be constructed, the [THE] legislature
12 shall consider and must approve the [ALL] proposed new project. How-
13 ever, approval by the legislature is not required if the new project is
14 exempt under AS 44.83.187 and the owner of the project has not applied
15 for an equity grant under AS 44.83.172 [PROJECTS EXCEPT PROPOSED NEW
16 PROJECTS THAT ARE EXEMPT UNDER AS 44.83.187]. The legislature may
17 approve a proposed new project only by making an appropriation for
18 [ENACTING LAW AUTHORIZING] that project.

19 * Sec. 7. AS 44.83.187(a)(1) is amended to read:

20 (1) requires an appropriation from the state general fund,
21 from the power project equity fund, or from the renewable resources
22 funds; or

23 * Sec. 8. (a) A qualified utility which receives a power project equity
24 grant under AS 44.83.172 contained in sec. 1 of this Act for a project which
25 is financed by a loan set out in (b) of this section shall first apply the
26 power project equity grant to repay the unpaid principal and accrued inter-
27 est on the loans set out in (b) of this section. However, for the purposes
28 of this section, the unpaid principal and interest on loans set out in (b)
29 of this section do not include the cost of a reconnaissance study financed

by ch. 54 SLA 1980. The cost of those reconnaissance studies are considered a grant from the state. If a balance remains on a loan set out in (b) of this section after a power project equity grant is applied to the loan, the qualified utility may include the debt service on the remaining balance of the loan to determine the amount of a debt assistance loan under AS 44.83.175 contained in sec. 1 of this Act. The rate of interest on the debt assistance loan under this section is the same rate set for the appropriate water resources or power project loan to which the debt assistance loan applies.

(b) This section applies to the following qualified utilities for the projects and loans set out after each:

(1) loans from the water resources revolving loan fund:

<u>Qualified Utility</u>	<u>Project</u>	<u>Beginning Balance</u>
Sitka	Green Lake	\$ 450,000
Petersburg	Lake Tyee	910,000
Kodiak Electric	Terror Lake	420,000
Ketchikan Public Utilities	Swan Lake	420,000
Alaska Power Authority	Lake Tyee	300,000

(2) loans from the power project fund:

<u>Qualified Utility</u>	<u>Project</u>	<u>Beginning Balance</u>
Alaska Electric Light & Power	Annex Creek	\$ 500,000
Kodiak Electric	Terror Lake	100,000
Ketchikan Public Utility	Swan Lake	200,000
Ketchikan Public Utility	Swan Lake	135,000
Alaska Power Authority	Lake Tyee	120,000
Ketchikan Public Utility	Swan Lake	3,115,000
Kodiak Electric	Terror Lake	2,000,000
Kodiak Electric	Mennonite Creek	90,000
Alaska Power Authority	Lake Tyee	60,000
Wrangell	Small hydro project	45,000

1	Port Lyons	Small hydro project	200,000
2	Kodiak Electric	Terror Lake	1,050,000
3	Ketchikan Public Utility	Swan Lake	18,000,000
4	City of King Cove	Diesel generator	200,000
5	City of Akutan	Feasibility study for	
6		small hydro project	1,100,000
7	Iliamna - Newhalen	Diesel generator	300,000
8	Alaska Electric Light & Power	Transmission line	1,000,000
9	Alaska Electric Light & Power	Salmon Creek	200,000

10 (3) loans from the Department of Revenue:

11	<u>Qualified Utility</u>	<u>Project</u>	<u>Beginning Balance</u>
12	Sitka	Green Lake (ch. 111,	
13		SLA 1978)	\$7,000,000
14	Sitka	Green Lake (ch. 52,	
15		SLA 1977)	1,600,000

16 * Sec. 9. The maximum amount specified for power project equity grants
 17 in AS 44.83.172(c) contained in sec. 1 of this Act, does not apply to a
 18 project for which the Alaska Power Authority has started but not completed a
 19 feasibility study before the effective date of this Act. For those projects,
 20 the power project equity grants may not exceed \$2,500 for each person resid-
 21 ing in the service area of the project less the amount of state money used
 22 to finance the feasibility study. However, the cost of a reconnaissance
 23 study financed by an appropriation made in ch. 54 SLA 1980 is not included
 24 in the cost of a feasibility study for the purposes of this section.

25 * Sec. 10. AS 44.83.170 is repealed.

ALASKA POWER AUTHORITY

333 WEST 4th AVENUE - SUITE 31 - ANCHORAGE, ALASKA 99501

Phone: (907) 277-7641
(907) 276-2715

March 6, 1981

TO: ALL RECIPIENTS OF NOTICE OF PROPOSED
CHANGES IN THE REGULATIONS OF
THE ALASKA POWER AUTHORITY

Enclosed for your information is a copy of Notice of Proposed Changes in the Regulations of the Alaska Power Authority dated March 5, 1981

This Notice differs from the Alaska Power Authority's earlier notice of these changes, dated December 17, 1980, only by the addition of a statement that adoption of the proposed changes is not expected to require an increased appropriation and in that the period for public comment now closes on March 23, 1980. We have also taken the opportunity to change all references to the Alaska Power Authority Act from AS 44.56 to AS 44.83 to conform with action taken recently by the Revisor of Statutes.

Thank you for your consideration of the proposed changes to the Alaska Power Authority regulations.

Sincerely,



Eric P. Yould
Executive Director

Enclosure:
as noted

S T A T E O F A L A S K A

NOTICE OF PROPOSED
CHANGES IN THE REGULATIONS
OF THE
ALASKA POWER AUTHORITY

NOTICE IS HEREBY GIVEN that the Alaska Power Authority under authority vested by AS 44.83.080(4) proposes to adopt new regulations and to amend existing regulations in Chapter 94 of Title 3 of the Alaska Administrative Code to implement AS 44.83, as amended, as follows:

- (1) 3 AAC 94.010 is amended to change the name of the Power Project Revolving Fund to the Power Project Fund. This change is made throughout the proposed regulations.
- (2) 3 AAC 94.050 is amended to clarify the time in the development of a power project at which the Authority must by resolution make certain findings. The proposed amendment also changes the name of the Long-term Electrical Power Development Plan to the Long-term Energy Plan, which change is also made elsewhere in the proposed regulations.
- (3) 3 AAC 94.055 sets out the purpose of a reconnaissance study, outlines the techniques and methods to be used in conducting such a study and describes the standard criteria and measures to be used in analyzing alternative power sources in a reconnaissance study.
- (4) 3 AAC 94.060 sets out the purpose of a feasibility study, outlines the techniques and methods to be used in conducting such a study and describes the standard criteria and measures to be used in analyzing alternative power sources in a feasibility study.
- (5) 3 AAC 94.065 sets out the purpose of a plan of finance, outlines the techniques and methods to be used in preparing a plan of finance and describes the standard criteria and measures to be used in analyzing alternative financing arrangements for a power project.
- (6) 3 AAC 94.067 provides that proposed new regulation sections 3 AAC 94.055-.065 apply only to reconnaissance studies, feasibility studies and plans of finance which the Authority begins after the effective date of those sections.
- (7) 3 AAC 94.070 is amended to make several technical and language changes and to provide for the inclusion in appropriate loan applications of information regarding leveraged lease financing arrangements.

- (8) 3 AAC 94.080 is amended to make several technical and language changes and to require that the Executive Director in his recommendation to the Board of Directors concerning a loan application include written comments as to whether a project to be constructed is financially feasible and whether, in the case of a project which is not financially feasible, a loan from the Power Project Fund or other State of Alaska assistance if made available would make the project financially feasible.
- (9) 3 AAC 94.090 is amended to make several technical and language changes and to require the Board of Directors in considering a loan application and making its determination to take into account the financial feasibility of the project, whether sufficient funds are available to loan from the Power Project Fund at an interest rate low enough to make the project financially feasible and, if not, what other State of Alaska assistance, if any, the Board of Directors should recommend be made available to assist in financing the project. The proposed amendment provides that in the case of a loan which is not for construction of a project that financial feasibility is established if timely repayment is assured. The proposed amendment also provides for receipt of evidence of action taken by the applicant approving the terms of the loan prior to execution of a loan agreement by the Executive Director.
- (10) 3 AAC 94.100 is amended to provide that the interest rate on Power Project Fund loans must meet the criteria contained in AS 44.83.170(f) and that the interest rate may not be less than five percent, except for power projects for which loans were outstanding from the Water Resources Revolving Loan Fund on July 13, 1978, in which case the interest rate must be between three percent and five percent. The proposed amendment also exempts from the security requirements of the section loans to an applicant regulated by the Alaska Public Utilities Commission which has a substantial history of repaying loan-term loans and the capacity to repay the loan.
- (11) 3 AAC 94.900 is amended to delete the definition of "city" or "borough" and of "small scale" and to add a definition of "financially feasible project". The defined term "long-term electrical power development plan" is changed to "long-term energy plan".

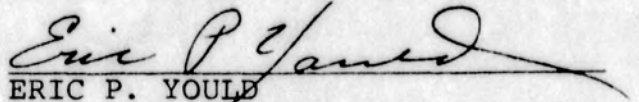
NOTICE IS ALSO GIVEN that any person interested may present written statements or arguments relevant to the action proposed by mailing or delivering the statements or arguments to the Authority at 333 West Fourth Avenue, Suite 31, Anchorage, Alaska 99501 so as to be received prior to 4:30 p.m. on March 23, 1981.

This action is not expected to require an increased appropriation.

Copies of the proposed regulations may be obtained by contacting the Authority at 333 West Fourth Avenue, Suite 31, Anchorage, Alaska 99501 (277-7641).

The Alaska Power Authority, upon its own motion or at the instance of any interested person, may after the public comment period described above and the lapse of thirty (30) days from the first publication of this notice adopt the proposals substantially as described above without further notice or may decide to take no action on them.

DATED at Anchorage, Alaska
March 5, 1981


ERIC P. YOULE
Executive Director

STATE OF ALASKA

THE LEGISLATURE

BUDGET AND AUDIT COMMITTEE

FINANCE DIVISION
POUCH WF-STATE CAPITOL
JUNEAU, ALASKA 99811
PHONE: (907) 465-3795

MEMORANDUM

DATE: March 31, 1981

TO: Honorable Bob Bettisworth
House Resources Committee

FROM: Milt Barker, ^{MB}Fiscal Analyst
Legislative Finance Division

SUBJ: Hydro Financing & Distribution of State Wealth

This memo attempts to analyze financing of hydroelectric facilities first from the standpoint of maximizing net benefits to the state as a whole, and secondly from the standpoint of maximizing benefits to the private sector. In other words, the second viewpoint considers the efficiency and equity of hydro financing methods as a means of distributing state revenues that exceed the requirements of the state operating and capital budgets.

Alternatives

Methods of financing hydro facilities that are analyzed are:

- 1) Governor's plan - per capita equity grants and revenue bonds (rate restructuring loans are disregarded);
- 2) Alaska Power Authority Plan - state subordinated loan and revenue bonds;
- 3) GO Bonds;
- 4) direct appropriation.

In addition, the following are considered as a means of distributing state revenue:

- 1) Permanent Fund dividends - 50% of permanent fund earnings;
- 2) direct grants to citizens.

Swan Lake as an Example

For purposes of fleshing out the analysis, Swan Lake is used as an example. This memo is not an analysis of the economic or financial feasibility of Swan Lake for several reasons:

- 1) benefits are calculated assuming demand for power is equal to Swan Lake's annual average generation from the beginning of operations;
- 2) the financing methods would affect the demand for power; specifically, the direct appropriation or GO bond methods result in ratepayers paying no capital costs and therefore much lower rates; while such methods might alleviate the surplus of power in the initial years, they might also result in the need for additional hydro facilities before their time; of course it might be cheaper at that point for the state to finance conservation measures rather than the additional hydro;
- 3) diesel is assumed to be the least cost alternative for the entire period; possibly wind, interconnection, or another source would be cheaper at some point;
- 4) economic multipliers and opportunity costs are not considered;
- 5) the analysis is only carried out to 30 years while life of the hydro facility is considerably longer;
- 6) the sensitivity of the project to cost overruns is not examined.

Equity Considerations

In evaluating the alternatives, it may help to keep in mind certain aspects about the distribution of benefits:

- 1) benefits of cheaper power go to residential, commercial and industrial users; in the analysis 50% of the power is assumed to be consumed by residential users¹ to illustrate the distribution of direct benefits to individuals; the benefits of cheaper power for commercial and industrial users would create some spillover benefits to individuals not estimated in the analysis;

¹In 1978, 44% of Ketchikan Public Utilities power sales were to residential users according to Ketchikan Power Market Analysis by the Alaska Power Administration, September 1979.

- 2) benefits of cheaper power are received in proportion to power consumption;
- 3) benefits of cheaper power are received over the life of the project by users of power with the greater benefits received in the later years;
- 4) benefits of permanent fund dividends go to residents;
- 5) benefits of permanent fund dividends are received in proportion to length of residency;
- 6) benefits of permanent fund dividends are distributed in perpetuity;
- 7) benefits of grants to citizens go to residents;
- 8) benefits of grants to citizens are received equally;
- 9) benefits of grants to citizens are distributed entirely in the current year.

Grants to citizens are considered in the analysis to allow other hydro financing alternatives to be compared or executed on a basis more similar to direct appropriation and GO bonds. Direct appropriation or GO bonds involves transfer of the principle of the appropriations to power users. So do citizen grants; permanent fund appropriations do not.

Efficiency

Table I calculates the benefits of Swan Lake power compared to diesel generation. Table II shows that the cheapest way of obtaining these benefits, if we disregard who pays, is the Governor's plan. GO bonds are almost as inexpensive.

The reason these two alternatives are the least expensive is that the tax-exempt rate of interest on the bonds is less than the rate of inflation. The rates assumed in this analysis, namely:

inflation	10%
taxable interest rates	12%
revenue bonds	9%
GO bonds	8%

reflect recent historical experience (see attached charts). However, even if the bond interest rates were above the rate of inflation, consideration of opportunity costs would probably result in the same relative merits for the financing alternatives.

The reason the Governor's plan is cheaper than GO bonds even though revenue bonds bear a higher interest rate is the earning of arbitrage on the reserve fund for revenue bonds, i.e. the reserve fund earns 12% while paying 9%.

Efficiency and Equity

If we now consider hydro financing as an alternative means of distributing state wealth, the objective becomes to maximize the benefits received by the private sector. To compare the alternatives, Tables III through VI consider the appropriation of \$71,550,000. The balance of funds not required for hydro financing goes either into the permanent fund or into citizen grants. Table VII summarizes the results for those cases in which diesel fuel prices escalate at 12% per annum (the relative merits would be the same for the 15% fuel cost escalation cases).

If one is only concerned with distribution of state wealth, it suffices to consider only the total benefits in Table VII. To the extent that there are competing needs, uses or distribution plans to the alternatives presented here, one should consider the benefit/cost ratios in Table VII.

The results in Table VII are due to a confluence of factors:

- 1) the benefits of hydro power;
- 2) the subsidy of tax-exempt bond rates provided by the federal government;
- 3) the amount of leverage, i.e. the percent of facilities financed with debt;
- 4) the absence of federal income taxation on benefits to users of subsidized power.

The following are a few observations that can be made:

- 1) if a power project offers as much benefit relative to alternatives as the example, it is clearly superior to permanent fund appropriations or grants to citizens in such amounts as to preclude undertaking the project;
- 2) if any balances left after hydro financing are to be put in the permanent fund, then GO bonds are the preferred financing method if the objective is purely to distribute what are perceived to be surplus funds;
- 3) if the objective is to place the maximum dollars directly into individual's pockets, the Governor's hydro financing plan with the balance paid in grants to citizens succeeds the best.

These observations have been made to suggest how to use Table VII. Many other observations can be made based on one's individual evaluation of the equity issues involved, the competing need for state funds, and the desire to leave the state with a debt-free future.

ADDENDUM

Estimate of Alaskan Marginal Tax Rate

The following information from Individual Income Tax Returns, 1977 Statistics of Income by the Internal Revenue Service was used to estimate an average 30% marginal federal income tax rate for Alaskans for tax year 1977:

	<u>Returns</u>	<u>Average Taxable Income</u>	<u>Marginal Rate</u>
Joint	80,734	22,065	32%
Individuals	100,857	10,333	27%

Total persons filing were 262,325.

The tax schedules were revised in 1975 and 1979 so that 1977 may represent the average marginal rate in the future if continued revisions are made to keep the federal share of income from increasing.

attachments

MB:bf

Municipal Newsletter

Foster & Marshall Inc.

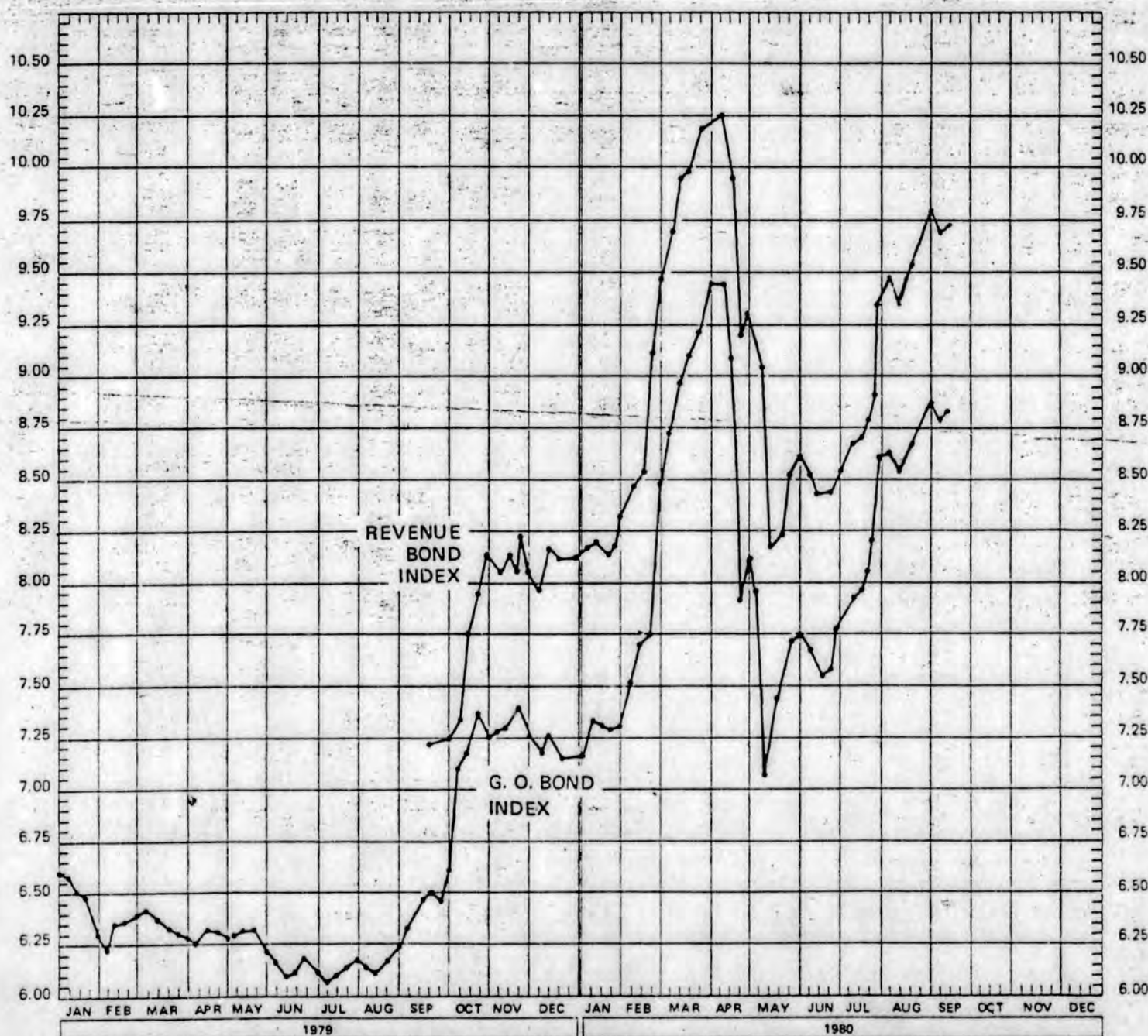
San Francisco, California
Portland, Oregon
Alaska
Idaho
Utah
Montana

September 15, 1980

The Bond Buyer's G.O. Index stands at 8.82% and the Revenue Bond Index at 9.73%. The last two weeks have seen a leveling of the rapid climb in rates since mid-year, but the supply of new issues coming to market is still heavy, making it less likely that there will be a significant drop in rates by election time.

Municipal issuers needing money now have a difficult decision whether to borrow at these near record interest rates or wait in hopes of some improvement. At the moment, we happen to be on the side of waiting a short time for what could be a slight improvement through the fall. However, don't look for dramatic drops in tax-exempt interest rates in the near future.

BOND BUYER'S INDEX OF MUNICIPAL INTEREST RATES



AND MUNICIPAL BONDS

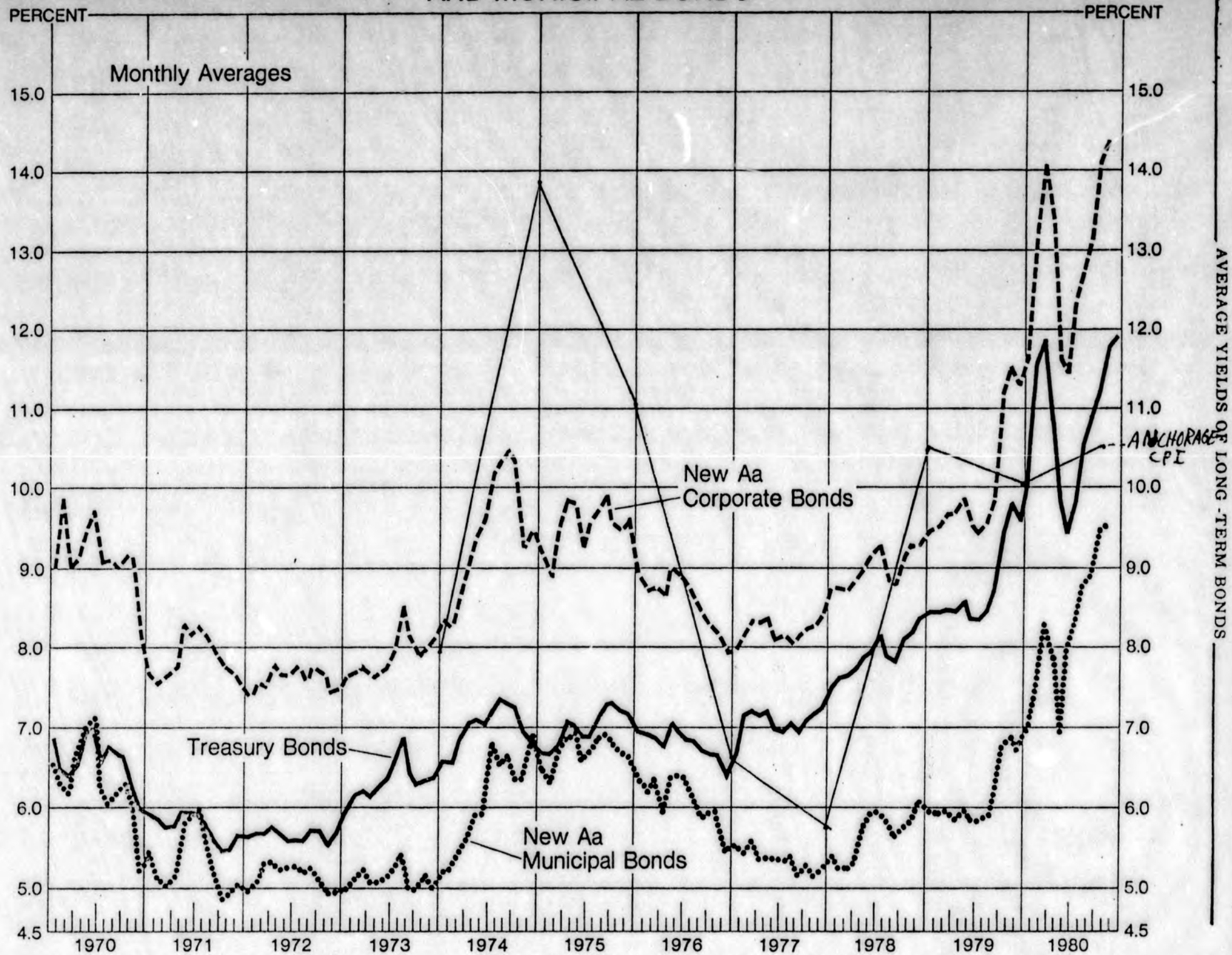


Table I
SWAN LAKE BENEFITS
Disregarding Capital Costs
(\$ millions)

[illegible]

Table I

Footnotes:

1. 2% of construction costs for first year of generation; escalated @ 10%; Swan Lake construction cost is \$86,000,000; construction begins 6-1-81; interest earned during construction @ 12% on average \$36,500,000 balance.
2. \$1,443/kw capacity in FY 84 times 18,000 kw Swan Lake dependable capacity; levelized charge based on 20-year life @ 9% tax-exempt interest rate; \$9,707/kw installed capacity for replacement diesel generator in 2004.
3. 1.95¢/kwh in FY 85; times 85,400,000 kwh average annual energy delivered to load center by Swan Lake; escalated @ 10%.
4. 85,400,000 kwh requires 6,569,230 gallons of diesel fuel @ 13 kwh/gallon; March 1981 Ketchikan Public Utilities diesel price is 98.7¢ per gallon.

Sources:

1. Swan Lake capacity and average annual generation from Application for License for the Swan Lake Project before the Federal Energy Regulatory Commission, Ketchikan Public Utilities, Ketchikan, Alaska, February 1979.
2. Swan Lake construction cost from "Swan Lake Project" analyses, Nuveen & Co., February 1981.
3. Swan Lake operating and maintenance costs from Swan Lake, Lake Grace, and Mahoney Lake Hydro-electric Projects Appraisal Report, Ketchikan Public Utilities, Ketchikan, Alaska, June 1977.
4. Diesel costs from Ketchikan Power Market Analysis, Alaska Power Administration, September 1979.

Prepared By:
Legislative Finance
March 30, 1981

TABLE II

SWAN LAKE CAPITAL COSTS
(Millions 1981 Dollars)

	GOVERNOR'S PLAN		Construction of Swan Lake APA PLAN		GO BONDS		DIRECT APPROPRIATION	
	12% Fuel	15% Fuel	12% Fuel	15% Fuel	12% Fuel	15% Fuel	12% Fuel	15% Fuel
	<u>Escalation</u>	<u>Escalation</u>	<u>Escalation</u>	<u>Escalation</u>	<u>Escalation</u>	<u>Escalation</u>	<u>Escalation</u>	<u>Escalation</u>
<u>Capital costs</u>								
Payments on Revenue Bonds	(34.20)	(34.20)	(32.20)	(32.20)	--	--	--	--
Subordinated Loan	--	--	(43.00)	(43.00)	--	--	--	--
GO Bond Debt Service	--	--	--	--	(61.93)	(61.93)	--	--
Grant	(26.93)	(26.93)	--	--	--	--	--	--
Direct Appropriation	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>(71.55)</u>	<u>(71.55)</u>
Total Capital Costs	(61.13)	(61.13)	(75.20)	(75.20)	(61.93)	(61.93)	(71.55)	(71.55)

TABLE II-A

SWAN LAKE
SOURCES AND USES OF FUNDS
FOR CAPITAL COSTS
(\$ Millions)

<u>Uses</u>	<u>Governor's Plan</u>	<u>APA Plan</u>	<u>GO Bonds</u>	<u>Direct Appropriation</u>
Construction (3 years)	86.00	86.00	86.00	86.00
Reserve Fund (15% of Revenue Bonds)	10.11	8.68	--	--
Capitalized Interest on Revenue Bonds and Subordinated Loan (3 years at 9%)	18.20	27.23	--	--
Costs of Bond Issuance (3 1/2% of Bonds)	<u>2.36</u>	<u>2.02</u>	<u>2.58</u>	<u>--</u>
Total Uses	116.67	123.93	88.58	86.00
<u>Sources</u>				
Revenue Bonds	67.42	57.84	--	--
Grant (\$2000 X 13,463 persons)	26.93	--	--	--
Subordinated Loan	--	43.00	--	--
GO Bonds	--	--	73.94	--
Direct Appropriation	<u>--</u>	<u>--</u>	<u>--</u>	<u>71.55</u>
Sources Subtotal	94.35	100.84	73.94	71.55
Interest Earned During Construction (3 years at 12% on reserve funds plus 55% of sources subtotal)	<u>22.32</u>	<u>23.09</u>	<u>14.64</u>	<u>14.45</u>
Total Sources	116.67	123.93	88.58	86.00

Prepared by:
Legislative Finance Division
March 30, 1981

Table III

SWAN LAKE AND PERMANENT FUND OPTIONS
BENEFIT/COST RATIOS FOR ALTERNATIVE USES OF \$71,550,000
(Millions 1981 Dollars)

	Construction of Swan Lake								Appropriation to Permanent Fund
	Governor's Plan		APA Plan		GO Bonds		Direct Appropriation		
	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	
Hydro Benefits to Users (From Table I)	297.27	452.62	297.27	452.62	297.27	452.62	297.27	452.62	--
Less: User Payments on Revenue Bonds @ 9% for 27 years repaid 6/1/85 to 6/1/2011	(34.20)	(34.20)	(32.20)	(32.20)	--	--	--	--	--
User Payments on Subordinated Loan @ 9% for 27 years repaid 6/1/85 to 6/1/2011	--	--	(27.07)	(27.07)	--	--	--	--	--
Plus: Permanent Fund Earnings on \$71,555,000 less amount of grant subordinated loan, GO debt service, or direct appropriation @ 12% 6/1/82 to 6/1/2011	50.47	50.47	32.29	32.29	10.88	10.88	--	--	80.92
Permanent Fund Earnings @ 12% on repayment of subordinated loan 6/1/85 to 6/1/2011	--	--	30.54	30.54	--	--	--	--	--
Less: 50% of Permanent Fund Earnings to State	(25.23)	(25.23)	(31.41)	(31.41)	(5.44)	(5.44)	--	--	(40.46)
30% average marginal rate for individuals' federal income tax on Permanent Fund earnings paid as dividends	<u>(7.57)</u>	<u>(7.57)</u>	<u>(9.42)</u>	<u>(9.42)</u>	<u>(1.63)</u>	<u>(1.63)</u>	<u>--</u>	<u>--</u>	<u>(12.13)</u>
Total Benefits to Users	280.74	436.09	260.00	415.35	301.08	456.43	297.27	452.62	28.11

Table III (continued)

SWAN LAKE AND PERMANENT FUND OPTIONS
BENEFIT/COST RATIOS FOR ALTERNATIVE USES OF \$71,550,000
(Millions 1981 Dollars)

Cost to State	Construction of Swan Lake								Appropriation to Permanent Fund
	Governor's Plan		APA Plan		GO Bonds		Direct Appropriation		
	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	
Grant	(26.93)	(26.93)	--	--	--	--	--	--	--
Subordinated Loan	--	--	(43.00)	(43.00)	--	--	--	--	--
Less: Subordinated Loan Repayment	--	--	27.07	27.07	--	--	--	--	--
Debt Service @ 8% for 30 years on GO Bonds	--	--	--	--	(61.93)	(61.93)	--	--	--
Direct Appropriation for Swan Lake	--	--	--	--	--	--	(71.55)	(71.55)	--
Appropriations to Permanent Fund	(44.62)	(44.62)	(28.55)	(28.55)	(9.62)	(9.62)	--	--	(71.55)
Appropriation of Subordinated Loan to Permanent Fund	<u>--</u>	<u>--</u>	<u>(27.07)</u>	<u>(27.07)</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>
Total Cost to State	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)
Less: 50% of Permanent Fund Earnings	25.23	25.23	31.41	31.41	5.44	5.44	--	--	40.62
Net Cost to State	(46.32)	(46.32)	(40.14)	(40.14)	(66.11)	(66.11)	(71.55)	(71.55)	(30.93)
Ratio of Benefits to Net Cost	6.06	9.41	6.48	10.35	4.55	6.90	4.15	6.36	.92

TABLE IV

SWAN LAKE AND PERMANENT FUND OPTIONS
 BENEFIT/COST RATIOS FOR RESIDENTIAL USERS FOR ALTERNATIVE USES OF \$71,550,000
 ASSUMING 50% OF POWER IS CONSUMED BY RESIDENTIAL USERS
 (Millions 1981 Dollars)

	GOVERNOR'S PLAN		APA PLAN		GO BONDS		DIRECT APPROPRIATION		Appropriation To Permanent Fund
	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	
Hydro Benefits to Users (50% of Table I)	148.63	226.31	148.63	226.31	148.63	226.31	148.63	226.31	--
Less: User Payments on Revenue Bonds (50% of Table III)	(17.10)	(17.10)	(16.10)	(16.10)	--	--	--	--	†
User Payments on Subor- dinated Loan (50% of Table III)	--	--	(13.53)	(13.53)	--	--	--	--	--
Plus: Permanent Fund Dividends After-Tax (From Table III)	<u>17.67</u>	<u>17.67</u>	<u>21.99</u>	<u>21.99</u>	<u>3.81</u>	<u>3.81</u>	<u>--</u>	<u>--</u>	<u>28.33</u>
Total Benefits to Residential Users	149.20	226.88	140.99	218.67	152.44	230.12	148.63	226.31	28.33
Net Cost to State (From Table III)	(46.32)	(46.32)	(40.14)	(40.14)	(66.11)	(66.11)	(71.55)	(71.55)	(30.93)
Ratio of Residential Benefits to Net Cost	3.22	4.90	3.51	5.45	2.31	3.48	2.08	3.16	.92

Prepared by:
 Legislative Finance Division
 March 30, 1981

TABLE V
SWAN LAKE AND DIRECT CITIZEN GRANT OPTIONS
BENEFIT/COST RATIOS FOR ALTERNATIVE USES OF \$71,550,000
(Millions 1981 Dollars)

	GOVERNOR'S PLAN		APA PLAN		GO BONDS		DIRECT APPROPRIATION		DIRECT CITIZEN GRANTS
	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	
Hydro Benefits to Users (from Table I)	297.27	452.62	297.27	452.62	297.27	452.62	297.27	452.62	--
LESS: User Payments on Revenue Bonds (from Table III)	(34.20)	(34.20)	(32.20)	(32.20)	--	--	--	--	--
User Payments on Subor- dinated Loan (from Table III)	--	--	(27.07)	(27.07)	--	--	--	--	--
PLUS: Citizen Grants of \$71,550,000 less amount of hydro grant, subordinated loan, GO debt service, or direct appropriation	44.62	44.62	28.55	28.55	9.62	9.62	--	--	71.55
Citizen Grants of Subor- dinated Loan Repayments	--	--	27.07	27.07	--	--	--	--	--
LESS: 30% average marginal rate for individuals' federal income tax on citizen grants	(13.39)	(13.39)	(16.69)	(16.69)	(2.89)	(2.89)	--	--	(21.46)
Total Benefits to Users	294.30	449.65	276.93	432.28	304.00	459.35	297.27	452.62	50.09
Cost to State									
Hydro Grant	(26.93)	(26.93)	--	--	--	--	--	--	--
Subordinated Loan	--	--	(43.00)	(43.00)	--	--	--	--	--
Less: Repayment of Subor- dinated Loan	--	--	27.07	27.07	--	--	--	--	--
Debt Service on GO Bonds	--	--	--	--	(61.93)	(61.93)	--	--	--
Direct Appropriation for Swan Lake	--	--	--	--	--	--	(77.55)	(71.55)	--
Citizen Grants	(44.62)	(44.62)	(55.62)	(55.62)	(9.62)	(9.62)	--	--	(71.55)
Total Cost to State	(71.55)	(77.55)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)
Ratio of Benefit to Cost	4.11	6.28	3.87	6.04	4.24	6.41	4.15	6.32	.70

TABLE VI

SWAN LAKE AND DIRECT CITIZEN GRANT OPTIONS
 BENEFIT/COST RATIOS FOR ALTERNATIVE USES OF \$71,550,000
 ASSUMING 50% OF POWER IS CONSUMED BY RESIDENTIAL USERS
 (Millions 1981 Dollars)

	GOVERNOR'S PLAN		APA PLAN		GO BONDS		DIRECT APPROPRIATION		DIRECT CITIZEN GRANTS
	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	12% Fuel Escalation	15% Fuel Escalation	
Hydro Benefits to Users (50% of Table I)	148.63	226.31	148.63	226.31	148.63	226.31	148.63	226.31	--
LESS: User Payments on Revenue Bonds (50% of Table III)	(17.10)	(17.10)	(16.10)	(16.10)	--	--	--	--	--
User Payments on Subordinated Loan (50% of Table III)	--	--	(13.53)	(13.53)	--	--	--	--	--
PLUS: Citizens Grants After- Tax (From Table V)	<u>31.23</u>	<u>31.23</u>	<u>38.93</u>	<u>38.93</u>	<u>6.73</u>	<u>6.73</u>	<u>--</u>	<u>--</u>	<u>50.09</u>
Total Benefits to Residential Users	162.76	274.64	157.93	235.61	155.36	233.04	148.63	226.31	50.09
Cost to State (From Table V)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)	(71.55)
Ratio of Residential Benefits to Cost	2.27	3.84	2.21	3.29	2.17	3.26	2.08	3.16	.70

PREPARED BY:
 Legislative Finance Division
 March 30, 1981

TABLE VII

TOTAL BENEFITS AND BENEFIT/COST RATIOS FOR
ALTERNATIVE USES OF \$71,550,000
ASSUMING 12% ESCALATION IN DIESEL FUEL COSTS
(Millions 1981 Dollars)

	ALL BENEFITS				RESIDENTIAL BENEFITS			
	Balance To		Balance To		Balance To		Balance To	
	Total	Benefit/Cost	Total	Benefit/Cost	Total	Benefit/Cost	Total	Benefit/Cost
	Benefits	Ratio	Benefits	Ratio	Benefits	Ratio	Benefits	Ratio
<u>Construction of Swan Lake</u>								
Governor's Plan	280.74	6.06	294.30	4.11	149.20	3.22	162.76	2.27
Alaska Power Authority Plan	260.00	6.48	276.93	3.87	140.99	3.51	157.93	2.21
GO Bonds	301.08	4.55	304.00	4.24	152.44	2.31	155.36	2.17
Direct Appropriations	297.27	4.15	297.27	4.15	148.63	2.08	148.63	2.08
Appropriation to Permanent Fund	28.11	.92	--	--	28.33	.92	--	--
Appropriation of Grants to Citizens	--	--	50.09	.70	--	--	50.09	.70

PREPARED BY:
Legislative Finance Division
March 30, 1981

Original sponsors: Kerttula, Dankworth,
Ziegler, et al

Final

1 IN THE SENATE

BY THE RESOURCES COMMITTEE

2 HOUSE CS FOR CS FOR SPONSOR SUBSTITUTE FOR SENATE BILL NO. 25 (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 relating to energy projects and programs of
7 the Alaska Power Authority; and providing for an
8 effective date."

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

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

11 ARTICLE 8. ENERGY PROGRAM FOR ALASKA.

12 Sec. 44.83.400. PROGRAM ESTABLISHED. (a) The energy program for
13 Alaska is established. The program shall be administered by the Alaska
14 Power Authority.

15 (b) The energy program for Alaska is a program by which the
16 authority may acquire or construct power projects with money appro-
17 priated by the legislature to the power development fund established in
18 AS 44.83.410. A power project may be acquired or constructed as part
19 of the energy program for Alaska only if the project is submitted to
20 and approved by the legislature in accordance with procedures set out
21 in AS 44.83.177 - 44.83.187.

22 (c) The provisions of AS 36.10.010 - 36.10.125 apply to power
23 projects constructed by the authority under AS 44.83.400 - 44.83.510.

24 Sec. 44.83.410. POWER DEVELOPMENT FUND ESTABLISHED. (a) A power
25 development fund is established in the Alaska Power Authority to carry
26 out the purposes of the energy program for Alaska (AS 44.83.400 -
27 44.83.510).

28 (b) The fund includes all money appropriated to it by the legisla-
29 ture.

1 Sec. 44.83.420. USE OF FUND BALANCE. (a) The fund may be used
2 by the authority to provide money for

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

5 (2) the cost of a power project, including but not limited
6 to costs of acquiring necessary licenses, preparing engineering designs,
7 obtaining land, and constructing the power project;

8 (3) the defeasance of bonds, or the payment of debt service
9 on loans for or on an issue of bonds sold in connection with a power
10 project; and

11 (4) the power cost assistance fund (AS 44.83.162).

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

14 (1) meets the revenue requirements of AS 44.83.470; and

15 (2) provides the lowest power cost to utility customers in
16 the market area for the estimated life of the power project, whether
17 operated by itself or in conjunction with other power projects in the
18 market area, and which operates or will operate on one or more of the
19 following:

20 (A) renewable energy resources, including but not
21 limited to hydroelectric power, wind, biomass, geothermal, tidal
22 or solar energy, or a method which uses temperature differentials
23 or other physical properties of the ocean;

24 (B) coal or peat;

25 (C) energy derived from waste heat from thermal gener-
26 ating plants; or

27 (D) fossil fuel, including oil or natural gas.

28 Sec. 44.83.430. INVESTMENT OF FUND. The Department of Revenue
29 shall invest the money in the fund in accordance with AS 37.10.070 and

1 37.10.075. The Department of Revenue shall provide money in the fund
2 to the authority only after a cost for a project is incurred.

3 Sec. 44.83.440. ALLOTMENT TO PROJECTS. (a) The authority shall
4 maintain records of power project allocations from the fund for each
5 power project

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

7 (2) for which an allocation is made from an appropriation
8 made by the legislature without specifying an appropriation to a pro-
9 ject.

10 (b) Income earned from investment of money appropriated to the
11 fund shall be deposited in the general fund and may be appropriated to
12 the fund by the legislature.

13 Sec. 44.83.450. REAPPROPRIATION OF FUND BALANCE. (a) If a power
14 project designated by the legislature by law is not constructed, the
15 amount appropriated to it may be reappropriated to other power projects
16 by the legislature.

17 (b) The legislature may reappropriate money under (a) of this
18 section only for a power project which is economically feasible under
19 AS 44.83.181(b) and only if the project will serve the market area that
20 would have been served by the power project designated by the legisla-
21 ture and not constructed.

22 Sec. 44.83.460. LAPSE OF EXCESS APPROPRIATIONS. If at the end of
23 construction of a power project appropriations for the power project
24 exceed the amount required for construction of it, the excess lapses
25 into the general fund.

26 Sec. 44.83.470. REVENUE REQUIREMENTS. (a) The authority may not
27 use money in the fund for a power project unless the authority makes a
28 feasibility study under AS 44.83.181, and determines that the power
29 project is economically and financially feasible and that, after con-

1 construction, operation of the power project will provide revenue suffi-
2 cient to return to the state five percent of the amount which the
3 authority has spent from the fund for the power project.

4 (b) For purposes of this section, a proposed power project is
5 economically and financially feasible if the cost-benefit ratio for the
6 power project exceeds the cost-benefit ratio of the existing system
7 which provides power in the area. If there is no system providing
8 power in the area, a proposed power project is economically and finan-
9 cially feasible if the cost-benefit ratio for the power project exceeds
10 the cost-benefit ratio for a power project which generates electric
11 power in the area by using diesel fuel. The authority shall determine
12 a cost-benefit ratio by considering all direct and indirect benefits
13 and costs attributable to the power project which can be given a value
14 in money, and the effect of government financial assistance for the
15 power project.

16 Sec. 44.83.480. OPERATION OF POWER PROJECT. (a) A power project
17 which is acquired or constructed as part of the energy program for
18 Alaska is owned by the state and shall be administered by the authority.

19 (b) When a power project has been acquired or constructed by the
20 authority, the project may be operated for the authority under a con-
21 tract or lease entered into by a qualified utility and the authority.

22 Sec. 44.83.490. SALE OF POWER FROM POWER PROJECT. (a) The
23 authority shall sell power produced from power projects acquired or
24 constructed under the energy program for Alaska. A utility which
25 purchases power produced by a power project of the authority shall
26 agree with the authority

27 (1) to give preference in the sale of power at retail to all
28 classes of consumers of power except industrial consumers;

29 (2) to charge industrial consumers of power a rate determined

1 by the authority in accordance with (e) of this section.

2 (b) The authority shall establish a wholesale power rate structure
3 applicable to sales of power to its customers at the busbar of the
4 power project as follows:

5 (1) If, by July 1, 1986, the legislature has not appro-
6 priated at least \$5,000,000,000 to the power development fund, the
7 authority shall, beginning on that date, establish and maintain a
8 wholesale power rate for each power project which rate will return to
9 the authority, on an annual basis, 10 percent of the amount appropriated
10 to the power development fund for each project.

11 (2) After the effective date of this Act and until June 30
12 of the fiscal year in which the production capacity of all power pro-
13 jects acquired or constructed by the authority under the energy program
14 for Alaska exceeds 500 megawatts, the authority shall establish and
15 maintain a wholesale power rate for each power project which rate will
16 return to the authority, on an annual basis, not less than five percent
17 of the amount which the authority has invested in the power project
18 from the fund for each project, including loans and grants made by the
19 state.

20 (3) Beginning July 1 of the first fiscal year following the
21 date on which the production capacity of all power projects acquired or
22 constructed by the authority under the energy program for Alaska
23 exceeds 500 megawatts, the authority shall establish and maintain a
24 single wholesale power rate applicable to all power projects which it
25 has acquired or constructed under the energy program for Alaska; the
26 wholesale power rate shall be computed by the authority annually, and
27 shall equal the rate which the authority estimates is necessary to
28 produce revenue which is sufficient to pay

29 (A) operation, maintenance, and equipment replacement

costs of the power projects;

(B) debt service costs of the power projects;

(C) safety inspections and investigations of the power projects by the authority; and

(D) annual costs of the power cost assistance program (AS 44.83.162).

(c) The authority shall transmit the money which it receives from sales of power at rates determined under (b) of this section to the commissioner of revenue for deposit in the state general fund.

(d) From the amount collected under (b)(2) and (3) of this section which the commissioner of revenue estimates will be deposited into the general fund, the legislature may appropriate to the authority the amount required under AS 44.83.470 for paying costs of operating and maintaining power projects which it acquired or constructed as part of the energy program for Alaska. The balance of the amount collected under (b)(2) and (3) of this section and estimated by the commissioner of revenue to be deposited into the general fund may be appropriated by the legislature to the power cost assistance fund. The estimates of amounts required for each of the appropriations shall be provided to the governor in the budget submitted under AS 37.07.

(e) A rate for an industrial consumer under (a)(2) of this section

(1) may exceed the wholesale power rate determined under (b) of this section;

(2) may not be less than the rate charged residential consumers.

(f) The legislature may, by law, annul or change the wholesale power rate for sales of power which the authority adopts under (b) of this section.

Sec. 44.83.500. ENERGY CONSERVATION. The authority shall ensure

1 (1) that communities served by energy projects built from
2 amounts appropriated to the power development fund implement cost-
3 effective energy conservation measures for residences, commercial and
4 public buildings, and industries; and

5 (2) that communities shall fulfill their responsibilities
6 under (1) of this section by cooperating with state agencies concerned
7 with development and conservation of energy, including but not limited
8 to

9 (A) the Alaska Public Utilities Commission;

10 (B) the Alaska Energy Center;

11 (C) the division of energy and power development,

12 Department of Commerce and Economic Development; and

13 (D) the division of business loans, Department of
14 Commerce and Economic Development.

15 Sec. 44.83.510. DEFINITIONS. In AS 44.83.400 - 44.83.510,

16 (1) "busbar" means the substation which serves as the de-
17 livery point from the generation and transmission system of the author-
18 ity to the transmission and distribution system of the utility;

19 (2) "fund" means the power development fund;

20 (3) "industrial consumer" means a customer of a utility
21 which customer has a peak power demand in excess of 500 kilowatts and
22 uses the power principally for

23 (A) manufacturing;

24 (B) pipeline transportation;

25 (C) the recovery or processing of minerals;

26 (D) the processing of timber, agricultural, or seafood
27 products or their by-products; or

28 (E) the operation of facilities owned by the federal
29 government;

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

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

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

(C) a utility, whether or not regulated under AS 42.05, which generates, transmits, or distributes electrical service to the public; and

(D) a regional electrical authority (AS 18.57).

* Sec. 2. AS 44.83.030 is amended to read:

Sec. 44.83.030. MEMBERSHIP OF THE AUTHORITY. [(a)] The authority shall consist of the following directors:

(1) three [FOUR] directors at large to be appointed by the governor and confirmed by the legislature; only one director may be appointed from each judicial district described in AS 22.10.010;

(2) four persons appointed by the governor from among the heads of state agencies [THE COMMISSIONER OF COMMERCE AND ECONOMIC DEVELOPMENT.

(b) THE COMMISSIONERS OF COMMUNITY AND REGIONAL AFFAIRS, NATURAL RESOURCES, TRANSPORTATION AND PUBLIC FACILITIES, AND REVENUE SHALL HAVE THE RIGHTS AND PRIVILEGES OF DIRECTORS EXCEPT FOR THE RIGHT TO VOTE AND MAY NOT BE CONSIDERED FOR PURPOSES OF QUORUM OR VOTING].

* Sec. 3. AS 44.83.040 is amended to read:

Sec. 44.83.040. OFFICERS AND QUORUM. The directors [DIRECTOR] shall elect one of their number [THE DIRECTORS AT LARGE] as chairman and may elect other officers they determine desirable. The powers of

1 the authority are vested in the directors, and four [THREE] directors
2 of the authority constitute a quorum. Action may be taken and motions
3 and resolutions adopted by the authority at a meeting by the affirma-
4 tive vote of at least three directors. The directors of the authority
5 serve without compensation, but they shall receive the same travel pay
6 and per diem as provided by law for board members.

7 * Sec. 4. AS 44.83.045(a) is amended to read:

8 (a) The directors at large shall [MUST] be residents and quali-
9 fied voters of Alaska and shall comply with the requirements of AS 39.50
10 (conflict of interests). The directors at large shall serve over-
11 lapping four-year terms. [THE FOUR ORIGINAL DIRECTORS AT LARGE HAVE
12 TERMS OF ONE, TWO, THREE, AND FOUR YEARS, RESPECTIVELY.]

13 * Sec. 5. AS 44.83.080(16) is amended by adding new subparagraphs to
14 read:

15 (G) an appropriation for a power project acquired or
16 constructed under the energy program for Alaska (AS 44.83.400 -
17 44.83.510);

18 (H) appropriations for the power cost assistance fund
19 (AS 44.83.162), and for operation and maintenance of power projects
20 developed under the energy program for Alaska (AS 44.83.400 -
21 44.83.510).

22 * Sec. 6. AS 44.83.090(a) is amended to read:

23 (a) The authority shall, in addition to the other methods which
24 it may find advantageous, provide a method by which municipal electric,
25 rural electric, cooperative electric, or private electric utilities and
26 regional electric authorities, or other persons authorized by law to
27 engage in the distribution of electricity may secure a reasonable share
28 of the power generated by a project, or any interest in a project, or
29 for any right to the power and shall sell the power or cause the power

1 to be sold at the lowest reasonable prices which cover the full cost of
2 the electricity or services, including capital and operating costs,
3 debt coverage as considered appropriate by the authority, and other
4 charges that may be authorized by this chapter. Except for a contract
5 or lease entered into under AS 44.83.400 - AS 44.83.510, a [A] contract
6 or lease for the sale, transmission and distribution of power generated
7 by a project or any right to the capacity of it shall provide:

8 (1) for payment of all operating and maintenance expenses of
9 a project and costs of renewals, replacements and improvements of it;

10 (2) for interest on and amortization charges sufficient to
11 retire bonds of the authority issued for the project and reserves for
12 them, plus a debt service coverage factor as may be determined by the
13 authority to be necessary for the marketability of its bonds;

14 (3) for monitoring of the project by the authority or its
15 agents;

16 (4) for full and complete disclosure to the authority of all
17 factors of cost in the transmission and distribution of power, so that
18 rates to any persons may be fixed initially in the contract or lease
19 and may be adjusted from time to time on the basis of true cost data;

20 (5) for periodic revisions of the service and rates to
21 persons on the basis of accurate cost data obtained by the accounting
22 methods and systems approved by the directors and in furtherance and
23 effectuation of the policy declared in this chapter;

24 (6) for the cancellation and termination of a contract or
25 lease upon violation of its terms by any person;

26 (7) for security for performance as the authority may con-
27 sider practicable and advisable, including provisions assuring the
28 continuance of the distribution and transmission of power generated by
29 a project and the use of its facilities for these purposes; and

(8) other terms not inconsistent with the provisions and policy of this chapter as the authority may consider advisable.

* Sec. 7. AS 44.83 is amended by adding a new section to read:

Sec. 44.83.105. BONDS FOR POWER PROJECTS UNDER THE ENERGY PROGRAM FOR ALASKA. The authority shall borrow money and shall issue its bonds on which the principal and interest are payable exclusively from money derived from the power project financed with the proceeds of the bonds for a power project financed under AS 44.83.400 - 44.83.510 from the power development fund if

(1) appropriations to the power development fund for the power project, and interest earned on those appropriations, are insufficient to cover the cost of acquiring or constructing the power project; and

(2) the amount of interest which the authority will pay on its bonds is not more than alternative costs of securing money to pay for the acquisition or construction of the power project.

* Sec. 8. AS 44.83.162 is repealed and reenacted to read:

Sec. 44.83.162. POWER COST ASSISTANCE. (a) The power cost assistance fund is established as a separate fund to provide financial assistance to eligible electric utilities in the state. The fund shall be administered by the authority as a fund distinct from other funds of the authority. The fund is composed of money appropriated for the purpose of providing power cost assistance to an eligible electric utility.

(b) The costs used to calculate the amount of power cost assistance under this section include the costs allowed by the commission to determine the revenue requirement for setting the rates charged to customers of the utility. However, costs which represent a return on equity may not be used to determine the amount of power cost assistance

1 under this section.

2 (c) An eligible electric utility is entitled to receive power
3 cost assistance

4 (1) for sales of power to local community facilities calcu-
5 lated at not more than 55 kilowatt-hours per month for each resident of
6 the community; and

7 (2) for not more than 600 kilowatt-hours per month sold to
8 each customer in all classes served by the utility except the classes
9 which provide services to customers of the utility under (1) of this
10 subsection.

11 (d) The amount of power cost assistance provided per month under
12 (c) of this section is the lesser of 95 percent of the average rate per
13 kilowatt-hour sold or the average rate per kilowatt-hour, as determined
14 by the commission. However,

15 (1) during the fiscal year ending June 30, 1982, the power
16 costs for which power cost assistance may be paid to an electric utility
17 are limited to a minimum power cost of 12 cents per kilowatt-hour and a
18 maximum power cost of 45 cents per kilowatt-hour;

19 (2) during each following fiscal year, the power costs for
20 which power cost assistance may be paid to an electric utility are
21 limited to the minimum power cost specified in (1) of this subsection
22 plus two cents per kilowatt-hour for the fiscal year ending June 30,
23 1983, plus two cents per kilowatt-hour for each fiscal year thereafter,
24 and a maximum power cost of 45 cents per kilowatt-hour.

25 (e) An eligible electric utility may include as part of its
26 revenue requirement for the purpose of setting rates charged to custo-
27 mers those costs for which assistance is provided under this section.
28 However, the utility's approved tariff shall set out the rates without
29 the cost assistance provided in this section and shall set out the

1 amount of power cost assistance per kilowatt-hour sold. The cost
2 assistance under this section shall be used to reduce the cost of all
3 power sold to a local community facility to the extent of 55 kilowatt-
4 hours per month per resident of the community, and to reduce the cost
5 of the first 600 kilowatt-hours per month for all other classes served
6 by the utility.

7 (f) The power cost assistance program shall be administered by
8 the authority based on a determination by the commission of adjusted
9 power cost of each electric utility eligible for power cost assistance.
10 An electric utility is eligible for power cost assistance if the power
11 costs of the utility exceed the adjusted power costs, as determined by
12 the commission under (b) - (d) of this section.

13 (g) The adjusted power cost shall be calculated in the manner
14 prescribed by (c) and (d) of this section and shall be based on the
15 power cost filed with the commission by each eligible electric utility,
16 as verified by the commission. An eligible utility may not be denied
17 power cost assistance because complete cost information is not avail-
18 able. The commission shall assist eligible utilities which are exempt
19 from AS 42.05 to provide the cost information necessary to comply with
20 the requirements of this section. The power cost shall be derived from
21 financial data supporting the most recently approved permanent or
22 interim rate schedule with adjustments incorporating the current cost
23 of fuel. The determination of the cost of fuel by the commission shall
24 be in accordance with the procedure for approving fuel cost rate
25 adjustments in effect at the time of the determination. The commission
26 shall review filings and approve an adjusted power cost per kilowatt-
27 hour and revised rates based on the approved adjusted power cost per
28 kilowatt-hour, as determined under (c) and (d) of this section. The
29 commission may change the adjusted power costs if

1 (1) an increase or decrease in a utility's cost of fuel has
2 resulted in the approval of a fuel cost rate adjustment by the commis-
3 sion;

4 (2) a permanent or interim rate increase or decrease has
5 been approved by the commission, thereby establishing a higher or lower
6 power cost;

7 (3) the authority has discovered discrepancies in its review
8 of data submitted, monthly, by the utilities; or

9 (4) the authority determines that appropriations are insuf-
10 ficient to fund full payments to eligible utilities.

11 (h) Each electric utility with a rate schedule and adjusted power
12 cost approved by the commission shall report monthly to the authority
13 within the time and in the form the authority requires. An electric
14 utility shall report

15 (1) the adjusted power costs per kilowatt-hour approved by
16 the commission including a detailed breakdown of those costs as speci-
17 fied by the commission;

18 (2) the total kilowatt-hours sold to each class of consumer
19 during the preceding month;

20 (3) the total kilowatt-hours during the preceding month
21 eligible for power cost assistance under this section sold to each
22 class of consumer;

23 (4) the total kilowatt-hours generated during the preceding
24 month, if available;

25 (5) any amendments to the schedule of rates in effect during
26 the preceding month; and

27 (6) any increase or decrease in the current unit price of
28 fuel from the base price used by the commission in the determination of
29 power costs.

1 (i) The authority shall review the report prepared under (h) of
2 this section and may submit the report to the commission for additional
3 review before payment. After review and approval of the report by the
4 authority, the authority shall, subject to appropriation, pay to each
5 eligible electric utility an amount equal to the difference between the
6 power cost per kilowatt-hour approved by the commission and the ap-
7 proved adjusted power cost per kilowatt-hour determined under (c) and
8 (d) of this section multiplied by the number of kilowatt-hours eligible
9 for power cost assistance which were sold for the preceding month to
10 each customer of the utility for all sales of power to local community
11 facilities to the extent of 55 kilowatt-hours per month per resident of
12 the community, and for 600 kilowatt-hours per month for other classes
13 served by the utility, whichever is less. Payment shall be made by the
14 authority within 30 days after receipt from the utility of the report
15 required under (h) of this section. However, if there is a dispute
16 between the authority and the utility relating to the payment, the
17 authority shall submit the report to the commission within 30 days
18 after receipt of the report by the authority for review before payment.
19 When a report is submitted to the commission for review under this
20 section, payment shall be made by the authority within 30 days after
21 submission. If appropriations are insufficient for payment in full,
22 the amount paid to each electric utility is reduced on a pro rata
23 basis.

24 (j) If an electric utility receives power cost assistance under
25 this section, the utility shall either

26 (1) give the following notice to its electric service cus-
27 tomers eligible under this program for each period for which the pay-
28 ment is received:

29 NOTICE TO CUSTOMER

1 For the current billing period the utility has been paid under the
2 State of Alaska's power cost assistance program (AS 44.83.162) to
3 assist the utility and its customers in reducing the high cost of
4 generation of electric energy.

5 Your total electrical service cost \$.....

6 Less state assistance \$.....

7 Your charge \$.....; or

8 (2) give to its electric service customers a notice approved
9 by the authority which notice provides electric service customers the
10 same information provided by the notice in (1) of this subsection.

11 (k) In order to qualify for power cost assistance, each utility
12 must make every reasonable effort to reduce administrative, operating,
13 and overhead costs, including the utilization of the best available
14 technology consistent with sound utility management practices. Each
15 eligible utility shall cooperate with appropriate state agencies, in-
16 cluding but not limited to the Alaska Public Utilities Commission, the
17 Alaska Power Authority, the Alaska Energy Center, and the division of
18 energy and power development in the Department of Commerce and Economic
19 Development, to implement cost-effective energy conservation measures,
20 and to plan for and implement feasible alternatives to diesel genera-
21 tion.

22 (l) In this section, "power cost" means the items specified in a
23 system of utility accounts designated by the commission less any other
24 assistance received within 60 days before the commission determines the
25 adjusted power cost of the utility, which assistance reduces the custo-
26 mer's cost of power and which is provided to the electric utility or
27 the customers of that utility.

28 (m) For purposes of (c) of this section, the number of residents
29 of the community shall equal the number of residents of the community

determined by the Department of Community and Regional Affairs in accordance with AS 29.88.015.

(n) In this section,

(1) "commission" means the Alaska Public Utilities Commission;

(2) "community facility" means a water and sewer facility, public outdoor lighting, or community building whose operations are not paid for by the state, the federal government, or private commercial interests;

(3) "energy conservation measures" include weatherization and other insulating methods, utilization of waste heat, appropriate sizing of new generating equipment, and other programs of the state or federal government intended and available for the purpose of energy conservation;

(4) "feasible energy projects" include those which are selected through the reconnaissance and feasibility process according to the criteria in AS 44.83.177 - 44.83.181 to determine cost benefit in comparison to existing power generating methods and other alternatives considered in reconnaissance studies;

(5) "fund" means the power cost assistance fund.

* Sec. 9. AS 44.83.164(a) is amended to read:

(a) A utility which is exempt from regulation under AS 42.05.711 may receive power [PRODUCTION] cost assistance under AS 44.83.162 without becoming subject to the jurisdiction of the Alaska Public Utilities Commission if the utility is otherwise eligible for assistance and if the utility

(1) files with the commission [THE AUDITED] financial data necessary to determine the adjusted power [PRODUCTION] cost as [IN THE FORM] prescribed by the commission [IN A RECOGNIZED SYSTEM OF UTILITY

ACCOUNTS];

(2) makes a report approved by the commission which provides information concerning the cost of generating electric power and the method used by the utility to set rates [THE REPORTS REQUIRED IN AS 44.83.162(g) REQUIRED OF AN ELECTRIC UTILITY WITH A RATE SCHEDULE APPROVED BY THE COMMISSION] within the time and in the form the Alaska Power Authority designates;

(3) sets rates

(A) which consider the assistance provided under AS 44.-83.162 [CHARGED FOR RESIDENTIAL SERVICES, LOCAL COMMUNITY SERVICES, AND FOR SERVICES TO CHARITABLE ORGANIZATIONS,] by subtracting from [INCLUDING AS PART OF] its revenue requirements for these services [ONLY] the [ADJUSTED] power [PRODUCTION] cost assistance per kilowatt-hour which is eligible for assistance [SOLD]; and

(B) under which the cost assistance provided in AS 44.-83.162 is applied as a credit only against the cost of kilowatt-hours eligible for assistance under AS 44.83.162 which are consumed by each customer in any month;

(4) allows audits which the commission determines are necessary to insure compliance with this section; and

(5) furnishes its electric service customers eligible under this program a notice as [THE "NOTICE TO CUSTOMER"] specified in AS 44.83.162(j).

* Sec. 10. AS 44.83.177(a) is amended to read:

(a) To identify power project alternatives and energy needs and consumption patterns for a community, the authority shall, after consultation with other state agencies and after review of information on alternative sources of power, complete a reconnaissance study for each proposed new power project.

1 * Sec. 11. AS 44.83.177(b) is repealed and reenacted to read:

2 (b) A reconnaissance study shall

3 (1) survey all energy sources available to the community and
4 adjacent area and evaluate the relative economic merits of alternative
5 sources of energy, including energy conservation and capture and utili-
6 zation of waste energy as provided for in AS 44.83.170(b)(1); if the
7 study surveys

8 (A) potential hydroelectric sites, the study shall
9 include one-year data collection on water flow;

10 (B) wind energy, the study shall include a one-year
11 collection and evaluation of data on wind speed, direction, and
12 other information valuable to development of wind generation;

13 (2) include an assessment of the total energy needs of the
14 community, including but not limited to, electricity, space heating,
15 and transportation fuels based on the nature and amount of energy use
16 and the purpose of its use;

17 (3) include an assessment of the effect of the development
18 of alternative sources of energy on the environment so as to assure
19 that there is no adverse effect to the environment which would make the
20 project inadvisable;

21 (4) include public comment from residents of the community
22 and adjacent areas.

23 * Sec. 12. AS 44.83.177 is amended by adding a new subsection to read:

24 (d) In completing a reconnaissance study, the authority shall
25 consult with the division of energy and power development in the
26 Department of Commerce and Economic Development and with the Alaska
27 Energy Center to determine the information which each may require for
28 energy planning and the development of technology.

29 * Sec. 13. AS 44.83.224 is amended by adding a new subsection to read:

(b) Each reconnaissance study completed in accordance with AS 44.83.177 shall become part of the long-term energy plan provided for under (a) of this section.

* Sec. 14. AS 44.25.020 is amended by adding a new paragraph to read:

(5) invest and manage the balance of the power project development fund in accordance with AS 44.83.430.

* Sec. 15. Sections 51 and 54, ch. 83, SLA 1980 are repealed.

* Sec. 16. AS 44.83.162 and 44.83.164 are repealed.

* Sec. 17. APPLICABILITY OF ACT TO DIRECTORS. (a) The terms of office of all members of the Board of Directors of the Alaska Power Authority serving on the effective date of this section terminate on the effective date of this section.

(b) The governor shall appoint three directors of the Alaska Power Authority at large. When making his appointments under this subsection, the governor shall appoint persons to serve in accordance with AS 44.83.030(1) and shall specify the length of the term of office of each member he appoints. Of the members at large first appointed by the governor under this subsection,

(1) one member shall serve a two-year term;

(2) one member shall serve a three-year term;

(3) one member shall serve a four-year term.

* Sec. 18. Sections 1 - 7, 10 - 14, and 17 of this Act take effect immediately in accordance with AS 01.10.070(c).

* Sec. 19. Sections 8, 9, and 15 of this Act take effect July 1, 1981.

* Sec. 20. Section 16 of this Act takes effect July 1, 1992.

SCOMM

#444:16

Pollutants include toxic PCBs

Invisible menace threatens Great Lakes

By JONATHAN HARSCH
The Christian Science Monitor

WAUKEGAN, ILL. — Waukegan Harbor, perched on the shores of Lake Michigan 35 miles north of Chicago, is as picturesque as its name. But it also is polluted.

The harbor has become the center of a new phase in the ongoing fight against pollution in the Great Lakes — a fight which has had some resounding successes in recent years. No one talks about the Great Lakes "dying" anymore. But by no means is the fight over.

The problem no longer is with the visible, nasty-smelling, foul-tasting pollutants which a first and relatively easy round of controls has for the most part cleaned up.

Waukegan's problem — shared by the Great Lakes — is with the next generation of pollutants which leave no telltale traces in the clear lakes' waters. Some of the new man-made, non-degradable chemicals now slipping into the lakes so far are defying researchers' attempts to find ways to break them down.

Waukegan, a little harbor crowded with pleasure boats, fishermen and swimmers, has been identified as a major source of PCB (polychlorinated biphenyl) pollution. And toxic PCBs, though outlawed, remain a major challenge because of their heavy concentrations in many areas after years of industrial use. Some firms continue to store PCBs, with no way to get rid of the chemical safely.

Four separate research teams in Akron, Ohio; Philadelphia; Los Angeles, and Japan each are offering possible ways to break down PCBs for safe re-use. If at least one can successfully and profitably recycle the pollutant, the news will be most welcome in Waukegan.

To combat PCB discharges, which were finding their way back into humans through Great Lakes fish, the federal Environmental Protection Agency (EPA) filed suit two years ago against Waukegan's Outboard Marine Corp. (OMC), headquarters for the manufacture of Johnson outboard motors.

This spring, however, EPA checks revealed continuing high PCB levels in the soil at the manufacturer's site on the harbor's rim.

One OMC sample showed PCBs at 14,000 parts per million, with others up to 1,000 ppm. (The permissible federal standard is 50 ppm.)

EPA officials are confident that they have the legal power and the monitoring equipment to locate and eventually eliminate such pollution sources.



Christian Science Monitor photo

Despite the Great Lakes' surface sparkle, invisible pollutants are lurking within.

There has been much visible improvement on all the Great Lakes; the warnings no longer are dire. Yet no one disputes the size of the challenge facing the 11 federal agencies and wide variety of state, local and private groups involved in the Great Lakes cleanup operation.

Part of the challenge lies in the size of the project — cleaning up 94,710 square miles of water. The size of the population affected adds urgency: The Great Lakes' supply drinking water, transportation, an industrial base, an energy source, fisheries and recreation to one-quarter of U.S. industry, one-fifth of the U.S. population and over one-third of the Canadian population.

Another part of the problem is that the most serious pollution today, whether from farmland

runoff, urban discharges or industrial wastes, can be traced back to the chemical industry. That booming, \$160-billion-a-year industry has as an annual end product of 57 million tons of chemical waste. The EPA currently estimates that 90 percent of these chemical wastes are disposed of without proper treatment to control their toxic effects.

A related problem is that these pollutants travel far and wide, often by air. One new pollutant showing up in the Great Lakes is Toxaphene, a pesticide used mainly in the distant cotton belt.

The EPA's past success in dealing with Great Lakes pollution has been dramatic.

Government regulations forced the closing of a number of steel plants that were major polluters, including one near Waukegan.

Other plants stayed open and took corrective action. U.S. Steel Corp., under court order, installed a complete water-recycling system in its South Works in Chicago in 1970. With complex air-emissions controls also installed, South Works is a part of a vastly changed Great Lakes steel complex that produces 55 million tons of steel in the United States and 12 million tons in Canada each year — quite cleanly.

The International Joint Commission (IJC) of the United States and Canada reported in 1978 that Great Lakes steel plants from 1967 to 1977 reduced overall discharges by 78 percent for ammonia, 74 percent for suspended solids, 80 percent for phenols, 77 percent for oil and 69 percent for cyanide.

Today, however, the IJC warns there is more work to be done. A recent IJC report concluded that "the disposal of hazardous or toxic liquid and solid wastes, generated by the intense industrial activity in the Great Lakes basin, is a matter of urgent and immediate concern." A recent Library of Congress report issued a similar warning.

Another group deeply concerned with Great Lakes pollution is the Great Lakes Basin Commission, representing all eight Great Lakes states (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin).

The basin commission is campaigning hard at state and local levels to prove that even hazardous wastes can be reprocessed and marketed.

One of the leaders in this new field is the 3M Co. of St. Paul, Minn. Its experimental "3P" program — "Pollution Prevention Pays" — already has saved \$32.1 million, according to 3M officials.

One company reprocessing used automobile oil, Berks Associates, Inc., of Pottstown, Pa., created a market for the pollutants cleaned out of the oil: Rather than becoming a contributor to future Love Canal sites, it is being packaged and sold for tarring roofs.

Only 7 percent of motor oil currently is being reprocessed. The rest, one way or another, is not simply being wasted — it's going underground, adding to the future costs of cleaning up our soil and water.

Getting full value of "waste" motor oil, the Great Lakes Basin Commission points out, pays many dividends: a new product from waste, profit for the clever producer, a cleaner environment for all — and it's all being done without adding a single new government regulation or employee.

High court voids OSHA benzene rules

Supreme Court rules 5-4 against tough benzene exposure rules on grounds OSHA couldn't justify the 1-ppm rule. OSHA says it will continue effort to regulate benzene and other cancer causing and toxic substances.

THE U.S. Supreme Court has voided the Occupational Safety and Health Administration's tough benzene exposure rules on the grounds that OSHA couldn't justify them.

The 5-4 ruling is regarded as a major—but not sweeping—victory for U.S. industry in its battle against bludgeoning government regulations.

OSHA announced after the high court decision that it is undeterred in its effort to regulate benzene and other cancer causing and toxic substances.

The case stemmed from OSHA's 1977 order that U.S. firms reduce workers' exposure to benzene in air to 1 ppm/8 hr from 10 ppm. An estimated 30,000 U.S. workers are exposed to 10 ppm or more.

The American Petroleum Institute and other business groups sued to block the standard and won in lower courts. The Fifth Circuit Court of Appeals ruled OSHA hadn't collected data to substantiate the need for its 1 ppm rule and the agency was obliged to weigh the cost of such safety standards against their benefits.

A sharply divided Supreme Court sidestepped the cost/benefit issue but ruled against OSHA on the grounds there was no evidence the 1 ppm rule would improve workers' health.

The high court is due to hear a case this fall on the cost/benefit question involving a suit by Republic Steel Co. against OSHA's coke oven emission standards. The court is expected to rule on that case in 1981.

The issues. More than 11 million lb/year of benzene is produced in the U.S. The chemical is used as a solvent or a raw material in the manufacture of paints, plastics, and other products.

Workers exposed to large amounts of benzene in the air have developed leukemia—a fatal form of cancer—but no one has been able to pinpoint the level of exposure at which benzene becomes dangerous to human health.

Therefore, OSHA adopted the policy of cutting exposure to the lowest possible level obtainable under latest technology.

OSHA said that would require industry to make modifications costing \$266 million in the first year of enforcement and \$34 million/year there-

after.

Industry placed the cost of compliance at \$500 million or more and argued the rule was unreasonable from the cost/benefit standpoint, especially because the benefit was questionable.

The Supreme Court heard several days of arguments last October and mulled its decision for 9 months. Even then, it only reached a bare majority—and the majority consisted of three opinions based on different arguments.

The court was careful to note it was not deciding whether exposure to 1 ppm or 10 ppm of benzene is safe.

And it left the door open for OSHA to set any benzene exposure level—even 1 ppm—if the agency could justify the regulation with facts that a higher level would pose "significant" risks to workers.

Majority decision. Associate Justice John Paul Stevens, writing for himself and two other justices, said the court's ruling wouldn't strip OSHA of its regulatory ability, "nor will it require the agency to wait for any deaths to occur before taking any action."

But because OSHA failed to determine that "a significant risk of harm exists" from current benzene exposure levels, Stevens said, the Supreme Court could affirm the lower court ruling on that issue without addressing the cost/benefit question.

Stevens said the requirement that OSHA determine a significant risk exists "is not a mathematical strait-jacket." And OSHA wouldn't be required to base future rules on "anything approaching scientific certainty."

Yet, Stevens said, to permit the agency to cut exposure levels to the lowest feasible point "would give OSHA power to impose enormous costs that might produce little, if any, discernible benefit."

He said the law requires OSHA to insure that workplaces are safe—"but 'safe' isn't the equivalent of risk free."

"The statute wasn't designed to require employers to provide absolutely risk-free workplaces whenever it is technologically feasible to do so, so long as the cost isn't great enough to destroy an entire industry."

Associate Justice Lewis F. Powell Jr. was the only member of the court

to say OSHA should be held to a cost/benefit test and that the case should be determined on that point.

The fifth justice in the majority, William Rehnquist, ruled against the agency on the grounds that Congress had given OSHA so much power it amounted to an unconstitutional delegation of legislative authority.

"The decision of whether the law of diminishing returns should have any place in the regulation of toxic substances is quintessentially one of legislative policy," he said.

In a strongly worded dissent, Justice Thurgood Marshall, writing for himself and three other justices, adopted OSHA's argument that a link between the regulated substance and the harm it causes often can't be established.

"Risks of harm are often uncertain. But inaction has considerable costs of its own," Marshall declared.

Reactions. Although it wasn't a complete victory, the decision buoyed the petroleum industry.

Charles J. DiBona, API president, said, "The landmark decision recognizes that health regulations in this country must be made on the basis of scientific facts rather than pure speculation."

DiBona pointed out that the oil industry has known of benzene's toxicity for years. And it has imposed its own protective standards, as well as complying with government's.

"The issue is one of government regulation in the total health interests of the nation. In this case, the regulators wanted to change standards on benzene when there was no showing whatever that this arbitrary change would improve public health," DiBona said.

Edmund B. Frost, general counsel of the Chemical Manufacturers Association, said the ruling will require federal agencies to weigh more closely the public's interest.

He said, "Congress did not mandate—nor can OSHA achieve—a perfectly risk-free society. OSHA can now regulate only significant—not theoretical—risks."

Basil Whiting, deputy assistant Labor secretary, said OSHA would "press forward in regulating benzene as well as in regulating other cancer causing and toxic substances."

He conceded that the court ruling

would make that task "more difficult." But "it is still a task which can and must be accomplished."

Steven Jellinek, the Environmental Protection Agency's assistant administrator for pesticides and toxic substances, charged that the court may have set an impossible standard.

"By the time the proof arrives in the form of dead bodies it will be too late," he said.

Jellinek said the court's decision may delay new benzene exposure rules for years because companies can challenge the new regulations in court on the grounds that they are based on faulty evidence.

Shell, Sabic to construct Jubail petrochem plant

SHELL Oil Co.'s Pecten Arabian Ltd. affiliate and Saudi Basic Industries Corp. (Sabic) have reached agreement on construction of a \$3-billion petrochemical complex at Jubail, Saudi Arabia.

Final documents will be signed late in September.

Each partner will invest about \$400 million in the joint venture. The balance of project funding will be provided by Saudi public investment funds and commercial banks.

As part of the deal, Shell earns the right to purchase Saudi crude oil on a long-term basis as well as some chemical raw materials.

Volume of crude will be set according to a Saudi formula, but details on how much crude Shell will receive haven't been determined, a Shell source said. Saudi Arabia has discussed formulas in which participating firms receive options to buy 500 b/d of Saudi crude for each \$1 million they invest (OGJ, May 5, Newsletter).

Plant feed will be methane and ethane from associated gas now being flared. Mechanical completion of different units at the facility will begin in 1984, with product exports slated for late 1985.

Products will include ethylene 656,000 metric tons/year, chlorine 333,000 metric tons/year, caustic soda 377,000 metric tons/year, ethylene dichloride 454,000 metric tons/year, ethyl benzene 327,000 metric tons/year, styrene 295,000 metric tons/year, and crude industrial ethanol 281,000 metric tons/year.

Ships, terminals, and other infrastructure facilities are included in the agreement.



with JOHN H. JENNRICH

WATCHING WASHINGTON

In defense of DOE

A RECENT newspaper series here pointed out that government agencies—the Department of Energy among them—spend a lot of money on outside contractors and consultants, and the government doesn't always spend this money wisely. The articles highlighted conflicts of interest and poor management practices.

Also tossed into the journalistic stew was a figure that caused some congressional consternation—87% of DOE's budget is spent outside the agency.

Now, two Capitol Hill solons—Sen. David H. Pryor (D-Ark.) and Rep. Herbert E. Harris II (D-Va.)—are upgrading a summertime front page potboiler into congressional hearings. They recently grilled DOE's chief financial officer, John A. Hewitt Jr. (OGJ, July 7, p. 55) and made something of a stir about DOE's size and management of its \$11-billion budget.

This column is certainly not an apologia for system mismanagement which left contracts poorly supervised or for individual lapses of judgment that put government officials in embarrassing positions.

STILL, something should be said on behalf of DOE.

First, it isn't evil. It's just not well coordinated. It's like a St. Bernard puppy loose in a house full of antiques, where little bumps can have costly consequences.

Second, large size alone isn't bad. DOE combines a broad range of government activities and deals with some huge industries. In some areas, in fact, it's short staffed.

Third, while DOE may be best known in the oil and gas industries for its regulatory impact, it is involved in a great deal of technical work that by necessity requires outside expertise. Richard J. Pierce Jr.'s "Natural Gas Regulation Handbook," for example, says, "Most of DOE's activities are not regulatory. Its responsibilities include, for instance, research and development related to potential new sources of energy, administration of energy-related grants to state and local governments and private industry, and formulation of major energy policy initiatives."

Fourth, the use of outside expertise was contemplated when the Energy Department was set up. Despite its large size, DOE is hardly capable of building synfuels demonstration plants or conducting nuclear power experiments in the basement of the Forrestal Building.

All this is by way of saying that lawmakers should think before they act on stories of startling statistics and human frailty. It's one thing to call the bureaucrats on the carpet, as should be done. But it's quite another to jerk the rug out from under the entire department.

Gravel seen balancing Senate environmental approach

CONGRESSIONAL observers predict the Senate environment committee will steer a more balanced course with Sen. Mike Gravel (D-Alaska) at the helm.

Gravel became chairman of the panel May 15 when Sen. Edmund Muskie (D-Me.) resigned to become secretary of State.

Muskie was the father and protector of the Clean Air Act, the Clean Water Act, and numerous other environmental laws of the 1970s.

His departure came at a sensitive time because the air and water acts are up for reauthorization next year. They face concerned opposition from business groups.

Last January Muskie predicted the laws would be subjected to harsh review "in the name of energy and in the guise of cutting red tape."

Gravel's views. Whether Gravel chairs those review hearings depends on his success in a tough reelection campaign this fall.

In an interview with Oil & Gas Journal, Gravel stressed that he favors a balanced approach toward the effect of environmental legislation on business.

He opposes "unreasonable" environmental regulations which add great expense or bureaucratic obstacles to business. For instance, he opposed legislation last year which would have added regulation to disposal of drilling mud and produced brine at a cost of billions of dollars to the petroleum industry.

On the other hand, Gravel said he won't sanction a wholesale rollback of the nation's bank of environmental laws.

"I would not be a party to any



Sen. Mike Gravel
"Excesses and extremes" must
be purged from environmental laws

regression. But I know we have to have a strong economy if our political and economic system are to survive. I believe we can have a clean environment and a strong economy."

Gravel hopes his committee, during oversight hearings in the next few years, "will be able to ferret out the excesses and extremes in environmental laws and boil them down to an effective and reasonable process."

New directions. Although Gravel hasn't had time to leave his imprint on environmental legislation, Muskie's departure has had considerable effect. For example:

- Only 15 hr after Muskie resigned, the Senate environment committee unanimously approved repeal of a provision of the Clean

Water Act which required industries to pay part of the construction cost of sewage treatment plants that clean their waste water.

Muskie had opposed repeal of the measure for 8 years, although federal agencies had branded it "unworkable" and hadn't enforced it for 3 years.

Beer and food processing companies had lobbied for years to get the provision repealed, claiming it placed them under a severe economic burden.

The environment committee substituted a provision forbidding the use of federal grants to finance treatment of the industrial wastes. The bill passed the Senate 93-0.

- Muskie wasn't on hand to carry through his plans to battle the administration's oil-backout on the Senate floor.

His subcommittee had held hearings on the acid-rain pollution consequences of shifting more utility power plants from oil use to coal.

He had intended to fight for a provision limiting increases in air emissions from the coal burning plants. Other senators tried and failed to get such an amendment passed.

- Observers say Muskie's departure is likely to facilitate a conference committee's work in reconciling the tough Senate hazardous wastes superfund bill with a weaker House version.

Muskie scuttled an oil superfund conference in the closing days of the 95th Congress when he insisted that chemical spills also be covered. He was expected to be equally intransigent this year.

—PATRICK CROW
Congressional Editor

EPA sets deadline for uniform injection regs

THE Environmental Protection Agency has given all U.S. states 9 months to adopt plans incorporating the agency's new rules governing underground injection wells.

Most states already regulate underground injection of fluids to some degree. But EPA feels that greater uniformity and higher standards are needed.

EPA estimates that in 1977 dollars the cost beyond the sum already be-

ing spent will be \$744.246 million during 5 years for industry and another \$31.211 million for states.

Of the industry burden, \$191 million will be fixed costs, such as permit application, permit issuance, inspection, surveillance, monitoring testing, and reporting. The remaining \$553 million, during 5 years, is EPA's estimated cost of reworking faulty injection wells, replugging wells improperly abandoned, and recent-

ing improperly completed producing wells.

Of the \$744 million industry cost, \$569 million will fall on class II wells, those injection wells associated with oil and gas production and hydrocarbon storage.

EPA estimates that in 1980 dollars, the entire cost of the regulations would be \$1.2 billion, or about \$230 million/year.

The agency says there are 650,000

injection wells in the country—85% of them in 22 states.

EPA Administrator Douglas M. Costle, noting that half the U.S. population depends on underground water for drinking, said, "The sheer number of the underground injection wells, the growing extent of the practice, and the widespread potential for contamination demand that steps be taken to insure that subsurface injection is done in an environmentally sound manner."

EPA's rules were issued under the Safe Drinking Water Act. They form one part of the agency's overall groundwater protection effort. Other parts include the hazardous waste management and solid waste disposal programs, both required by the Resource Conservation and Recovery Act.

What the rules do. The new rules set minimum requirements for five types of underground injection:

- Disposal of oil and gas drilling fluids and injection of fluids underground to assist oil and gas recovery.

- Industrial and municipal disposal, including sewage sludge and various

manufacturing wastes.

- Wells used to pump liquids below ground in certain minerals mining and energy operations.

- Hazardous waste disposal wells.

- All other injection wells such as those used to capture storm water runoff or to return air conditioning water underground.

Requirements differ by type of well, but in general they say that:

- Wells leaking fluid into underground water must be corrected.

- Those that cannot be corrected must be shut in and properly sealed.

- All existing and new injection wells must be operated in ways and in locations that don't pose a threat to subsurface drinking water.

Oil and gas production wells aren't affected by the rules. However, injection wells and wells used to dispose of drilling fluids and other wastes are covered.

At present, the rules don't apply to wells used to store natural gas, but EPA says it will study these to see if requirements are needed.

Industry reaction. Industry sources say EPA doesn't cite specific examples of contamination—only that

the potential is there.

"We know the potential is there," said Barrett B. Russell, counsel on environmental issues to the Independent Petroleum Association of America.

"But how do you know what rules you need when you don't know exactly what the problem is?"

"Our immediate reaction is that the state programs have been adequate in protecting groundwater. The states have been at it for many years. And as far as we know, there are no serious problems."

He said a disproportionate amount of the cost will fall on small producers—those with the least resources to handle extra paperwork.

IPAA is still assessing whether the EPA rules are more stringent than state rules. But EPA requires work that isn't currently required.

"For example," Russell said, "EPA wants extensive logging and other data analysis that we feel isn't necessary and that the agency hasn't documented as necessary."

He said a lot of money and aggravation would be expended for something not proven necessary.

Esso signs big Aussie shale development deal

ESSO Exploration & Production Inc. has signed a deal for development of huge shale oil deposits in Australia.

A "heads of agreement," subject to government approval, has been signed by Esso and two Australian companies—Southern Pacific Petroleum N.L. and Central Pacific Minerals N.L.—which hold rights to the large Rundle shale deposits near Gladstone, Queensland, and other properties.

Although the Australian companies estimate an overall cost of \$3.6 billion for development of full scale commercial oil production, other industry sources say the project could involve \$8-11 billion in 1980 dollars.

There is no provision for government subsidies. Esso would supply almost all the financing.

Esso would have the right to 50% of output, but the other two partners could increase their share to 75%, depending upon capital and operating costs and revenues.

Esso can increase its offtake in the event of higher initial investments. But it can't increase its equity in the joint venture. Australian law prohibits more than a 50% ownership by a foreign participant.

Initial cost of Phase I of the project is placed at \$330 million.

The first phase will involve 2 years for research and planning and 3 more years for construction of units of a prototype shale oil plant of nearly 20,000-b/d capacity to determine the technical and economic feasibility of the project.

Shale oil extraction processes of Lurgi of West Germany and Tosco of the U.S. are to be tested.

If Phase I is successful, go-ahead would be given for Phase II construction of a 180,000-240,000-b/d commercial

plant by 1990.

Rundle deposits are estimated to contain the equivalent of as much as 2.3 billion bbl of oil.

The two Australia participants also hold rights to prospective deposits at Duaringa, west of Rundle; at Condor, near Proserpine; and at Stuart, south of Rundle.

Australia currently produces about 440,000 b/d of conventional crude, with 95% coming from fields in the Bass Strait off southeastern Victoria.

OCAW ends strike against Marathon

MARATHON Oil Co. reached agreement with the Oil, Chemical and Atomic Workers International Union last week, ending a 6-month strike at the company's Texas City, Tex., refinery.

Discipline for alleged strike violence was the main issue throughout the last half of the strike. The settlement keeps the discipline intact. One worker was fired and three others given short suspensions—two for 3 days and one for 6 days.

About 230 OCAW members are employed at the plant.

Marathon and OCAW agreed on the same economic package that was ham-

pered out in March by the international union and Gulf Oil Corp. That package includes a 52¢/hr increase on top of a 5% wage increase that had been scheduled to go into effect last January. A 10.5% wage increase will be effective Jan. 8, 1981.

The Marathon settlement leaves only two plants still picketed, compared with the estimated 130 that were picketed last January at the beginning of the first U.S. refinery strike since 1969.

Pickets remain at Tenneco Oil Co.'s Chalmette, La., refinery and Chevron Chemical Co.'s Belle Chasse, La., plant.

SCOMM

#44:17

SOCIOPOLITICAL ASPECTS Climate OF ENERGY CONSERVATION ASSOCIATED WITH ESTABLISHMENT OF A NEW COMMUNITY

Physiography

Cultural

Vegetation

Wildlife

Soil

Surface Water

Ground Water

Geology

THIS REPORT WAS PREPARED AS AN ACCOUNT OF WORK SPONSORED BY THE UNITED STATES GOVERNMENT. NEITHER THE UNITED STATES NOR THE UNITED STATES ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION, NOR ANY OF THEIR EMPLOYEES, NOR ANY OF THEIR CONTRACTORS, SUBCONTRACTORS, OR THEIR EMPLOYEES, MAKES ANY WARRANTY, EXPRESS OR IMPLIED, OR ASSUMES ANY LEGAL LIABILITY OR RESPONSIBILITY FOR THE ACCURACY, COMPLETENESS OR USEFULNESS OF ANY INFORMATION, APPARATUS, PRODUCT OR PROCESS DISCLOSED, OR REPRESENTS THAT ITS USE WOULD NOT INFRINGE PRIVATELY-OWNED RIGHTS.

**FINAL REPORT
ENERGY CONSERVATION
TECHNOLOGY STUDY
SOCIOPOLITICAL ASPECTS
OF ENERGY CONSERVATION
ASSOCIATED WITH ESTABLISHMENT
OF A NEW COMMUNITY**

J. D. BABB

**MARK FRYER & ASSOCIATES
ANCHORAGE, ALASKA**

JUNE, 1977

**PREPARED FOR
DIVISION OF ENERGY
AND POWER DEVELOPMENT
ALASKA DEPARTMENT OF COMMERCE
AND ECONOMIC DEVELOPMENT
AND
THE U.S. ENERGY RESEARCH & DEVELOPMENT
ADMINISTRATION UNDER CONTRACT NO. EY-76-C-06-2332
TASK AGREEMENT NO. J**