

LEG. FINANCE - BILLS 1979 - 1980 1219

HCR 2 cont., thru CSHJR 30 1219

Original sponsor: Stat. Affairs Committee

Offered: 2/14/79
Referred: Rules

1 IN THE HOUSE

BY THE STATE AFFAIRS COMMITTEE

2 CS FOR HOUSE CONCURRENT RESOLUTION NO. 2

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 ELEVENTH LEGISLATURE - FIRST SESSION

5 Approving certain recommendations of
6 the Salary Commission.

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

8 WHEREAS AS 39.23 establishes the Alaska Salary Commission; and

9 WHEREAS the Salary Commission is granted the responsibility of con-
10 ducting an on-going review of compensation and retirement benefits for mem-
11 bers of the legislature, the governor and lieutenant governor, commissioners,
12 deputy commissioners and directors of executive departments, members of the
13 Alaska Public Utilities Commission, the Alaska Pipeline Commission, the
14 Alaska Commercial Fisheries Entry Commission, and members of the judiciary;
15 and

16 WHEREAS the recommendations of the Salary Commission as to compensation
17 become effective, retroactive to January 1, 1979, only if approved by con-
18 current resolution of the legislature before the end of the first session of
19 the legislature; and

20 WHEREAS the Salary Commission has submitted its recommendations to the
21 legislature regarding the compensation of the officers covered under AS 39.23
22 and the legislature has considered them; and

23 WHEREAS Recommendation Number (1)(A) of the Salary Commission proposes
24 to set the annual salary of the governor of Alaska at \$57,231; and

25 WHEREAS Recommendation Number (2)(A) of the Salary Commission proposes
26 to set the annual salary of the lieutenant governor of Alaska at \$51,088; and

27 WHEREAS Recommendation Number (3)(A) of the Salary Commission proposes
28 to set the annual salary of commissioners of principal executive departments
29 at \$51,088; and

1 WHEREAS Recommendation Number (4)(A) proposes to set the annual salary
2 of deputy department commissioners at \$45,762, except that a state employee
3 accepting an appointment as deputy commissioner whose salary exceeds \$45,762
4 shall continue to receive the higher salary; and

5 WHEREAS Recommendation Number (5)(A) proposes that there be no change in
6 the salary level of division directors; ^{add} and that the entry level of new
7 directors continue to be the "A" step of the salary range at which they are
8 hired; the Salary Commission recognizes that promotions to director of a
9 division may sometimes necessitate that those receiving a promotion move into
10 a step other than "A" in order to be assured a salary increase; in such
11 cases, that person receiving the promotion should enter at the lowest step
12 necessary to receive a salary increase; and

13 WHEREAS Recommendation Number (5)(B) proposes that the salary progres-
14 sion for directors follow the steps outlined in the state salary schedule in
15 AS 39.27.011 to a maximum of \$50,000 annually; and directors whose salaries
16 exceeded \$50,000 annually on December 31, 1978, remain at that salary without
17 further increases; and

18 WHEREAS Recommendation Number (5)(C) proposes that directors who, as of
19 December 31, 1978, are on frozen salary shall, as of January 1, 1979, be
20 placed within the state salary schedule in AS 39.27.011 at the appropriate
21 range closest to, but not less than, their current salary and their salary
22 progression shall follow the steps outlined in the salary schedule to a
23 maximum of \$50,000 annually; and

24 WHEREAS Recommendation Number (5)(D) of the Salary Commission proposes
25 that a state employee who, without a break in continuous service, is appointed
26 to a position of division director after December 31, 1978, be placed, at the
27 time of appointment, within the state salary schedule in AS 39.27.011 at the
28 appropriate range and step closest to, but not less than, his current salary,
29 and his salary progress shall follow the steps outlined in the salary schedule

Don Wending

1 to a maximum of \$50,000 annually; and

2 WHEREAS Recommendation Number (6)(A) proposes that members of the Alaska
3 Public Utilities Commission be paid \$44,353 annually; and

4 WHEREAS Recommendation Number (6)(B) proposes that the chairman of the
5 Alaska Public Utilities Commission be paid an additional \$500 annually,
6 prorated as part of the regular salary; and

7 WHEREAS Recommendation Number (7)(A) proposes that members of the Alaska
8 Commercial Fisheries Entry Commission be paid \$44,353 annually; and

9 WHEREAS Recommendation Number (7)(B) proposes that the chairman of the
10 Alaska Commercial Fisheries Entry Commission be paid an additional \$500
11 annually, prorated as part of the regular salary; and

12 WHEREAS Recommendation Number (8)(A) proposes that members of the Alaska
13 Pipeline Commission be paid \$44,353 annually; and

14 WHEREAS Recommendation Number (8)(B) proposes that the chairman of the
15 Alaska Pipeline Commission be paid an additional \$500 annually, prorated as
16 part of the regular salary; and

17 WHEREAS Recommendation Number (9)(A) of the Salary Commission proposes
18 that the annual salary of supreme court justices be \$57,231; and

19 WHEREAS Recommendation Number (10)(A) of the Salary Commission proposes
20 that the annual salary of the superior court judges be \$52,462; and

21 WHEREAS Recommendation Number (11)(A) of the Salary Commission proposes
22 that the annual salary of district court judges be \$44,353; and

23 WHEREAS Recommendation Number (12)(A) proposes that state legislators be
24 paid an annual salary of \$12,690; and

25 WHEREAS Recommendation Number (12)(B) proposes that the president of the
26 senate and the speaker of the house each receive an additional \$500 per year
27 payable on the opening day of each regular session of the legislature or upon
28 confirmation by the House or Senate after the opening of a regular session of
29 the legislature; and

1 WHEREAS Recommendation Number (12)(D) proposes that legislators receive
2 an annual allowance of \$4,320; and

3 WHEREAS Recommendation Number (12)(F) proposes that legislators receive
4 per diem at the same rate as state employees, including regional variations
5 where applicable; legislators who do not live in their city of residence
6 during regular or special legislative sessions will receive per diem at the
7 short-term rate; interim committee work should be paid at the short-term per
8 diem rate; however, per diem is to be paid at the long-term (lower) rate if
9 legislators are able to stay in their city of residence while on legislative
10 business; and

11 WHEREAS Recommendations Numbers (1)(B), (2)(B), (3)(B), (4)(B), (6)(C),
12 (7)(C), (8)(C), (9)(B), (10)(B), (11)(B), and (12)(B) propose that the
13 salaries of the governor, lieutenant governor, commissioners of principal
14 executive departments, deputy department commissioners, members of the Alaska
15 Public Utilities Commission, Alaska Commercial Fisheries Entry Commission,
16 Alaska Pipeline Commission, supreme court justices, superior court judges,
17 district court judges, and legislators, respectively, be increased, beginning
18 January 1, 1980, by an amount equal to the increase, expressed in terms of
19 percentage, in the United States Department of Labor Consumer Price Index
20 (Urban and Clerical Workers) for Anchorage, Alaska from January, 1979, to
21 January, 1980; and that any such increase be calculated to the nearest tenth
22 of a percentage point increase in the Consumer Price Index;

23 BE IT RESOLVED that the Alaska State Legislature approves the listed
24 Recommendations in the language and form stated in this resolution.

Introduced: 2/7/79
Referred: State Affairs

1 IN THE HOUSE

BY THE STATE AFFAIRS COMMITTEE

2 HOUSE CONCURRENT RESOLUTION NO. 2

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17 become effective, retroactive to January 1, 1979, only if approved by con-
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19 the legislature; and

20 WHEREAS the Salary Commission has submitted its recommendations to the
21 legislature regarding the compensation of the officers covered under AS 39.23
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4 shall continue to receive the higher salary; and

5 WHEREAS Recommendation Number (5)(A) proposes that there be no change in
6 the salary level of division directors; the Salary Commission recognizes that
7 promotions from deputy director to director of a division may sometimes
8 necessitate that those receiving a promotion move into a step other than "A"
9 in order to be assured a salary increase; in such cases, that person re-
10 ceiving the promotion should enter at the lowest step necessary to receive a
11 salary increase; and

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13 sion for directors follow the steps outlined in the state salary schedule in
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15 exceeded \$50,000 annually on December 31, 1978, remain at that salary without
16 further increases; and

17 WHEREAS Recommendation Number (5)(C) proposes that directors who, as of
18 December 31, 1978, have their salaries frozen shall, as of January 1, 1979,
19 be placed within the state salary schedule in AS 39.27.011 at the appropriate
20 range closest to, but not less than, their current salary and their salary
21 progression shall follow the steps outlined in the salary schedule to a
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27 39.27.011 at the appropriate range and step closest to, but not less than,
28 his current salary, and his salary progression shall follow the steps outlined
29 in the salary schedule to a maximum of \$50,000 annually; and

1 WHEREAS Recommendation Number (6)(A) proposes that members of the Alaska
2 Public Utilities Commission be paid \$44,353 annually; and

3 WHEREAS Recommendation Number (6)(B) proposes that the chairman of the
4 Alaska Public Utilities Commission be paid an additional \$500 annually,
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25 senate and the speaker of the house each receive an additional \$500 per year
26 payable on the opening day of each regular session of the legislature or upon
27 confirmation by the House or Senate after the opening of a regular session of
28 the legislature; and

29 WHEREAS Recommendation Number (12)(D) proposes that legislators receive

1 an annual allowance of \$4,320; and

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3 per diem at the same rate as state employees, including regional variations
4 where applicable; legislators who do not live in their city of residence
5 during regular or special legislative sessions will receive per diem at the
6 short-term rate; interim committee work should be paid at the short-term per
7 diem rate; however, per diem is to be paid at the long-term (lower) rate if
8 legislators are able to stay in their city of residence while on legislative
9 business; and

10 WHEREAS Recommendation Number (12)(G) proposes that each legislator be
11 reimbursed at cost, and upon presentation of proof, for one round trip to his
12 home district during each regular session; and

13 WHEREAS Recommendations Numbers (1)(B), (2)(B), (3)(B), (4)(B), (6)(C),
14 (7)(C), (8)(C), (9)(B), (10)(B), (11)(B), and (12)(B) propose that the
15 salaries of the governor, lieutenant governor, commissioners of principal
16 executive departments, deputy department commissioners, members of the Alaska
17 Public Utilities Commission, Alaska Commercial Fisheries Entry Commission,
18 Alaska Pipeline Commission, supreme court justices, superior court judges,
19 district court judges, and legislators, respectively, be increased, beginning
20 January 1, 1980, by an amount equal to the increase, expressed in terms of
21 percentage, in the United States Department of Labor Consumer Price Index
22 (Urban and Clerical Workers) for Anchorage, Alaska from January, 1979, to
23 January, 1980; and that any such increase be calculated to the nearest tenth
24 of a percentage point increase in the Consumer Price Index;

25 BE IT RESOLVED that the Alaska State Legislature approves the listed
26 Recommendations in the language and form stated in this resolution.



RECORDS CERTIFICATION



I, the undersigned, an employee of the State of Alaska, do hereby certify that the microfilm images on this microform are accurate reproductions of the original records of the State of Alaska as accumulated during the regular course of business, and that it is the established policy and practice of this State to microfilm its records and to dispose of the original records after microfilm reproductions have been made.

James O. Smith
Signature of Camera Operator

3/20/90
Date

Introduced: 2/14/79
Referred: Judiciary and
Finance

BY ANDERSON, FULLER, HURLBERT,
MARTIN, MILLER, MUNSON, OSTERBACK,
PARR AND SHCAEFFER

1 IN THE HOUSE

2 HOUSE CONCURRENT RESOLUTION NO. 5

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 ELEVENTH LEGISLATURE - FIRST SESSION

5 Urging the Judicial Council to com-
6 plete its review and make recommenda-
7 tions in the matter of judicial
8 sentencing practices.

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

10 WHEREAS the Alaska Judicial Council conducted a study including 1,433
11 sentences in felony cases rendered in the Superior Courts at Anchorage,
12 Fairbanks and Juneau between 1974 and 1976; and

13 WHEREAS it was the conclusion of that report that Alaska Natives and
14 Blacks apparently received longer sentences and were denied probation more
15 often than other defendants who had been convicted of the same crimes under
16 similar circumstances, and who had substantially similar criminal records;

17 BE IT RESOLVED by the Alaska State Legislature that it respectfully
18 requests the Alaska Judicial Council to extend and complete its report on the
19 sentencing practices of Alaska courts by

20 (1) compiling and analyzing data on all felony sentences rendered
21 between August, 1976 and the present date, including sentences for convic-
22 tions in the superior courts sitting in communities which were not covered in
23 the earlier study, including rural Alaska, to determine whether the present
24 findings of apparent racial disparity of sentencing also obtain in other
25 locations and in the years since August, 1976;

26 (2) expanding the data collected and analyzed to include sentenc-
27 ing practices of the district courts;

28 (3) examining sentencing records of the superior and district
29 courts to determine whether there is a pattern to sentencing based on race;

1 (4) modifying and expanding upon the research methods, when neces-
2 sary, in order to determine whether the apparent disadvantages suffered by
3 Alaska Natives and Blacks as evidenced in the Judicial Council's findings may
4 be attributable, wholly or partially, to decisions of other criminal justice
5 agencies which advise or inform the courts and which may help shape the
6 ultimate sentence;

7 (5) identifying all points within the criminal justice system at
8 which a defendant may be disadvantaged on account of his race; and

9 (6) working closely with representatives of the minorities
10 affected as well as with criminal justice agency representatives and per-
11 sonnel, making recommendations for positive remedies to correct inequities
12 which may be suffered by minority members in the administration of criminal
13 justice.

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Introduced: 2/14/79
Referred: Judiciary and
Finance

BY ANDERSON, FULLER, HURLBERT,
MARTIN, MILLER, MUNSON, OSTERBACK,
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25 locations and in the years since August, 1976;

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27 ing practices of the district courts;

28 (3) examining sentencing records of the superior and district
29 courts to determine whether there is a pattern to sentencing based on race;

1 (4) modifying and expanding upon the research methods, when neces-
2 sary, in order to determine whether the apparent disadvantages suffered by
3 Alaska Natives and Blacks as evidenced in the Judicial Council's findings may
4 be attributable, wholly or partially, to decisions of other criminal justice
5 agencies which advise or inform the courts and which may help shape the
6 ultimate sentence;

7 (5) identifying all points within the criminal justice system at
8 which a defendant may be disadvantaged on account of his race; and

9 (6) working closely with representatives of the minorities
10 affected as well as with criminal justice agency representatives and per-
11 sonnel, making recommendations for positive remedies to correct inequities
12 which may be suffered by minority members in the administration of criminal
13 justice.

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HB 195 & HB 196 are
all related.

THE LEGISLATURE OF THE STATE OF ALASKA
ELEVENTH LEGISLATURE

FISCAL NOTE

REQUEST

Page 1 of 2

Bill/Resolution No. HB 196

Title Special Appropriation to the Judicial Council

Requested by House Judiciary Committee

Date 2/23/79

II. FISCAL DETAIL

Agency Affected Judicial Council

Program Category Affected Administration of Justice

BRU, Program, or Subprogram(s) Affected Judicial Council

(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 79	FY 80	FY 81	FY 82	FY 83	FY 84
100 PERSONAL SERVICES	57					
200 TRAVEL	21					
300 CONTRACTUAL	12					
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL	90,000					

FUNDING (Thousands of Dollars)

GENERAL FUND	90,000					
FEDERAL FUNDS						
OTHER (Specify Fund Source)						

POSITIONS

FULL TIME	-0-					
PART TIME	-0-					
TEMPORARY	9					

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

IV. DATE 2/23/79

PREPARED BY Michael Rubenstein

AGENCY Judicial Council

PHONE 274-8942

Original: Legislative Finance

cc: Budget and Management

Prime Sponsor (First Legislator Named)

BUDGET: Alaska Judicial Council, Investigation of Judicial Sentencing Practices

February 13, 1979

I. Investigators

a)	Coders: 5, at \$937.50/month + 9% benefits, x 6.4 months	= \$32,700
b)	Evaluation Methodologist, part-time, \$958.40/mo. x 9 months + benefits	= 9,108
c)	Statistical Advisor, 50 hours at \$16.88/hr.	= 844
d)	Computer Programmer, \$500/month x 8 months	= 4,000
e)	Data Analyst, 5.5 months	= <u>8,053</u>
	Subtotal, Investigators	= \$56,955

II. Staff Travel

5 Coders, coding supervisor and evaluation methodologist based in Anchorage. Travel costs and per diem to Barrow, Bethel, Fairbanks, Juneau, Kenai, Ketchikan, Kodiak, Nome, and Sitka.

= \$15,850

III. Contractual and Other

a)	Keypunch charges, estimated, for 1700 defendants, 3-4 cards per defendant	= \$ 1,500
b)	Computer charges, average per month, \$1166.67	= 10,500
c)	Supplies	= <u>195</u>
	Subtotal, Contractual	= \$12,195
	Total, Investigative Expenses	= \$85,000

Advisory Board Travel

Transportation of members of the Advisory Committee on Judicial Sentencing Practices to meetings:

= \$ 5,000

Total, State General Funds = \$90,000



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James O. Smith
Signature of Camera Operator

3/20/90
Date

COMMITTEE REPORT

HOUSE

(11)

FURTHER:

6/4/80

Date: 6/5/80

Mr. Speaker:

The Committee on FINANCE has had HR 26

"Urging the commissioner of natural resources to sell a portion of state royalty oil by competitive bid."

under consideration and (a majority of the committee) (the committee) reports it back with the following recommendations:

- do pass do not pass
- do pass with attached amendments(s)
- replace with CS for _____ same title
 new title
- and recommends _____
- AND attaches a "Letter of Intent" New Fiscal Note
- reports it back with ^{individual} ~~it~~ recommendation
- referred to the _____ Committee

MEMBERS SIGNING
DO PASS

Mackinnon
W
McKinnon
Rogers
JD

MEMBERS HAVING
OTHER RECOMMENDATIONS:

Montgomery
Montgomery

Mackinnon
CHAIRMAN

Introduced: 6/4/80
Referred: Finance

1 IN THE HOUSE

BY THE RULES COMMITTEE

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HOUSE RESOLUTION NO. 26

4

IN THE LEGISLATURE OF THE STATE OF ALASKA

5

ELEVENTH LEGISLATURE - SECOND SESSION

6

Urging the commissioner of natural

7

resources to sell a portion of state

8

royalty oil by competitive bid.

9

BE IT RESOLVED BY THE HOUSE OF REPRESENTATIVES:

10

WHEREAS, by AS 38.05.183 and AS 38.06, procedures are established and

11

standards defined for the sale of state royalty oil; and

12

WHEREAS the state may expect to receive additional royalty from North

13

Slope leases; and

14

WHEREAS it is in the best interests of the state to offer a portion of

15

that state royalty oil for competitive sale, for the purpose of securing a

16

definitive market price for royalty oil that may serve as a standard by which

17

to measure the validity of prices received for state royalty oil from sales

18

which have not been entered into as a result of competitive bid;

19

BE IT RESOLVED by the Alaska House of Representatives that the governor

20

is respectfully requested to direct the commissioner of natural resources to

21

initiate procedures necessary to offer for competitive bid sale up to 50,000

22

barrels per day of royalty oil from North Slope production for a period not

23

to exceed 24 months with notice of taking of the oil in kind to be given,

24

consistent with provisions of law and existing lease agreements, to permit

25

the in kind taking of the oil at the earliest possible date; and be it

26

FURTHER RESOLVED that, the determination of a definitive market price

27

for state royalty oil based on conditions in a competitive market is the

28

essence of the sale of state royalty oil under this resolution, the commis-

29

sioner of natural resources is urged to give broad public notice about the

1 sale of the royalty oil, and to permit interested parties a reasonable period
2 of time in which to prepare and submit bids for the royalty oil.

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James O Smith
Signature of Camera Operator

3/20/90
Date

Introduced: 3/5/79
Referred: Finance and
Judiciary

1 IN THE HOUSE

BY MUNSON, BRANSON AND MARTIN

2 HOUSE JOINT RESOLUTION NO. 26
3 IN THE LEGISLATURE OF THE STATE OF ALASKA
4 ELEVENTH LEGISLATURE - FIRST SESSION

5 Proposing an amendment to the Consti-
6 tution of the State of Alaska pro-
7 viding for biennial budgeting for
8 operating expenditures.

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

10 * Section 1. Article IX, sec. 12, Constitution of the State of Alaska is
11 amended to read:

12 SECTION 12. BUDGET. In each odd-numbered year the governor shall
13 submit to the legislature, at a time fixed by law, a budget setting
14 forth all proposed operating expenditures for the next fiscal biennium
15 and all proposed capital expenditures for the next fiscal year. In each
16 even-numbered year the governor shall submit to the legislature, at a
17 time fixed by law, a budget setting forth all proposed capital expen-
18 ditures for the next fiscal year. Each biennial budget submission shall
19 set forth anticipated income of all departments, offices and agencies of
20 the State [THE GOVERNOR SHALL SUBMIT TO THE LEGISLATURE, AT A TIME FIXED
21 BY LAW, A BUDGET FOR THE NEXT FISCAL YEAR SETTING FORTH ALL PROPOSED EX-
22 PENDITURES AND ANTICIPATED INCOME OF ALL DEPARTMENTS, OFFICES, AND
23 AGENCIES OF THE STATE]. The governor, at the same time, shall submit a
24 general appropriation bill to authorize the proposed expenditures, and a
25 bill or bills covering recommendations in the budget for new or addi-
26 tional revenues.

27 * Sec. 2. The amendment proposed by this resolution shall be placed
28 before the voters of the state at the next general election in conformity
29 with art. XIII, sec. 1, Constitution of the State of Alaska, and the election

1 laws of the state.

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COMMITTEE REPORT

HOUSE

3/5/79

FURTHER: JUDICIARY

Date: _____

Mr. Speaker:

The Committee on FINANCE has had HJR 26

Proposing an amendment to the Constitution of the State of Alaska providing for biennial budgeting for operating expenditures.

under consideration and (a majority of the committee) (the committee) reports it back with the following recommendations:

- do pass do not pass
- do pass with attached amendments(s)
- replace with CS for _____ same title
 new title
- and recommends _____
- AND attaches a "Letter of Intent" New Fiscal Note
- reports it back without recommendation
- referred to the _____ Committee

MEMBERS SIGNING
DO PASS

MEMBERS HAVING
OTHER RECOMMENDATIONS:

CHAIRMAN

Introduced: 3/5/79
Referred: Finance and
Judiciary

6556
Barri

1 IN THE HOUSE

BY MUNSON, BRANSON AND MARTIN

2 HOUSE JOINT RESOLUTION NO. 26

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 ELEVENTH LEGISLATURE - FIRST SESSION

5 Proposing an amendment to the Consti-
6 tution of the State of Alaska pro-
7 viding for biennial budgeting for
8 operating expenditures.

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

10 * Section 1. Article IX, sec. 12, Constitution of the State of Alaska is
11 amended to read:

12 SECTION 12. BUDGET. In each odd-numbered year the governor shall
13 submit to the legislature, at a time fixed by law, a budget setting
14 forth all proposed operating expenditures for the next fiscal biennium
15 and all proposed capital expenditures for the next fiscal year. In each
16 even-numbered year the governor shall submit to the legislature, at a
17 time fixed by law, a budget setting forth all proposed capital expen-
18 ditures for the next fiscal year. Each biennial budget submission shall
19 set forth anticipated income of all departments, offices and agencies of
20 the State [THE GOVERNOR SHALL SUBMIT TO THE LEGISLATURE, AT A TIME FIXED
21 BY LAW, A BUDGET FOR THE NEXT FISCAL YEAR SETTING FORTH ALL PROPOSED EX-
22 PENDITURES AND ANTICIPATED INCOME OF ALL DEPARTMENTS, OFFICES, AND
23 AGENCIES OF THE STATE]. The governor, at the same time, shall submit a
24 general appropriation bill to authorize the proposed expenditures, and a
25 bill or bills covering recommendations in the budget for new or addi-
26 tional revenues.

27 * Sec. 2. The amendment proposed by this resolution shall be placed
28 before the voters of the state at the next general election in conformity
29 with art. XIII, sec. 1, Constitution of the State of Alaska, and the election

1 laws of the state.

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ALASKA STATE LEGISLATURE

ELEVENTH Legislature FIRST Session

HOUSE JOINT RES. NO. ... 26 ...

By MUNSON, BRANSON AND MARTIN.

Proposing an amendment to the Constitution of the State of Alaska providing for biennial budgeting for operating expenditures.

Biennial budgeting, amend const.

Introduced in the House 3/5/... 19. 79

HISTORY IN THE HOUSE

10	79	Read first time and referred to Committee on
Mar	5	Finance and Judiciary
		Reporter' with recommendation that
		Read second time and
		Read third time and
		PASS Effective Date
		Yeas Yeas
		Nays Nays
		Absent Absent
		Excused Excused
		Reconsideration
		PASS Effective Date
		Yeas Yeas
		Nays Nays
		Absent Absent
		Excused Excused
		Reported correctly engrossed
		Signed by Speaker
		Sent to Senate
CHIEF CLERK OF THE HOUSE		

HISTORY IN THE SENATE

19		Read first time and referred to Committee on
		Reported back with recommendation that
		Read second time and
		Read third time and
		PASS Effective Date
		Yeas Yeas
		Nays Nays
		Absent Absent
		Excused Excused
		Reconsideration
		PASS Effective Date
		Yeas Yeas
		Nays Nays
		Absent Absent
		Excused Excused
		Reported correctly engrossed
		Signed by President
		Returned to House
SECRETARY OF THE SENATE		

HISTORY IN THE HOUSE

19		Received from Senate
		Concurred in Senate amendment thus adopting: VOTE
		Failed to concur in Senate amendment; asked Senate to recede VOTE
		Senate receded from amendment VOTE
		Senate failed to recede from amendment VOTE
		CC appointed by House
		CC appointed by Senate
		CC adopted by House VOTE
		CC adopted by Senate VOTE
		To enrolling
		Reported correctly enrolled
		Sent to Governor
	 by Governor
		Filed with Lt. Governor
		Chapter No.



RECORDS CERTIFICATION



I, the undersigned, an employee of the State of Alaska, do hereby certify that the microfilm images on this microform are accurate reproductions of the original records of the State of Alaska as accumulated during the regular course of business, and that it is the established policy and practice of this State to microfilm its records and to dispose of the original records after microfilm reproductions have been made.

Jamaal O. Smith
Signature of Camera Operator

3/20/90
Date

Date passed to Senate 4/23 To H. Rules

Bill # CSHJR 30 3/15

SENATE FINANCE COMMITTEE
BILL CHECKLIST

- 1. Committee Copy-Current Bill ✓
- 2. History Cover Form ✓
- 3. Printed Copies:
 - Original Bill ✓
 - Committee Substitutes or ✓
 - Amendments ✓
- 4. SFC Committee Report Form ✓
- 5. Fiscal Information:
 - Note in File _____
 - Note Requested _____ Date _____
 - Other Financial Backup _____
 - (See Below) _____
- 6. Backup:
 - Handouts _____
 - Letter from Governor _____
 - Letter from Sponsor _____
 - Completed Committee Reports _____
 - Committee _____
 - Other _____

General Description of Project

Original sponsors: Zharoff, Anderson,
Branson, et al

Offered: 4/5/79
Referred: Rules

1 IN THE HOUSE

BY THE RULES COMMITTEE

2 CS FOR HOUSE JOINT RESOLUTION NO. 30

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 ELEVENTH LEGISLATURE - FIRST SESSION

5 Relating to the sale of revenue bonds
6 of the Alaska Power Authority for the
7 Terror Lake hydroelectric generating
8 project at Kodiak, Alaska, and for
9 the Solomon Gulch hydroelectric
10 generating project near Valdez,
11 Alaska.

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

13 WHEREAS the State of Alaska has funded a feasibility study for the
14 Terror Lake hydroelectric project in the Kodiak Island Borough through money
15 loaned from the Alaska Power Authority power project revolving fund and the
16 water resources revolving fund in the amount of \$520,000; and

17 WHEREAS the completed study shows that the hydroelectric project is
18 feasible; and

19 WHEREAS the Alaska Power Authority has submitted to the legislature and
20 to the governor a statement of its recommendations for financing the hydro-
21 electric project, as required in AS 44.56.180(b), and a statement outlining
22 the general design, demonstration of financial feasibility, and maximum
23 amount of revenue bonds necessary for the project; and

24 WHEREAS according to statements by the authority, it is to finance the
25 project only through the issuance of revenue bonds and may not construct,
26 acquire, or own the project; and

27 WHEREAS the statements by the authority provide that the project is to
28 be designed, acquired, and constructed by the Kodiak Electric Association
29 under an agreement with the authority which shall provide that the authority

1 have ownership rights in the project only as may be necessary to secure the
2 payment of the principal and interest on revenue bonds issued for the pro-
3 ject; and

4 WHEREAS the statements submitted to the governor and to the legislature
5 fully satisfy the conditions set out in AS 44.56.180 which must be satisfied
6 before the adoption of this resolution; and

7 WHEREAS the cost to be incurred in financing the project will require
8 the issuance of revenue bonds of the authority in a presently estimated
9 amount not to exceed \$120,000,000; and

10 WHEREAS it is considered to be in the best interests of the state that
11 revenue bonds of the authority be issued to finance the cost of the project;
12 and

13 WHEREAS the Copper Valley Electric Association, Inc. has received a
14 Federal Energy Regulatory Commission license for the Solomon Gulch hydro-
15 electric generating project near Valdez, Alaska, and construction has begun
16 on the project; and

17 WHEREAS initial financing for the project has been secured from other
18 sources but it is considered in the public interest to finance a portion of
19 the project from the proceeds of the sale of revenue bonds of the Alaska
20 Power Authority; and

21 WHEREAS the Alaska Power Authority has submitted to the legislature and
22 to the governor a statement of its recommendations for financing a portion of
23 the Solomon Gulch hydroelectric project, as required in AS 44.56.180(b), and
24 a statement outlining the general design, demonstration of financial feasi-
25 bility, and maximum amount of revenue bonds necessary for that purpose; and

26 WHEREAS, according to statements by the authority, it is to finance a
27 portion of the project only through the issuance of revenue bonds and is not
28 to construct, acquire or own the project; and

29 WHEREAS the statements by the authority indicate that the project is to

1 be designed, acquired, and constructed by the Copper Valley Electric Associ-
2 ation under an agreement with the authority which shall provide that the
3 authority have ownership rights in the project only as may be necessary to
4 secure the payment of the principal and interest on revenue bonds issued for
5 the project; and

6 WHEREAS the statements submitted to the governor and to the legislature
7 fully satisfy the conditions set out in AS 44.56.180 which must be satisfied
8 before the adoption of this resolution; and

9 WHEREAS the cost to be incurred in financing a portion of the project
10 will require the issuance of revenue bonds of the authority in a presently
11 estimated amount not to exceed \$20,000,000; and

12 WHEREAS it is considered to be in the best interests of the state that
13 revenue bonds of the authority be issued to finance a portion of the cost of
14 the project;

15 BE IT RESOLVED that the Alaska State Legislature approves the general
16 design of the Terror Lake hydroelectric project in the Kodiak Island Borough
17 and the sale of revenue bonds by the Alaska Power Authority in an amount not
18 to exceed \$120,000,000 to pay the costs of the project; and be it

19 FURTHER RESOLVED that the Alaska State Legislature approves the general
20 design of the Solomon Gulch hydroelectric project near Valdez, Alaska, and
21 the sale of revenue bonds by the Alaska Power Authority in an amount not to
22 exceed \$20,000,000 to pay the cost of a portion of the project.

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ALASKA POWER AUTHORITY

EXECUTIVE SUMMARY

OF THE

TERROR LAKE HYDROELECTRIC PROJECT

DEFINITE PROJECT REPORT

and

LICENSE APPLICATION

This report summarizes key characteristics of the Terror Lake Hydroelectric Project for the purpose of satisfying requirements of Section 180 of A.S. 44.56. Data have been obtained from the Terror Lake Hydroelectric Project Definite Project Report and the Application for License for the Terror Lake Hydroelectric Project prepared by Robert W. Retherford Associates and International Engineering Company, Inc.

ALASKA POWER AUTHORITY

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Mitigate Adverse Environmental Effects

Unavoidable Adverse Environmental Effects

Irreversible and Irretrievable Commitments of Resources

Conclusions

ALASKA POWER AUTHORITY

INTRODUCTION

The Terror Lake Hydroelectric Project was initially studied in 1966 by the Kodiak Electric Association, Inc. (KEA). The project never proceeded to construction primarily due to the small load requirements of KEA at that time and the stable low price of diesel fuel associated with existing generation capacity. Since that time, costs of fuel have dramatically increased and the energy demand for the KEA service area has increased 150%. In 1977 the KEA, Inc. applied for and received \$420,000 of funds from the Water Resources Revolving Loan Fund of the State of Alaska Department of Commerce and Economic Development for feasibility studies and preparation of a License Application for construction from the Federal Energy Regulatory Commission (FERC). KEA also received a \$100,000 loan from the Power Project Revolving Loan Fund of the Alaska Power Authority in late 1978 to complete the License Application. The License Application was submitted in January, 1979 to FERC, and the License approval process will last 12 to 18 months. The body of this report addresses design, economics, financing, and environmental impacts of construction of the Terror Lake Hydroelectric Project once a license is approved.

ALASKA POWER AUTHORITY

The operation of construction equipment will result in the usual effects experienced at construction sites, such as exhaust and crankcase emissions from diesel and gasoline engines, noise and dust. The effects on air quality cannot be quantified. Noise will in general be more noticeable in this uninhabited area. The emissions and dust are controllable to acceptance standards, the former by mechanical means, the latter by wetting down with water. Clearing and earth moving operations associated with project facilities located in or near stream channels will also contribute sediment to surface waters resulting in temporary increases in turbidity. The construction of coffer dams at the Terror Lake dam site and the intake structure will increase turbidity in Terror Lake, which in turn will effect the Terror River for a short time. Also, surface water contamination could arise from accidental spills of fuels and lubricants.

Irreversible and Irretrievable Commitments of Resources.

The project structures will comprise unavoidable changes to the landscape. The dams, penstock, powerhouse, switch yard, access roads and the transmission line are items which will be visible to any future visitor to the area. However, the project has been laid out, and all the structures will be designed so as to minimize the visual impact and disturbance of the landscape. Changes in the topography could be considered an irreversible and irretrievable commitment of land features and uses. Although visual and physical effects of the disturbance of natural ground conditions may persist for years, natural physical processes will tend to eventually reestablish equilibrium conditions.

Three waterfalls, two on Falls Creek and one on Shotgun Creek will be virtually eliminated because of the diversion of water from the upper reaches of the catchment basins. Significant flow over these falls will occur only during periods of extremely high flow approaching a probable maximum flood event. Terror Lake reservoir will inundate about 580 acres of land that is now wildlife habitat and Shotgun Creek dam about 50 acres. The transmission line will preempt the use of the land within its final right-of-way from certain other types of use such as the production of commercial timber.

The investment cost of the construction of the proposed project would be an irreversible and irretrievable commitment of economic resources. The total estimated capital investment for the project is \$81 million. Once investment is embodied in the project, it is essentially no longer available for other productive uses. There will, however, be a continuous return from the investment in the form of the benefits and revenues generated from power useage. Indirect effects of increased human intrusion into the Terror Lake area would be an irreversible impact on the existing recreational values. Development of the project may expand the present limited recreational use of the area. The availability of reliable electric power from the proposed project would assist in the development of the community now served by KEA, and would be an indirect inducement for expanded industrial, commercial, and recreational growth in Kodiak.

If constructed, it is highly unlikely that the project will ever be abandoned. However, if this happened, the amount of work to be done to

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by-products. The use of the hydroelectric plant will reduce or eliminate the accumulation of solid waste produced by the operation of the diesel electric plants in Kodiak, such as used lube oil.

Unavoidable Adverse Environmental Effects.

The total land area required for the construction of the project will be 4130.4 acres, which includes all rights-of-way, reservoir areas, and locations of construction activity. The amount of land actually disturbed by project construction activities will be about 650 acres, although during the three year construction period, the total area will essentially be unavailable for other active uses.

The construction of the proposed dam at Terror Lake will raise the water surface about 133 feet. This will flood 580 acres of land now covered by low brush. Most of the inundation will occur along the Terror River upstream from the present inlet to Terror Lake. Terror Lake dam, about five miles of access road, and the Mount Glotoff Glacier diversion works will be located within the Kodiak National Wildlife Refuge. In addition, the Mount Glotoff Glacier diversion works will be located within the Mount Glotoff Resource Natural Area.

For the most part, disturbances associated with construction activities will have a limited short term adverse effect on the biota. These disturbances will result from increased human activity, the operation of heavy equipment, clearing, excavation, blasting and spoil disposal. Although the project could result in loss of individual animals primarily by displacement or loss of habitat, impact will be minimal to species and ecosystems. The area of greatest potential impact on wildlife habitat will be in the immediate vicinity of the Kizhuyak River where dens of the land otter and red fox may occur. Wildlife habitat will be lost on 580 acres of land that will be inundated by raising the elevation of Terror Lake. A portion of the predominantly alder-covered slopes will be lost as the wintering areas for mountain goats and as habitat of the bear and other residents of the drainage basin. Inundation of the Terror River valley above the present inlet to Terror Lake will result in the loss of beaver and tundra vole habitat. Species most sensitive to the presence of construction activities are the Kodiak bear and the mountain goat. In the region surrounding Terror Lake, blasting and construction activity could cause mountain goats that may inhabit the slopes above the reservoir to evacuate the project area temporarily. Increased human activity in the area during the construction period could also increase the frequency of confrontations between Kodiak bears and humans. Disturbance of visiting endangered Peregrine falcons and resident bald Eagles by construction activities could effect their reproductive success.

Activities related to construction of the 69 Kv transmission line and clearing of the right-of-way will probably increase sedimentation in nearby streams. This impact is expected to be minor and short term, however, it will have little impact on fishery resources in the streams, unless it occurs in the fall during salmon spawning. Construction of Terror Lake dam could temporarily alter the water quality of Terror River. If the stream receives large sediment loads during construction, salmon spawning areas at the mouth of the river could be adversely affected.

ALASKA POWER AUTHORITY

approximately 50 feet wide. Inspection and maintenance of the transmission line will be mainly by helicopter, and the access track will not be maintained after the construction period. Conductors will be spaced about ten feet apart to prevent electrocution of birds that may perch on the poles. A helicopter will be used to transport men and equipment to the Mount Glotoff Glacier diversion works in order to avoid the need for an access road. The project access roads will be watered during dry periods in order to reduce the amount of dust generated by construction equipment. Mufflers will be installed on construction equipment to reduce the noise levels and the resulting impact to wildlife.

Disturbed ground surfaces will be graded, terraced if necessary, and reseeded. Felled trees will be trimmed of branches and logs stacked along the right-of-way. Branches and brush will be scattered in such a way to preclude their being washed into nearby streams. Underbrush will be left along the transmission line right-of-way for use as browse by deer and other wildlife that use the area as a wintering ground. Trees along the transmission line have a slow growth rate and will be trimmed back periodically as necessary.

The access road from the jetty to the powerhouse will be maintained to permit access for maintenance and inspection of the powerhouse and switch yard. The access road to Terror Lake and the other diversion works will be maintained to a lower standard. It will be used for vehicular access for inspection of all the project structures at least once a year during the summer months, and also for program maintenance work. Emergency access during the winter will be by helicopter, and the road will not be kept open after the first winter snows.

Waste material and excavation spoil will be produced at all project facility sites. Part of the spoil generated at the Terror Lake intake structure will be used in the construction of a coffer dam; all spoil at this site will be covered by the Terror Lake reservoir. Rock spoil generated by the excavation of the main power tunnel, as well as by the excavation of branch tunnels at the Falls Creek and Rolling Rock Creek diversion works, will be disposed of in the canyon of Rolling Rock Creek. As much as possible of the sand and gravel spoil at Falls Creek diversion works will be used for the construction and maintenance of the access road. The remainder will be disposed of in the area behind the Shotgun Creek diversion dam and will be inundated by the project waters. Much of the spoil in the vicinity of the powerhouse will be used to build up the switch yard elevation so that it will be above the elevation of the Kizhuyak River. All other waste materials will be disposed of by removal or burial in natural or excavated depressions not subject to erosion by stream flow and covered with two feet of earth material.

The 17.3 mile long transmission line route was selected to provide maximum protection from high winds and ice buildup, and also to reduce the impact on the landscape. No permanent access road will be constructed along the transmission line route, and clearing of vegetation along the route would be kept to a minimum. Cleared brush along the transmission line would be spread over the right-of-way in areas where it cannot be washed into streams by rainfall runoff.

The operation of the project will not produce solid waste or other

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total amount of sediment entering the Kizhuyak River will be reduced by the project since the flows in Shotgun Creek, Falls Creek, and Rolling Rock Creek will be greatly diminished because of the diversion schemes. Regulated flows in the Terror River will reduce flooding along the stream.

In order to prevent environmental pollution arising from construction activities, all applicable federal, state and local laws and regulations concerning environmental pollution control and abatement will be complied with. The effects of the controlled releases to maintain minimum stream flows on the Terror River will be monitored during the operation of the project by measurements of the increased fish population in the Lower Terror River. The intertidal zone near the mouth of Terror River will be monitored during the construction period for any increase in sediment deposition.

The land which would be flooded by the increased elevation of Terror Lake is covered by brush, but no large trees. The brush will be cleared before the reservoir is filled in order to reduce maintenance work at the intake and outlet structures.

It has been requested by the State Historic Preservation Officer, Alaska Department of Natural Resources, that a field reconnaissance should be conducted in the project area prior to construction to determine if there are any historical or archeological resources which might be adversely affected by the project. Mitigation measures will depend on the type and location of any historical resources that may be discovered and the recommendations of the State Historic Preservation Officer. There are no sites listed in the National Register of Historic Places, and a preconstruction archeological survey of three potential areas will be undertaken.

Because the project is located in a highly seismic region, all project facilities will be designed to withstand horizontal and vertical ground acceleration values consistent with historic levels of shaking in the Kodiak Island region. Terror Lake dam, each of the diversion dams, and the powerhouse will be founded on competent bedrock to insure their integrity during a seismic event. However, the present remoteness of the project provides inherent protection to life and property in the event of a structural breach.

Erosion and siltation of streams will be minimized by limiting stream fording by construction equipment, by revegetating exposed areas, and by providing runoff diversion structures and sediment traps where necessary. Special precautions will be taken to insure that fuel, oil, and grease will not enter streams. Spoil disposal areas have been located in Terror Lake and the pondage formed by the Shotgun Creek diversion dam, where the material will be inundated on completion of the project. The tunnel spoil will be located in a gully on the lower part of Rolling Rock Creek, where it will not be visible except to observers immediately adjacent to it. Measures will be taken to control stream flow and runoff at this and any other spoil areas, to prevent erosion and contamination of water.

The cleared path of the 69 Kv transmission line right-of-way will be

ALASKA POWER AUTHORITY

ENVIRONMENTAL IMPACT OF THE CHOSEN ALTERNATIVE

This section of the summary is divided into three parts addressing the major questions associated with environmental impacts of the Terror Lake hydroelectric project. These areas of concern are (1) measures to enhance the environment or to avoid or mitigate adverse environmental effects, (2) unavoidable adverse environmental effects, and (3) irreversible and irretrievable commitments of resources. The Terror Lake project would have adverse environmental impact on terrestrial habitat and fisheries if the ecosystems were not considered within the design, construction and eventual operation of the project.

Measures to Enhance the Environment or to Avoid or Mitigate Adverse Environmental Effects.

The Terror Lake reservoir will not be operated for flood control, irrigation, navigation, reclamation, recreation or water supply. Releases will be made through the outlet works at the Terror Lake dam in order to maintain specified minimum flows throughout the year at the mouth of the Terror River in efforts to improve the fish habitat in the lower reaches of the River. In addition, discharges from the powerhouse into the Kizhuyak River could be utilized to maintain a fish hatchery downstream of the powerhouse, and increase the fish population of that river also.

Long term impacts on species and ecosystems will be associated with increased visits caused by easier access to the area. The use of the access roads for vehicles can be restricted to KEA maintenance personnel. It is unlikely that any imbalances or major alterations to an ecosystem or the loss of an endangered species will result from the operation and maintenance of this project, because of the relatively small area of habitat disturbed and the stable population of the resident endangered species. Both the fishing industry and the wild life, particularly the bears, will benefit from the increased quantities of fish produced in the Terror River and the Kizhuyak River as a result of project implementation. Potential recreational uses of the project area will not impact a large population of brown bear or involve "substantial and sustained" human occupation. The transmission line will probably have negligible impact on the wildlife species because of the relatively small area involved. Clearing of vegetation along the right-of-way could benefit some species by permitting a regrowth of brush that would provide forage for browsers, such as deer and snowshoe hare.

Operation of the project will not add significantly to existing noise levels, nor will it diminish air quality except during the period of construction. Operation of the project will permit less extensive use of existing diesel generators in Kodiak, thereby causing an improvement in the air quality. The diesel units will still be used for peak generation and standby capacity.

The estimated sedimentation in the Terror Lake reservoir over a period of 50 years will amount to about 80 acre feet, a negligible amount compared to the combined live and dead storage of 94,000 acre feet. The

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The last alternative to the project would be "no-action". This would mean that power generation on Kodiak would continue to be based on diesel oil as the basic energy source. The cost of electric power there would continue to escalate, and its production would continue to cause air and noise pollution, and to use a non-renewable resource. The construction impacts associated with the proposed project would be avoided but the potential to establish improved fisheries in the Kizhuyak and Terror Rivers would be lost, and the economic benefits associated with the construction of the project would not be realized.

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extended about eleven miles southwest to the Bells Flat area. KEA owns and operates a generating station at the Village of Port Lions, however, this facility is not presently nor will it be in the foreseeable future connected by a transmission intertie to the City of Kodiak generation and transmission system. The existing capacity in the Kodiak generating station will firm the capacity to be installed in the proposed Terror Lake project and will provide emergency capacity in case of transmission line outage. The U. S. Coast Guard system presently has 5200 Kw of generating capacity and will add one 2500 Kw diesel combustion unit in 1980. Required reserve capacity throughout the expansion period of 1983 to 1997 will be provided by in-place diesel capacity prior to completion of the Terror Lake project.

Alternatives Considered

Numerous energy alternatives were considered and found to not be viable alternatives to hydropower either because they were not economically feasible or because they are still at the research stage and are not yet technically feasible. Diesel, coal and natural gas for combustion turbines or steam-fired plants are not economic alternatives to the proposed Terror Lake project.

In earlier studies the entire Island was investigated for potential hydroelectric development sites. The main criteria used in locating potential sites were an adequate volume of water, a high head, and a location at a reasonable distance from Kodiak for the transmission line. Foremost attractive alternatives to the Terror Lake project were (1) Terror Lake-Terror River development, (2) Terror Lake-Uganik Lake development, (3) Hidden Basin River development, (4) Spiridon Lake development. The first three alternative hydroelectric developments were discussed in the section entitled "Engineering Considerations" where developments down different river valleys were considered and discounted due to the disadvantages of locating the powerhouse further away from the City of Kodiak than the proposed project, longer transmission lines and access roads, poor geological conditions along the power tunnel route, higher costs of construction for schemes that produce considerably less power, and environmental problems which are of a similar nature to the Terror Lake project. The Spiridon Lake development involves no work at Terror Lake. Spiridon Lake lies at elevation 440 on the peninsula between Uganik Bay on the east and Spiridon Bay on the west and is approximately 50 miles west of the City of Kodiak. Spiridon Lake shows the potential for a relatively low cost power development; however, it is too small to meet the immediate needs of the KEA, Incorporated. Spiridon Lake could be a future source of economic energy after the Terror Lake project has been developed to its ultimate potential. The energy production would be about 20% of that from the Terror Lake project. The Spiridon Lake project would probably result in lesser environmental impacts than the proposed project. However, it is doubtful if the reduced impacts would be proportional to the much smaller energy benefits of this scheme.

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NEED FOR THE PROJECT

Anticipated Power Requirements

Present and projected capacity and energy requirements for the Kodiak Electric Association were developed by the Rural Electrification Administrations (REA) in their report "Power Requirement Study, Alaska III, Kodiak, Kodiak Electric Association, Incorporated, Kodiak, Alaska", in May, 1977. The U.S. Coast Guard station to the southwest of Kodiak now generates its own electric power and has written letters stating its interest in buying power from KEA in the future when the Terror Lake project comes on line with sufficient power. When the Terror Lake hydroelectric project comes into service, it is intended to replace generation by the existing diesel engine powered generators with cheaper, cleaner hydroelectric power. The existing diesel capacity will be maintained for standby generating capacity.

Load growth in the Kodiak service area has been predicated primarily upon two future developments; growth in the fishing industry associated with the new 200 mile limit, and potential offshore oil development. Even without oil development the Kodiak service area will experience one of the most significant load growths over the next ten years of any utility in the State of Alaska. Energy consumption from 1968 to 1976 doubled from 25 Gwh to 50 Gwh and the present forecast is for an additional doubling of energy demand to 100 Gwh in 1984. The excess firm energy from the Terror Lake project in 1984 will only represent 25% of the Kodiak service areas energy demand. If excess power from the project is marketed to the U. S. Coast Guard station on Kodiak, then the entire firm energy of the project can be utilized from the power-on-line date. Without a power sales contract to the Coast Guard station the firm energy produced by the Terror Lake project will be totally utilized by KEA customers by 1989. The cost of energy from the project, whether excess energy is sold to the U. S. Coast Guard or not, will be no greater than the cost of energy produced by the diesel generation alternative in 1984.

Power requirements projections in the Definite Project Report and in the License Application reflect an 8.6% average annual growth rate in energy demand for the KEA service area through 1986, and a 3.5% average annual growth rate from 1986 to 1996. This forecast appears realistic based upon past trends and recent forecasts of population growth and commercial development for the Kodiak area as reflected in the OCS planning activities and reports prepared by the Kodiak Island Borough Planning Department.

Existing and Near Term Sources of Power

The KEA owns and operates a diesel engine powered generating station located in the City of Kodiak that contains eleven units with a total capacity of 24,918 Kw (2 at 800 Kw, 2 at 484 Kw, 1 at 645 Kw, 3 at 2,000 Kw, 1 at 2,665 Kw, 1 at 2500 Kw and 2 at 5270 Kw). KEA will add to its Kodiak station another 7000 Kw diesel powered unit, which is scheduled to be on line in 1981. This will insure that sufficient firm power is available until the proposed Terror Lake project comes into production. The present distribution system in Kodiak now extends from the generating station about 4 miles north to Monashka Bay, and is being

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ENGINEERING CONSIDERATIONS

Alternative developments to the proposed project were analyzed to establish the optimum project for development. They include alternative developments down different river valleys, alternative developments down the Kizhuyak Valley, and an underground versus a surface powerhouse. The proposed Terror Lake-Kizhuyak Valley scheme allows the high catchment basins of Shotgun Creek and Falls Creek, with a combined area of 6.4 square miles, to be included in the project for a relatively low capital cost. Most alternative schemes do not have this capability, nor do they pass close to other areas with comparable flow that could be diverted to the system. The recommended scheme has been laid out so that the tunnel is located entirely within a granitic formation, the best rock for tunneling in the area. Alternative schemes would have the power tunnel pass wholly or in part through varying amounts of weaker, foliated slates. The recommended project also has the powerhouse location closest to Kodiak, so that the transmission line is shorter than in other developments.

An underground powerhouse, penstock and tailrace tunnel would have to pass through poor quality rock which would require extensive deep drilling to determine feasibility. A surface penstock and powerhouse offers no unknown disadvantages in that the valley slopes are neither severe nor unstable, and there is no avalanche danger. Overburden is not deep, and suitable rock foundations for the penstock anchor blocks should be found at a reasonable depth. The powerhouse will be located on rock formed by cutting a bench into the hillside. Steel thickness in the penstock will not be excessive, and the cost per unit length will be less than that for a tunnel.

The 26,300 foot long power tunnel is the most costly construction element of the entire project. Extensive deep hole drilling to test the rock conditions along the power tunnel alignment have not been accomplished. This testing would of necessity have to be extensive and extremely expensive in order to determine the amount of tunnel support and lining that could be required. The potential of discovery of fractured rock along the power tunnel alignment is the greatest area for potential cost overruns. The power tunnel cost represents 42% of the cost of the total hydraulic production plant. The cost estimates for the total project contain a 25% contingency for underground work which may prove adequate for any problems that might develop for the power tunnel.

The U.S. Fish & Wildlife Service and State of Alaska Department of Fish & Game have recommended minimum flows for the mouth of the Terror River for maintenance of spawning beds. The natural river flows are generally less than the recommended minimums from December to April when most potential damage occurs, and exceed the minimum recommended values from May to November. Operation studies reflecting controlled flow releases at the Terror Lake Dam outlet works to supplement natural inflow below the dam have demonstrated that the recommended minimum flows at the mouth of the Terror River can always be met.

UNIT COST OF ENERGY FROM DIESEL

In 1984

	mills/kWh
Diesel Fuel and Lube Oil Cost <u>1/</u>	55.4
Operation and Maintenance Cost <u>2/</u>	6.6
Construction Debt Repayment <u>3/</u>	<u>3.9</u>
Unit Cost of Energy	65.9

In 2017

Diesel Fuel and Lube Oil Cost	516.6
Operation and Maintenance Cost	62.0
Construction Debt Repayment	<u>12.1</u>
Unit Cost of Energy	590.7

In 2018

Diesel Fuel and Lube Oil Cost	552.7
Operation and Maintenance Cost	66.3
Construction Debt Repayment	<u>12.1</u>
Unit Cost of Energy	631.1

1 / Based on actual 1977 price of 41.2¢/gal. for diesel fuel plus 5% for lube oil, escalated at 11% to 1980 and at 7% thereafter. Average fuel rate: 14 kWh/gal.

2 / Estimated at 12% of total operating cost.

3 / Based on unit cost of 7,000 kw diesel generators at a 65% PUF in 1982, 1985, and 1993, and inflation rate of 7%, and an interest rate of 6.5%.

TERROR LAKE HYDROELECTRIC PROJECT
UNIT COST ENERGY

Generation

Installed capacity	20.0 MW
Firm Capacity	15.0 MW
Annual firm generation	132 kWh x 10 ⁶
Average annual secondary generation	<u>7 kWh x 10⁶</u>
Average annual total generation	139 kWh x 10 ⁶
Annual power sold <u>1/</u>	125 kWh x 10 ⁶

Capital Cost

Total construction cost (Jan. 1979 prices)	\$64,400,000
Interest during construction (at 6.5% per year)	6,660,000
Allowance for inflation (at 7% per year)	<u>9,940,000</u>
Total capital investment (by Jan. 1983)	\$81,000,000
Capital Cost per installed kW	4,050

<u>Unit Cost of Energy from Hydro Power</u>	6.5% Loan for <u>35 Years</u>
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Debt repayment factor	0.0731
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In 1984

Annual debt repayment	\$5,922,000
Annual O&M costs <u>2/</u>	<u>321,000</u>
Total annual costs	\$6,243,000
Unit cost of energy	50 mills/kWh

In 2017

Annual debt repayment	\$5,922,000
Annual O&M costs <u>2/</u>	<u>2,993,000</u>
Total annual costs	\$8,915,000
Unit cost of energy	72 mills/kWh

In 2018

Annual debt repayment	---
Annual O&M costs	<u>\$3,203,000</u>
Total annual costs	\$3,203,000
Unit cost of energy	20 mills/kWh

1 / Assuming 10% losses in transmission, station service and non-revenue uses.

2 / Estimated at \$15/kw, escalated at 7%/year

ALASKA POWER AUTHORITY

PROJECT COSTS

The estimated direct construction cost for the Terror Lake Project is \$64.4 million. The total capital investment including interest during construction at 6.5% and an allowance for inflation at 7% per year is \$81 million. The direct construction cost is for prices as of January, 1979. Construction could start in early 1980 and continue through the three year period 1980-1982 with power coming on-line in 1983.

The Kodiak Electric Association, Inc. has applied for a loan with the Rural Electrification Administration for funds to construct the Terror Lake Hydroelectric Project. Depending on the outcome of the loan application, the balance of the necessary funds may be obtained through a tax exempt revenue bond issue through the Alaska Power Authority with a guarantee by the National Rural Utilities Cooperative Finance Corporation. The State of Alaska would encumber no general obligation for the long term financing.

The following table illustrates the relative advantages for unit costs of energy of equivalent power sold for the Terror Lake hydroelectric project and equivalent diesel generation. The Table presents the annual costs/Kwh for the two developments, and accounts for inflation in diesel fuel and other operating costs. Capital financing costs are estimated at 6.5% for both alternatives based on a combination of 5% REA loans and revenue bond financing through the Alaska Power Authority utilizing federal guarantees and security arrangements provided by the Cooperative Finance Corporation. The cost of money for construction could ultimately be materially less than 6.5%.

The unit cost of energy from Terror Lake is considerably less than the cost of energy from alternative diesel generation in the first year of operation. The comparative advantage of Terror Lake energy increases with time with rising costs of diesel fuel and the constant debt service associated with the capital intensive hydroelectric development.

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DESCRIPTION OF THE PROJECT

Terror Lake lies in a natural high-level basin in the mountains of Kodiak Island about 18 air line miles southwest from the City of Kodiak. The natural storage of the Lake will be increased by building a dam across the lake's natural outlet to the Terror River. A power tunnel will leave the lake from an intake structure on the eastern shore and carry water to an outlet portal on the slopes of the Kizhuyak Valley. A single penstock will extend from the tunnel outlet down the side of the Kizhuyak Valley to a surface powerhouse located on the valley floor. Discharge water from the turbines will flow into the Kizhuyak River. Electrical power will be carried to Kodiak on a 69 Kv transmission line.

The surface elevation of the Lake will be raised from 1,250 feet to 1,383 feet. Natural storage of Terror Lake will be increased by 78,000 acre feet. The natural catchment or run-off to Terror Lake is 15.1 square miles, and the catchment area will be supplemented by diversion of 8.6 square miles of the adjacent catchment areas of Shotgun Creek, Falls Creek, Rolling Rock Creek, and the Mount Glotoff Glacier. Provisions will also be made for future diversion of run-off in 4 square miles of the Hidden Basin Creek catchment area.

The dam will be a compacted rock-fill structure with a height of 156 feet with an upstream impervious face of asphaltic concrete. Crest elevation will be 1,391 feet. An ungated, unlined 600 foot long side channel spillway will have an inlet at elevation 1,383 feet. Controlled release of water down Terror River will be through a reinforced concrete outlet conduit through the base of the dam. The total volume of fill used in the dam will be 910,000 cubic yards, and the total crest length of the dam is 2100 feet.

The power tunnel will be horseshoe shaped, ten feet in diameter, and pass through granite for its entire five mile length. The penstock will be made of steel and surface run for 3,400 feet from the tunnel outlet to the power house. The thickness of the steel will vary from $3/8$ to $3/4$ inches and will have a yield stress of 50,000 psi. The diameter of the penstock will vary from 96 to 56 inches.

The powerhouse will be located three miles upstream from where the Kizhuyak River meets the ocean. It will contain two horizontal axis 13,000 HP, Pelton-type impulse turbines rated at 10 megawatts each. Elevation of the plant is 109.5 feet and will operate at an average head of 1,150 feet. Provisions will be made for the addition of a third turbine in the powerhouse. Normal operation of the powerhouse will be from a control center in Kodiak, but equipment will be provided for operation at the Terror Lake powerhouse.

SOLOMON GULCH HYDROELECTRIC PROJECT

SUMMARY

This report summarizes key characteristics of the Solomon Gulch Hydroelectric Project for the purpose of satisfying requirements of Section 180 of Alaska Statute 44.56.

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INTRODUCTION

The Copper Valley Electric Association, Incorporated (CVEA) was issued a Federal Energy Regulatory Commission License on June 21, 1978 to construct the Solomon Gulch Hydroelectric Project and transmission intertie between the City of Valdez and Glennallen. The Project will cost in excess of \$32 million and was 60 percent financed by Rural Electric Administration (REA) five percent loans and 40 percent by eight percent loans from the National Rural Electric Utilities Cooperative Finance Corporation (CFC).

The Alaska Power Authority, at the request of CVEA, desires to refinance the CFC portion of the Project costs and the amount necessary to establish a reserve fund for the entire Project. The refinancing will be accomplished through the tax exempt revenue bond market with financing security provided by the CFC. The State of Alaska will not have to commit any funds or provide guarantees of indebtedness for the Project financing. The maximum amount of bonds necessary to assist in the refinancing of the Solomon Gulch Project is \$20 million.

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PROJECT DESCRIPTION

The Solomon Gulch Hydroelectric Project has been proposed by the Copper Valley Electric Association (CVEA) to serve the growing needs of its service region, primarily in the Valdez and Glennallen areas. The Project would be constructed near the terminal of the Trans-Alaska Pipeline, approximately 4 miles south southeast of the City of Valdez. The proposed system would be a conventional hydroelectric scheme comprising the following features: a principal rockfill dam, 695 feet in crest elevation, to be located at the outlet of Solomon Lake; an auxiliary dam and spillway, to be located approximately 1000 feet east of the principal dam; a powerhouse located near the mouth of Solomon Gulch at Port Valdez; a steel penstock 4 feet in diameter and 3,700 feet in length extending from the reservoir to the powerhouse; and a 104-mile 115 Kv transmission line from the powerhouse to Glennallen. In addition, a pressure reducing turbine generator would be installed in the Trans-Alaska Pipeline and connected to a tailwater pump to recirculate water through the main powerhouse turbines.

The Project would replace an existing dam at Solomon Lake which was constructed in 1907. The principal dam would raise the normal elevation of Solomon Lake from 610 feet to 685 feet. Surface area of the reservoir would increase from 100 to 660 acres and storage capacity would increase from 1,700 acre-feet to 31,500 acre-feet.

The Project would produce 12,000 Kw of capacity and an annual average of 55,596,000 Kwh of energy. This represents an increase of 68 percent in the current (1976) combined capacity of the two systems operated by CVEA. The cost of the Project construction is expected to total \$30.3 million (assume 1977 dollars). The target date for completion of the Project is January 1, 1980.

Existing Capabilities and Projected Demand

The Copper Valley Electric Association (CVEA) is an REA borrower serving two major communities in Southcentral Alaska, Glennallen and Valdez, and an irregularly shaped area in between. CVEA generates power from two diesel plants with a combined 1976 capacity of 17,746 Kw. One plant, located at Glennallen, had an installed capacity of 7,642 Kw in 1976. The second plant, at Valdez, had a 1976 installed capacity of 10,104 Kw. The two generation and distribution systems are not connected.

Demand for power in the CVEA service area increased rapidly from 1973 to 1976 due to the increased population and industrial activity generated by construction of the Trans-Alaska Pipeline. The following Table illustrates annual average growth rates for peak demand from 1973 to 1976 and projected growth in demand for the Glennallen and Valdez districts. The Table indicates a substantial decline in the rate of growth of peak demand after 1976 in both districts. Until 1980 growth in demand will remain at higher levels in Glennallen than in Valdez, due to pipeline refrigeration units and pump stations in that area. The Federal Power Commission (now Federal Energy Regulatory Commission) staff has studied the load projections and agree that they appear reasonable, and the Alaska Power Authority staff concurs. According to the projections

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CVEA will need additional capacity by 1981, when peak demand reaches 7,700 Kw in the Glennallen District and 6,250 Kw in the Valdez District, or a total of 12,950 Kw.

The purpose of the Solomon Gulch Project is to provide, in the most economical manner possible, additional generating capacity, and to interconnect the Glennallen and Valdez distribution systems.

Table 1

Historical and Projected Load Growth,
CVEA Service Area
-Average Annual Rate of Growth (%)-

	<u>Glennallen District Peak Demand</u>	<u>Valdez District Peak Demand</u>
1973 to 1976 (actual)	42.1	56.2
1976 to 1980	20.2	4.4
1980 to 1985	5.4	8.2
1985 to 1991	5.4	8.2

The Project will enable CVEA to extend service to existing and future loads in the area, including those of the Alyeska Pipeline Company. The hydroelectric system will replace a system which depends on expensive, nonrenewable diesel fuel. CVEA plans to retain its large diesel units for emergency standby and to dispose of its smaller diesel units. However, the utility may be required to maintain on-site generating facilities at Glennallen and Valdez in order to avoid potential service disruptions caused by a transmission line outage.

Alternatives Considered

The Environmental Report (ER) by Robert W. Retherford Associates and the Draft Environmental Impact Statement (DEIS) by the Federal Power Commission compares the Solomon Gulch Project to alternative energy sources and alternative hydro sites. The reports indicate that the Solomon Gulch Project is preferable to other alternatives, primarily due to cost and environmental considerations. The reasons for selecting Solomon Gulch over the available alternatives are summarized below.

Diesel power is the most probable alternative to the proposed development, given the fact that CVEA's existing plants are equipped for diesel generation. However, increased use of diesel fuel will be more expensive than the construction and operation of the Solomon Gulch system. The ER reports that in 1980 diesel generation would cost 57.78 mills per Kwh, compared to 39.06 mills for the Solomon Gulch Project. This cost differential is expected to increase in the future, when diesel fuel continues to escalate, and the debt service for Solomon Gulch and the pipeline pressure reducing turbine remain constant.

Oil fired combustion turbines are not considered economical when operated for more than 750 hours per year. In

comparison, the Solomon Gulch system would operate an average of 4,400 hours annually. Combustion turbines are less efficient than diesel units; the annual cost of fuel alone would be almost \$2.3 million, which would be equivalent to the debt service of the Solomon Gulch Project in 1980.

Steam turbine generation is not considered practical at the relatively small scale needed to accommodate the CVEA area needs. This alternative is estimated to cost over \$1,000 per Kwh and is clearly impractical.

Alternatives which are either not commercially available or not applicable to the region and/or CVEA load requirements include solar, wind, geothermal, fuel cells, magneto hydrodynamics, and biological generation. Magneto hydrodynamics is a technique which passes a hot ionized gas, or liquid metal, through a magnetic field. This process is still at the early stages of development.

Alternative Hydroelectric sites in the Port Valdez-Glennallen areas were considered and found to be less well suited to the current and foreseeable needs of CVEA. The sites given consideration are Tebay Lakes, Allison Creek, Lower River, Tazlina River, and the Klutina and Tonsina Rivers. Although the Corps of Engineers study indicates that firm energy output from Allison Creek would be greater than that of Solomon Gulch, the Retherford Study claims that power available from Allison Creek "is not sufficient for CVEA needs."

Tebay Lakes is reportedly a site with excellent potential for a hydroelectric project and may be developed in the future. Tebay Lakes would supply 160 percent more power than the Solomon Lake System, which is said to be more than the level necessary or practical at the present. The cost per Kwh would be 8 percent greater for Tebay Lakes than for Solomon Gulch, based on Retherford Associates estimates. The remaining alternative hydro sites were found to be less desirable than Tebay Lakes. The Lower, Klutina and Tonsina Rivers have been rejected for cost and environmental considerations. Tazlina River is an unfavorable site due to cost and environmental constraints and the fact that the power potential from this source would far exceed demand.

Environmental Impacts

The proposed development would directly affect 330 additional acres of wildlife habitat due to the enlargement of Solomon Lake. Most of these lands would be inundated. A portion of alder-covered slopes, now used as wintering areas for mountain goats, and as habitat for bear and other animals, would be lost. In addition, short-term impacts on wildlife and habitat would occur during Project construction due to blasting and construction activity. Over the long run, major imbalances or alterations in the existing ecosystems of the area are not anticipated. There are no endangered species known to inhabit the Project area.

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During the long term operation phase of the Project, an average of 100 cfs of water would be diverted from Solomon Gulch Creek. This would alter the riparian habitat of areas downstream, but it is not expected to result in any loss of species.

Air and Water Quality

Operation of the Project would not degrade air quality. However, some temporary impacts on air quality may be experienced during construction, due to exhaust and crankcase emissions from vehicles and construction equipment and the dust generated by drilling and movement of equipment. Noise levels will increase due to blasting, machinery operation, and other construction activities. Project operation will result in some increased noise, particularly in the vicinity of the powerhouse. However, this impact is expected to be minor.

Construction of the dam and dikes would introduce sediment into Solomon Gulch Creek. Other surface waters may experience increased sediment loads due to clearing and earth moving operations along the transmission line route and quarrying and land clearing operations in other Project areas. During Project operation fluctuations in the water level of Solomon Lake may cause soil erosion which would introduce sediments into Solomon Gulch Creek.

Construction of the transmission line may disrupt the thermal stability of permafrost areas, which may cause erosion from surface water runoff, ground subsidence and instability, and frost heaving.

Land Use

Direct impacts on land use would stem from the inundation of 330 acres of land presently covered with trees and shrub and the removal from alternative uses of 1,250 acres along the transmission line routes. The impact of the Project on regional land use patterns is not expected to be severe. The inundated acres represent an addition to an existing reservoir. The main transmission line would be constructed in a transportation-utility corridor containing the Trans-Alaska Pipeline and the Richardson Highway. However, recreational use of the transmission line corridor is substantial, and existence of the line would interfere with the area's scenic and aesthetic qualities.

An indirect impact on land use would be the prevention of some mining at Midas Mine. Here, a significant copper ore deposit is believed to exist below 800 feet. Mining at lower elevations would be prohibited due to possible flooding from the reservoir.

Social and Economic Impacts

Project construction activity would focus on the Valdez area, which experienced drastic growth and change during construction of the Trans-Alaska Pipeline. The level and duration of social and economic impacts would depend on a number of factors, including the need to import a Project workforce, the number of workers who would be accompanied by dependents, their length of stay, and the ability of Valdez and other

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communities to absorb an increase in demand for housing, public services and consumer goods. In addition to Valdez, Glennallen, Copper Center and other communities along the transmission line corridor may experience impacts from transmission line and substation construction. These impacts would be primarily secondary, short-term economic impacts associated with personal consumption expenditures of the Project workforce.

It is anticipated that 20 to 30 workers would be employed for Project construction. This appears to be a low estimate for the workforce needed to construct a dam, penstock, powerhouse, access road, transmission lines and substations in a 2 1/2 year period. However, if CVEA does manage to complete construction with a 30 person workforce, the impact on Valdez would be minimal. If a "worst-case" scenario is assumed, 100 percent of the workforce would be imported and each newcomer would be accompanied by two dependents. This would result in a temporary population increment of 90, representing less than one percent of the 1975 population of the Project area. It is unlikely that an influx of this magnitude would place an undue burden on the community.

Engineering Considerations

Two catastrophic events which could potentially damage the Project to a significant degree are earthquakes and floods. The Valdez area is a part of one of the world's most active seismic zones. The Federal Energy Regulatory Commission (FERC) staff after analysis of the stability of the proposed dam section, recommended that the dam be constructed in thin, well compacted lifts using rock with the maximum size of four feet and with the downstream slope of the structure less than 1.4 to 1.0. With this requirement the structure would be resistant to damage from earthquake accelerations and it is estimated that the proposed dam would withstand an earthquake having an intensity equivalent to the 1964 Valdez earthquake without catastrophic failure. The Commission staff also recommended a spillway size that would easily accommodate the highest probable maximum flood and snow melt.

Potential safety and interference problems that may arise due to locating the Project transmission line adjacent to the Trans-Alaska Pipeline must be studied to specifically identify potential problems and implement any mitigative measures found to be necessary. The pipeline and transportation corridor that presently exists between Glennallen and Valdez is the only feasible routing available for the location of the transmission line.

The CVEA, in cooperation with the Alaska Department of Fish and Game and the U. S. Fish and Wildlife Service, has tentatively agreed to various mitigation measures to address fishery impacts associated with the project. These measures will help to maintain the natural temperature regime and stream flow of Solomon Creek both during Project construction and during operation.

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Project Costs and Financing

As stated in the introduction, the Rural Electrification Administration (REA) has agreed to finance 60 percent of the Solomon Gulch Hydroelectric Project at an insured rate of five percent. The remaining 40 percent was financed by the Cooperative Finance Corporation (CFC) at a guaranteed loan rate of approximately eight percent. Overall, the effective rate of the \$32 million loan would be 6.2 percent. Annual debt service would be approximately \$2.4 million per year. By the year 2014, interest payments will have totalled approximately \$51.6 million, and together with the principal of \$32 million, would result in a total debt service requirement of approximately \$83.65 million. A fifty-year present worth levelized cost benefit study by the Federal Energy Regulatory Commission (FERC) of the Project shows that the annual project power benefits would exceed the estimated annual cost by \$2,478,000. Power benefits were estimated using diesel electric generators as the alternative power source. In the first year of Project operation the annual cost for fuel alone for an oil-fired combustion turbine producing an amount of power equal to the Solomon Gulch Project would be greater than the annual fixed cost of the Solomon Gulch Project.

As stated earlier, the Project will add 12,000 Kw of capacity and an average of 54,565 mwh per year of energy to the CVEA electric system to serve the growing loads. Without the transmission intertie between Glennallen and Valdez the Project would supply Valdez with low cost hydroelectric power, but not all of the energy could be used until 1988. With the line, all of the Project energy would be useable by 1980. By 1988, without the transmission intertie, when all Solomon Gulch energy becomes useable at Valdez, the cost of energy at Valdez would be about 21 mills per kwh, while energy at Glennallen would cost about 91 mills per kwh. The Glennallen system would remain isolated and totally dependent upon diesel generation. Also, installation of the pressure reducing turbine in the TAPS pipeline would be delayed until the 1990's (the PRT would be feasible in the 1980's on the combined system). The Solomon Gulch Project is financially feasible as evidenced by the foregoing comments and the fact that the Project has already received financing from the REA and CFC. The Power Authority proposes to refinance the 40 percent portion of Project costs and establish a Project reserve fund for the Solomon Gulch Project by issuing revenue bonds in an amount not to exceed \$20 million with financing security provided by the CFC.

Introduced: _____

Referred: _____

IN THE _____

BY _____

___ JOINT RESOLUTION NO. ___

IN THE LEGISLATURE OF THE STATE OF ALASKA

ELEVENTH LEGISLATURE - FIRST SESSION

Relating to the Alaska Power Authority, and the incurring of revenue bond indebtedness of the Alaska Power Authority for the Solomon Gulch hydroelectric generating project in and near Valdez, Alaska.

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

WHEREAS, the Copper Valley Electric Association, Inc. has received a Federal Energy Regulatory Commission license for the Solomon Gulch hydroelectric generating project and construction has begun on the project; and

WHEREAS, initial financing for the project has been secured from other sources but it is considered in the public interest to nevertheless finance a portion of the project from the proceeds of the sale of revenue bonds of the Alaska Power Authority; and

WHEREAS, the Alaska Power Authority pursuant to AS 44.56.180 has submitted to the legislature and to the

governor a statement of its recommendations for financing a portion of the Solomon Gulch hydroelectric project and a statement outlining the general design, demonstration of financial feasibility, and maximum amount of revenue bonds necessary for that purpose; and

WHEREAS, pursuant to those recommendations the Alaska Power Authority is to finance a portion of the project only through the issuance of revenue bonds and is not to construct, acquire or own the project; and

WHEREAS, the statements provide that the financing of the project is to be effectuated under an agreement providing that the Alaska Power Authority have ownership rights in the project only as may be necessary to secure the payment of the revenue bond indebtedness; and

WHEREAS, the statements submitted to the legislature and to the governor fully satisfy the conditions set forth in AS 44.56.180 which are necessary to be satisfied prior to the adoption of this resolution; and

WHEREAS, the cost to be incurred in financing a portion of the project will require the issuance of revenue bonds of the Alaska Power Authority in a maximum presently estimated amount not to exceed \$20,000,000; and

WHEREAS, it is deemed to be in the best interests of the State that revenue bonds of the Alaska Power Authority be issued to finance a portion of the cost of the project.

BE IT RESOLVED that the legislature approves the

general design of the Solomon Gulch hydroelectric project in and near Valdez, Alaska and the incurring of revenue bond indebtedness by the Alaska Power Authority in a maximum amount not to exceed \$20,000,000 to pay the cost of financing a portion of the project.

CONCLUSION

This executive summary was prepared by the staff of the Alaska Power Authority to comply with Section 44.56.180 of the enabling statutes of the Power Authority. The maximum amount of bonds estimated to be necessary to refinance a portion of the Solomon Gulch Hydroelectric Project are \$20 million. The Power Authority intends to assist the Copper Valley Electric Association, Incorporated to refinance a portion of the Solomon Gulch Project in conjunction with the Cooperative Finance Corporation. The Power Authority does not intend to design, or construct the Project itself. The Project will be designed, constructed, and operated by the Copper Valley Electric Association, and rights to the capacity of the Project will remain with the Copper Valley Electric Association. Ultimate ownership of all or part of the Project, whether by the Power Authority or the Copper Valley Electric Association, will be determined in the future based upon the optimal financing arrangements. The general design and financial feasibility of the Solomon Gulch Hydroelectric Project is acceptable, and the Project should proceed to construction. The Power Authority recommends that the Legislature adopt a joint resolution approving the general design and financial feasibility of the Solomon Gulch Project, and approve action of the Power Authority to assist in refinancing a portion of the Project in cooperation with the National Rural Electric Cooperative Finance Corporation.

8.1 INTRODUCTION

The economic feasibility of the Terror Lake Project was determined by comparing the cost of supplying the energy requirements of KEA and the USCG from the Terror Lake Project, supplemented as necessary by diesel generation, with the cost of supplying the same quantity of energy by the cheapest alternative means. After considering the costs of energy production by various fuel sources in present use, and knowing the state of the technology of development of other means of generation, it was determined that the cheapest alternative means of generation would be the continued use of diesel-engine powered generators.

The principal method of analysis was to compute the B/C ratio, which in this context is defined as the ratio of the cost of supplying the independent KEA and USCG systems entirely from diesel generation to the cost of supplying the combined KEA-USCG system principally from the Terror Lake Project, with supplementary diesel generation as required. The costs for the two alternatives have been discounted to their present worth values as of 1 January 1979.

Secondly, the cash flow by year to pay for the energy requirements by the two methods of generation has been calculated, and the ratio of the two values of the cash flow, by year.

Finally, the unit cost of energy produced by the Terror Lake development alone has been evaluated, with no inclusion for the supplementary diesel generation.

These three approaches are discussed in Sections 8.5, 8.6, and 8.7 and all three confirmed that the Terror Lake Project is the most economical way of meeting KEA's future energy requirements.

The economic analysis did not consider the effect of the future expansion of the Terror Lake Project by the addition of the upper Hidden Basin Creek diversion. If this diversion were to be included, the economic advantage of the hydro development would be even greater, because much of the future supplementary diesel generation would be replaced by cheaper hydro power.

8.2 COST OF MONEY

Possible sources from which capital to finance the project might be obtained are noted below. Final financing could be from one, or a combination of several, of these sources:

- The Rural Electrification Administration (REA) of the U.S. Department of Agriculture may make loans to finance a partial amount of this type of development. Loans are made at a 5% interest rate and are repayable over a 35-year period. For the Terror Lake Project a loan would probably not exceed about 20% of the capital required. The REA also makes guaranteed loans, which currently carry an 8-1/2% interest rate.
- The National Rural Utilities Cooperative Finance Corporation (CFC) makes loans to supplement REA funds. These loans have recently been running at 8-1/2% with a 35-year repayment period.
- The Alaska Power Authority (APA) has the power to arrange financing for the project through a State of Alaska bond issue. The bonds would be tax exempt, and based on current market prices, they would have an interest rate of 6-1/4% to 6-1/2%.
- Private investment sources might provide funding for the project. The availability of such funding will depend on the current money market conditions and on the rate of interest available from alternative investment opportunities.

Based on these possibilities, the B/C ratios were calculated for annual interest rates of 5% and 9%. This range should cover the possible financing costs of the project, although 7% is thought to be a more probable weighted average interest rate.

8.3 CAPACITY AND ENERGY BALANCES FOR THE TWO GENERATION SYSTEMS

This chapter utilizes a considerable amount of data contained in a previous study on the possible expansion of KEA's diesel generating system (Reference 9). The load forecast of peak demand and energy consumption for the KEA system contained in the REA Power Requirement Study of May 1977 (Reference 10), together with load projections for the USCG system, provide the basis for the capacity and energy balances given in Tables 8-1 and 8-2.

The REA forecasts, extending over the period 1978-1992, were extrapolated over an additional 5 years to 1997, to accommodate equivalent capacity additions for the two alternative generation expansions. Energy consumption was assumed to grow at 3% annually beyond 1992, a slightly more conservative growth rate than the 4% rate projected by the REA for the years from 1987 to 1992. A constant load factor of 60% was assumed, corresponding to the 60.8% value of the REA forecast, to obtain peak demand through 1997.

Common to both alternative generation systems is the addition of a 7000-kW diesel unit in (1981) to be installed in available space in the existing new diesel power plant in Kodiak. Since the capital investment for this unit is common to both alternatives, the debt service costs for this expansion have been excluded from the study. ?

After the introduction of the Terror Lake Project, with an installed capacity of 20 MW, into the combined KEA-USCG system, there will still be sufficient excess diesel capacity to supply the required reserve capacity throughout the expansion period considered, 1983 to 1997. The

? 100%
STANDBY

reserve must at least equal the largest individual unit in the system, which will be the 10-MW units in the Terror Lake Project.

The all-diesel system expansion requires three additional 7000-kW units, to be installed for operation in 1983, 1986, and 1993, respectively. These diesel unit additions enable both demand and energy requirements to be met for a system expansion comparable to that for the Terror Lake Project.

8.4 ESTIMATED COST OF ALL-DIESEL GENERATION SYSTEM

The estimated cost of individual diesel units is given in Table 8-3, with disbursements made over a 2-year construction period before power generation. The assumption is made that all three units will be installed in a new building, with the cost of the building and common facilities included in the cost estimate for Unit 1. Installed costs are derived from estimates made in previous studies for this type of installation in Kodiak. Cost levels were obtained using base costs for 1978, with provision for escalation through the year of installation at an average long-term rate of 7% per year after 1980. Short-term escalation through 1980 was based on recent purchasing experience for KEA diesel installations. Capitalization was completed using annual rates of both 5% and 9% to estimate interest during construction. Typical generation costs were estimated for individual units, based on a 65% plant operating factor.

8.5 COST OF DIESEL GENERATION

In order to estimate annual operating costs for the diesel generation included in both the alternative system expansions, a long-range projection of operating costs was made, the components of which are given in Table 8-4. Since the principal component of total operating costs is the cost of diesel fuel, the assumption regarding the magnitude of future esca-

tion has a major effect on the cost comparison between alternative generation plans. The actual 1977 fuel cost was used as a base, and an allowance of 5% for lubricating oil was added directly as an operating cost component. This base price for fuel was then escalated at 11% per year through 1980, which is the inflation rate that has been experienced in Alaska in recent years for diesel fuel. A long-term escalation rate of 7% was used after 1980 to represent a moderate but steady future rise of fuel costs. This value in turn would correspond to a long-term average inflation rate which is likely to continue, given the persistence of endemic inflation in the economy of the United States, coupled with global inflation.

The fuel cost was converted into an energy rate in mills/kWh using an average fuel consumption rate of 14 kWh/gallon of fuel oil, assuming continued operational efficiency and well-maintained installations. An allowance of 11% of the total operating cost per year was made for labor and material costs for operation and maintenance (Reference 10).

8.6 COST COMPARISON OF ALTERNATIVE GENERATION SYSTEMS

Since the principal cost components that influence the economic comparison of alternative plans are capital investment and operating costs, a series of cost tabulations was made to determine the present value of future construction costs and operating expenses. Disbursements and future operating cost streams were discounted at 5% and 9%, corresponding to the values of interest rates considered.

Table 8-5 provides the present value of construction cost disbursements for the three diesel plant installations, discounted to 1 January 1979.

Table 8-6 provides the present value of future operating costs, discounted to the same date, for the all-diesel generation expansion. Included here is the cost of USCG generation, which will be required if the Terror Lake

Project is not built. Increasing levels of generation, corresponding to values given in the energy balance of Table 8-2, are included up to the year 1997. Thereafter, it is assumed that a constant level of generation is maintained to the end of the 35-year period of analysis, with escalated average diesel operating costs applied year by year.

Table 8-7 provides a similar projection of costs for the diesel generation required to supplement generation from the Terror Lake Project for the integrated KEA-USCG system. These costs have also been discounted at 5% and 9% to 1 January 1979 values.

Table 8-8 shows the present value of construction cost disbursements for the Terror Lake Project over the design and construction period from 1979 to the end of 1982, these being discounted at 5% and 9%. The construction cost, less interest during construction, has been brought forward from Chapter 7.

Table 8-9 provides the present value of operation and maintenance costs for the Terror Lake Project, to complete the operating cost projections necessary to complete the analysis.

A summary of the present values of the costs of the two generation alternatives is given in Table 8-10, together with the computed B/C ratios, as defined in Section 8.1.

The results show the distinct economic advantage of hydroelectric power from the Terror Lake Project as compared to continued reliance on diesel generation. The conclusion is clear and is independent of the discount rate assumed. By comparing the present worth values over only a 10-year period from the time the Terror Lake Project comes on-line, that is, up to 1993, the B/C ratios are 1.2 and 1.0, for the discount rates of 5% and 9%, respectively. Then, as longer time frames are considered, the B/C ratios increase so that for 35 years, the probable period for the loan repayment, the B/C ratios become 2.3 and 1.7 for the discount rates considered.

8.7 PROJECTED CASH FLOWS

Annual cash expenditures to meet future power requirements for the combined KEA-USCG system by the two alternative methods of generation, have been computed for interest rates on capital investments of 5% and 9%. The results are shown in Table 8-11.

For the all-diesel generation alternative, the costs of debt repayment at the two interest rates were taken from Table 8-3 and added to the total operating costs for the diesel plant in Table 8-6. For the hydroelectric generation system, the annual repayment on the \$81 million investment in the Terror Lake Project was added to the O&M costs given in Table 8-9. The costs of the supplementary diesel generation were taken from Table 8-7. For the years 1983 to 1992, the O&M costs have been increased to allow for the cost of maintaining the diesel plant, even though generation will be relatively little during these years.

Table 8-11 shows the cash expenditures for the two alternative generation systems, together with the ratio of the two costs. The results clearly show the economic advantage of the hydroelectric generation alternative. By 1984, the first year of full operation of the plant, the cost of power is already less than it would be by diesel generation; thereafter, the difference increases yearly. The table has been extended to the year 2018, the first year after the capital investment for the Terror Lake Project will have been repaid, to show the sudden jump in the B/C ratio.

It should be noted that the tabulated cash disbursements are not the total payments that will have to be made, as costs which are common to both alternatives have been omitted. These include all present debt repayment obligations, plus those for the additional diesel unit to be installed 1981, and insurance and administration costs.

8.3 UNIT COST OF ENERGY

Finally, Table 8-11 presents a calculation on the unit cost of energy produced from the Terror Lake Project alone, with no consideration for KEA's total energy costs.

The capital cost of the project was developed in Chapter 7. The total cost of construction, including engineering, was \$64.4 million at January 1979 prices. This becomes a total capital investment of \$81 million by January 1983 when interest during construction and an allowance for inflation have been added.

The unit cost of energy has been computed for interest rates of 5% and 9%, and for the years 1984 and 2017, that is, for the first year of full production from the plant and 35 years later, the final year for repayment of the construction loan. The unit cost of energy varies from 42 to 85 mills per kWh, depending on the interest rate and the time frame considered. Then in the following year, 2018, when there is no further debt repayment, the unit cost of energy drops to 26 mills per kWh. The relatively small increase over a 35-year period is because the debt repayment cost remains constant, and this is a major part of the total cost of power.

By the year 2017 the unit costs of power by the all-diesel alternative would be 585 and 589 mills per kWh for the two interest rates. These values are based on the total operating costs developed in Table 8-4 plus the capital investment repayment.

Part of NB 32

Kodiak
Electric Association
Inc.

Box 787

KODIAK, ALASKA 99615

March 28, 1979

Senator Robert Mulcahy
Pouch V
State Capitol
Juneau, Alaska 99801

Dear Senator ^{*Bole*} Mulcahy:

Enclosed please find a copy of the revised contract and budget for Phase III of the Terror Lake Hydroelectric Project consisting of \$2,240,000.00.

Very truly yours,

Dave

David S. Nease
Manager

DSN/lap

Enclosure: 1

KODIAK ELECTRIC ASSOCIATION, INC.

KODIAK, ALASKA

RESOLUTION

WHEREAS, the power requirements of the Kodiak Electric Association, Inc. have demonstrated a rapid and substantial growth, and

WHEREAS, the management and directors of the Kodiak Electric Association, Inc., have concluded that the best and most economical way to satisfy the forecast power requirements is to implement the recommendations in the report entitled "Definite Project Report, Terror Lake Hydroelectric Project, Kodiak Island, Alaska, December 1978", and

WHEREAS, the Kodiak Electric Association, Inc. has entered into a contract dated September 8, 1977 with the joint venture of International Engineering Company, Inc., and Robert W. Retherford Associates, who are most knowledgeable of the work to be performed,

NOW, THEREFORE, BE IT RESOLVED THAT the Kodiak Electric Association, Inc., hereby authorize the joint venture of International Engineering Company, Inc. and Robert W. Retherford Associates to undertake the work required. To this end the existing Engineering Service Contract of September 8, 1977 between Kodiak Electric Association, Inc, and the joint venture is amended in accordance with the attached Amendment 1.

AMENDMENT 1
TO ENGINEERING SERVICE CONTRACT

WHEREAS the parties hereto entered into an Engineering Service Contract dated the 8th day of September 1977 and;

WHEREAS, a decision has been made to implement the recommendations made as a result of the study;

NOW, THEREFORE, the parties agree as follows:

Amend Article 1, to add:

Section 4 Upon completion of Phases I and II, and on instruction of the Owner, the Engineer shall proceed with work under Phase III. Phase III will cover final design services to implement the recommended development of Terror Lake Hydroelectric Project, additional field exploration work, and the preparation of contract documents for the construction of the project and the purchase of electrical and mechanical equipment.

Section 5 The Engineer will perform additional engineering services as may be requested by and agreed with the Owner.

Amend Article II, to add:

Section 3 Final Design - The Engineer will perform the design of the recommended scheme of development described in the Definite Project Report, Terror Lake Hydroelectric Project, December 1978. He will develop design parameters for all the Project structures and then prepare finalized layouts and designs for the preparation of the contract drawings.

Section 4 Field Work - The Engineer will prepare subcontracts, select qualified subcontractors, award subcontracts, and manage the performance of the work to complete the field exploration required for final design. This work includes, but is not limited to, items recommended in the Definite Project Report of December 1978. The work will include:

- Soil testing to determine the properties and quantities of soil materials to be used in the structures.
- Surveying work in conjunction with the geophysical explorations.
- Surveying work to establish a triangulation network for geodetic control during construction of the project:
- Camp facilities in the project area.
- Helicopter and float plane services.
- Other exploratory work that may later be deemed necessary, and as approved by the Owner.

Section 5 Contract Documents - The Engineer will prepare drawings and specifications for the General Construction Contract, and for the manufacture and supply of all mechanical and electrical equipment.

Section 6 Limit of Phase III - The work under Phase III covers design of the recommended project, with the following limitation:

- Phase III work does not cover the possible future enlargements of the scheme, such as the installation of a third unit in the powerhouse, the Hidden Basin Creek diversion works or the upper Uganik River diversion works.
- The contract drawings will substantially comprise the construction drawings, except in the case of the powerhouse, where detailed construction drawings will be prepared after receipt of design drawings from the

equipment manufacturers. Detailed construction drawings of the powerhouse are not a part of Phase III work.

- Phase III work does not cover engineering services during the construction period.

Amend Article III, Compensation, to add:

Section 6 The estimated price to complete the work required by this amendment is \$ 2,240,000.00. This is an estimated price for the services outlined herein based on the Engineer's best judgment, and is not guaranteed. Services beyond this price shall not be undertaken by the Engineer without prior authorization by the Owner.

IN WITNESS WHEREOF, the Owner has caused this Agreement to be signed in its corporate name by its President and its corporate seal to be hereunto affixed and attested by its Secretary, and the Engineer has hereunto set his hand, all as of the day and year first above written.

KODIAK ELECTRIC ASSOCIATION, INC.
Owner

BY: _____
President

ATTEST:

Secretary

Executive Vice President
INTERNATIONAL ENGINEERING COMPANY, INC.

ATTEST:

Secretary

Robert W. Retherford
President
R. W. RETHERFORD ASSOCIATES

TERROR LAKE HYDROELECTRIC PROJECT

PHASE III WORK

ESTIMATED COST

ENGINEERING COSTS

Project management		\$120,000	
Geotechnical		280,000	
Civil			
Powerhouse and penstock	\$150,000		
Hydraulic structures	170,000		
Concrete dams, other civil	80,000		
Hydrological studies	<u>20,000</u>	420,000	
Mechanical engineering		130,000	
Electrical engineering		150,000	
Transmission line		150,000	
Engineers estimate		25,000	
Specification preparation		50,000	
Secretarial and clerical		10,000	
Duplicating and printing		10,000	
Travel and expenses		5,000	
Stream gauging		15,000	
Archaeological studies		<u>5,000</u>	\$1,370,000

SUBCONTRACT COSTS

Drilling subcontract		230,000	
Seismic survey		35,000	
Back-hoe rental		10,000	
Air support		175,000	
Camp support		115,000	
Surveying contract		<u>45,000</u>	610,000

CONTINGENCIES

Contingency on Engineering Cost @ 10%		138,000	
Contingency on Subcontract Cost @ 20%		<u>122,000</u>	260,000

TOTAL - PHASE III WORK

\$2,240,000

SUMMARY

Cordova's present, reliable firm generation capacity is 1950 KW and is not adequate to meet the system's requirements now peaking at 2900 KW.

A review of the 1977 Power Cost Study Plan Cost Summaries indicate that Plan D, Diesel-Hydro, would be the most economical alternative if the development of Power Creek's hydroelectric potential is feasible.

The next most economical alternative is Plan E, Diesel-Turbine-Waste Heat Recovery if Power Creek's hydroelectric potential can not be developed.

The least economical alternative is Plan B, an all Diesel alternative.

Figure 1 depicts comparative power costs for Alternatives A through G on page 8 of this report.



CORDOVA PUBLIC UTILITIES

1977 POWER COST STUDY

RECOMMENDATIONS

- I. C.P.U. should purchase and install a refurbished and warranted 2,650 KW Diesel Generator as soon as practicable with R.E.A. financing 60% of the estimated cost of \$1,000,000 at 2% interest and C.P.U. financing 40% with Revenue Bonds.
- II. C.P.U. should initiate immediate steps to develop a 5,000 KW Hydroelectric Plant at Power Creek by 1982.



-City of Cordova
Attention: Mr. Terry D. Lovett, City Manager
January 30, 1979
Page 3

those issued by the Cooperative. The lower interest rate improves the feasibility of the project and will lower the resulting cost of power. It is possible that the Cooperative might at some future date be able to obtain lower interest rate money than the City in which case financing by the Cooperative should be considered.

Considerable "front-end" work will be required to establish the feasibility and obtain a license. This work is listed at the beginning of this letter and our client proposes that the City pay Pacific Ventures, Inc. for this work as follows:

Drilling and subsurface exploration, geology and report thereon	60,000.00
Plans and Application for Federal Power Commission License	240,000.00
Draft Environmental Impact Statement	35,000.00
Budget figure for possible additional subsurface exploration and geological work should be set-up in the amount of..... subject to mutual agreement as to the expenditure.	30,000.00

70% of

An allowance for administrative work, follow-up on the Federal Power Commission License Application and hearings, to be drawn against by time and expense billing rates would be necessary in the amount which could not be exceeded without further authorization by the City.....
45,000.00

While we cannot make a flat statement until the subsurface exploration and geology, preliminary plan, estimates and feasibility is completed; we do believe that the project will prove feasibility and will result in a substantial long term reduction in power costs to the City considering expected load growth and expected prices for fuel oil and labor for operation of the diesel plant.

In order to impliment this study, considerable consultation will be required with representatives of the City and the Cordova Electric Cooperative. We are available for this purpose.

HOWARD T. HARSTAD
HARSTAD ASSOCIATES, INC.

HTH/br