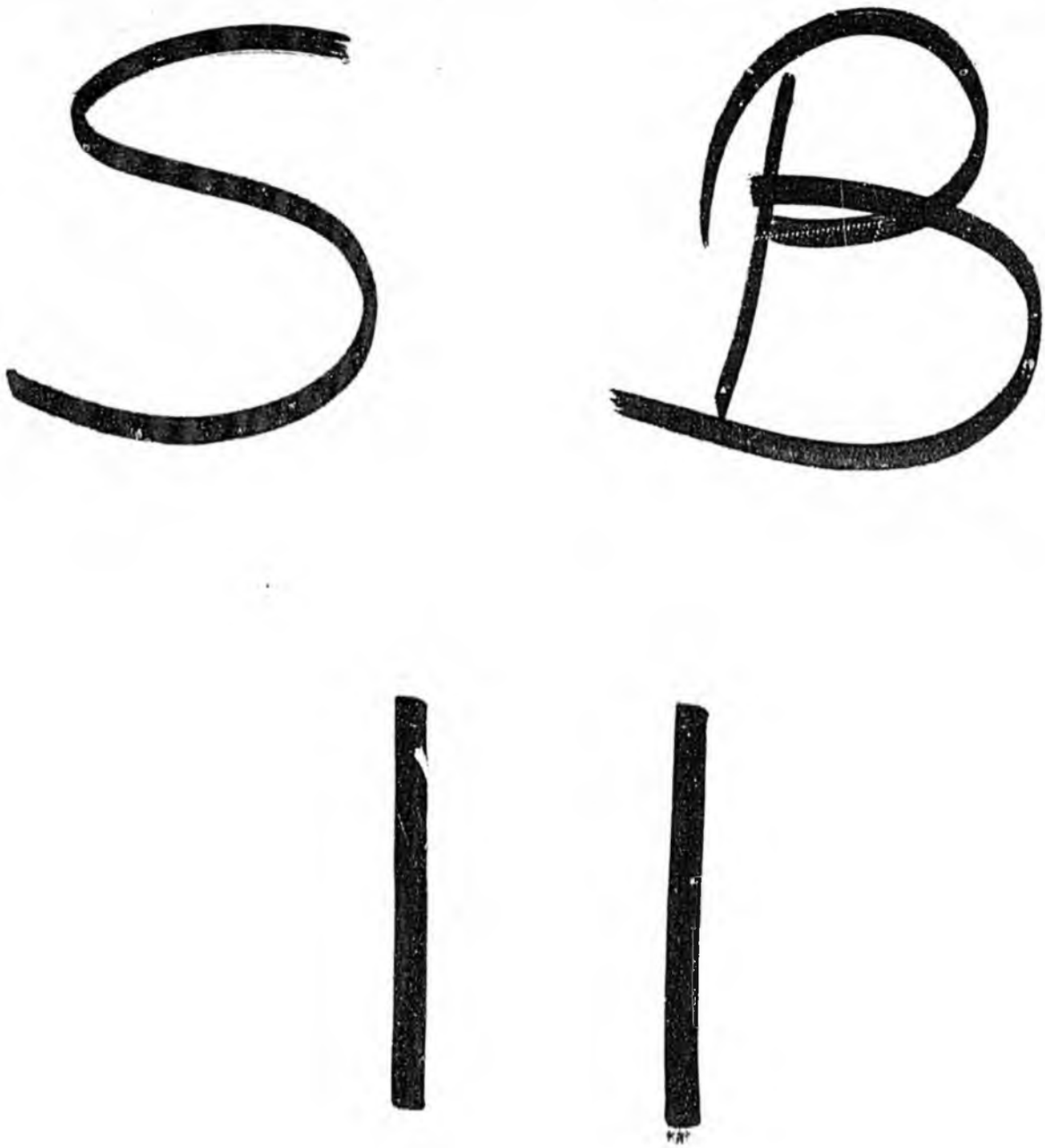

SENATE RESOURCES COMMITTEE
LEGISLATION CHECKLIST

IDENTIFICATION:

BILL NUMBER: SB 11

BILL NAME: Appropriate to APA for power projects.

SPONSOR(S): Kertulla

RELATED BILLS PENDING:

DATE INTRODUCED: 1-18-83

REFERRALS: Resources
Finance

INITIAL RESEARCH:

BILL SUMMARY COMPLETED:

SUMMARY BY LEGAL DIVISION:

SPONSOR CONTACTED FOR BACKUP MATERIALS:

DEPT. OF LAW SUMMARY:

FISCAL NOTE:

OTHER INTERESTED SENATORS OR REPS. NOTIFIED:

AGENCY RESPONSE:

BACKGROUND RESEARCH:

SIMILAR BILLS INTRODUCED IN PREVIOUS LEGISLATURES:

RESPONSES FROM INTERESTED PERSONS/GROUPS:

OTHER STATE OR FEDERAL PRECEDENTS, REGULATIONS, LAWS:

HEARING PREPARATION:

CHAIRMAN BRIEFED:

DATE AND PLACE SET:

STAFF MEMO TO COMMITTEE:

TELECONFERENCE:

BACKGROUND MATERIAL DISTRIBUTED:

PSA/PRESS RELEASE:

LIST OF WITNESSES:

SUGGESTED AMENDMENTS/COMMITTEE SUBSTITUTES DRAFTED:

✓Kurt Dzinich, Sen Advisory Council
telecopy CS 4-11 ✓Dave Hutchens, ARECA
has CS ✓Sen Kertulla
telecopy CS 4-11 ~Eric Yould, APA - left message ~/Nancy 4-7-83

Notify:

CS 4-11 ✓Tom Hanna, Quadra Engineering, Kake 586-44[illegible]
CS 4-11 ✓Ed Esbosch | Katy Wallen - Dept Commerce

Alaska State Legislature

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

Senate

Committee on Resources

MINUTES

April 15, 1983
3:10 p.m.

Beltz Room
Room 211, Capitol

MEMBERS PRESENT

Senator Fahrenkamp, Chair
Senator Ziegler, Vice Chair
Senator Eliason
Senator V. Fischer
Senator Mulcahy
Senator Sturgulewski

CALENDAR

SJR 3 Relating to agricultural rights on state lands.

SB 11 Special appropriation to Alaska Power Authority for power projects.

SB 168 Relating to the Alaska Power Authority.

SJR 3

Senator Kerttula testified in support of SJR 3 to retain state agricultural lands.

Bob Arnold, Deputy Commissioner of the Department of Natural Resources, testified that Alaska statutes provide for only the conveyance of agricultural rights on state agricultural lands. In answer to a question, the right of homesteading could be established on designated agricultural lands, but the lands cannot be removed from that designation.

Senator Mulcahy moved that SJR 3 be reported out of committee with individual recommendations. There was no objection.

SB 168

Eric Yould, Executive Director for the Alaska Power Authority, covered the provisions of SB 168. Section 22 repeals the "blackmail clause" which required $5-billion be funded for

hydroelectric projects or a 10% equity payback was required on all projects.

Tony Dean, of John Nuveen & Co., testified in support of SB 168 and answered questions related to bonding procedures, financing by bonding and the surety of the bond funds.

Laura Davis, Department of Law, testified on legal aspects of the bill.

Vince O'Reilly, Deputy Commissioner of Department of Commerce, offered testimony previously submitted in support of the bill.

Senator Fahrenkamp held SB 168 in committee for consideration of several amendments.

SB 11

Eric Yould, of Alaska Power Authority, reviewed the cuts already made in the administration's proposed budget.

Vince O'Reilly, Department of Commerce, covered the priority process which resulted in $17.5-million minimum appropriation.

Lonnie Anderson, Mayor of Kake, requested consideration of an appropriation for Kake's inclusion in the Tyee-Petersburg intertie.

Senator Eliason moved for adoption of an amendment for $535,000 for the design planning for Kake. There was no objection.

David Hutchens, Alaska Rural Electrification Cooperatives Association, testified in support of the intertie, the Black Bear Project, and five other hydropower projects across the state.

Ron Garzini, Manager of the City of Seward, requested consideration of an appropriation for a transmission line for Seward.

Bill Chabot, representing Tlingit-Haida Regional Authorities, testified in support of the Kake intertie and the Black Bear project.

Marvin Kadake, City of Kake Councilman, testified in support of the Kake intertie.

Senator Fahrenkamp held SB 11 for further consideration.

The meeting adjourned at 4:28 p.m.

Alaska State Legislature

BETTYE FAHRENKAMP, Chairman
ROBERT H. ZIEGLER, SR., Vice Chairman
DICK ELIASON
PAUL FISCHER
VIC FISCHER
BOB MULCAHY
ARLISS STURGULEWSKI

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

Senate

Committee on Resources

MINUTES

April 18, 1983
3:03 p.m.

Beltz Room
Room 211, Capitol

MEMBERS PRESENT

Senator Fahrenkamp, Chair
Senator Ziegler, Vice Chair
Senator Eliason
Senator P. Fischer
Senator V. Fischer
Senator Sturgulewski

CALENDAR

SB 216 An Act relating to mining lease locations.

SB 11 An Act making special appropriations to the Alaska Power Authority; and providing for an effective date.

SJR 24 Requesting that Alaska be exempted from legislation allowing abrogation of existing natural gas contracts.

Oversight hearing on AS 46.15.145, reservation of instream water; and proposed DNR regulations.

SB 216

Senator Sturgulewski moved to consider the committee substitute for SB 216.

Bob Arnold, Deputy Commissioner of the Department of Natural Resources, said the extension of time for lease hold locations is needed, and is supported by the mining community.

Phil Holdsworth, representing the Alaska Miners Association, concurred with the committee substitute.

Senator Sturgulewski moved the committee substitute with individual recommendations, subject to a title change. The motion passed without objection.

SB 11

Senator Fahrenkamp noted that mark-up work is being done on SB 11, and that she did not plan to move the bill this date.

Senator Eliason offered two amendments to SB 11: $3,074,000 for the Pelican hydroelectric project, and $130,000 for a loan to the City of Thorne Bay for a hydro facility.

Senator Ziegler requested that staff report on the status of the Tyee and Swan Lake projects.

Senator V. Fischer submitted three proposed amendments: $2.9 million for a feasibility study of the Chakachamna hydro project, $1.6 million for other railbelt energy studies, and a reduction from $22 million to $17.5 million for Susitna studies and licensing.

SJR 24

Jim Palmer, Committee staff, said the resolution addresses a bill before the US Senate which would deregulate the natural gas industry. Alaska has little ability to compete among pipelines, and if the state is required to renegotiate contracts, the price of energy to consumers may increase over 100%.

Senator V. Fischer moved SJR 24 with individual recommendations. There being no objection, the motion passed.

Oversight Hearing on Reservation of Instream Water

Tom Hawkins, director of the Division of Land and Water, Department of Natural Resources, referred to a memorandum prepared by his division. The Department supports the goals of the instream flow law and regulations. He explained the need for the 1980 amendments and stated that the DNR regulations would allow adjudication of federal reserved water rights by the state. Hawkins explained the miners' concerns with the regulations, and why the department felt their concerns were probably unfounded.

Joe Cladouhos, Department of Environmental Conservation, referred to the department's position paper, which had been submitted to the committee. The department supports the regulations.

Bruce Baker, of the Habitat Division of the Department of Fish and Game, stated that the regulations are essential to maintain stream flows and for fish habitat and production. He

further stated that the regulations would help the Department to accurately develop statistics and techniques for measuring stream conditions, which would be useful in developing proposals to DNR for water flow reservations.

Tom Koester, Assistant Attorney General, discussed the conflicting views of the Reagan and Carter administrations on federal water rights and stated that the proposed regulations would give the department the right to adjudicate with the federal government to determine the amount of water necessary to fulfill federal needs.

Phil Holdsworth, Alaska Miners Association, noted the stream reclassification process the Department of Fish & Game completed in compliance with the current statute. Holdsworth said the miners are concerned with the Attorney General's interpretation of "person" in the current statute. He further stated that the miners feel the four categories in the current statute used to apply for a reservation are too restrictive as they do not mention hydroelectric or other industrial uses.

Al Stein, United Southeast Alaska Gillnetters Association, expressed support for the regulations, as the streams are the industrial base of the fishing industry.

Tom Koester explained the Attorney General's interpretation of "person" as a question of what right is being conveyed: whether it is a reservation belonging to an individual or a reservation that resides in the public interest. He stated that hydroelectric development and irrigation would be diversionary uses, which are not addressed in the 1980 amendments. Rather, the amendments create an additional competing use of water by allowing for reservation of instream flow. He concluded by explaining the State's prior appropriations doctrine, which grants priority to the first permit granted.

Jay Nelson, Alaska Environmental Lobby, said the environmental community supports the legislation and the regulations.

The meeting was adjourned at 4:16 p.m.

Alaska State Legislature

BETTYE FAHRENKAMP, Chairman
ROBERT H. ZIEGLER, SR., Vice Chairman
DICK ELIASON
PAUL FISCHER
VIC FISCHER
BOB MULCAHY
ARLISS STURGULEWSKI

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

Senate

Committee on Resources

MINUTES

April 25, 1983
3:04 p.m.

Beltz Room
Room 211, Capitol

MEMBERS PRESENT

Senator Fahrenkamp, Chair
Senator Ziegler, Vice Chair
Senator Eliason
Senator P. Fischer
Senator V. Fischer
Senator Mulcahy
Senator Sturgulewski

CALENDAR

SB 222 — An Act relating to the organization of the Department of Natural Resources, substituting references in the Alaska Statutes to the department and the commissioner for references to the division of lands and the director of the division of lands.

HJR 38 — Relating to marketing and transporting Alaska's natural gas.

SB 11 — An Act making special appropriations to the Alaska Power Authority; and providing for an effective date.

SB 222

David Dierdorff, Legal Services, referred to a memorandum distributed to the committee outlining suggestions and comments. He supported the amendments proposed by DNR.

Senator Sturgulewski moved to adopt and report out with individual recommendations the committee substitute for SB 222. The motion passed without objection.

HJR 38

Senator Mulcahy moved to accept and report out the Resources committee substitute for HJR 38, with individual recommendations. The motion passed without objection.

SB 11

Senator Ziegler moved to accept the committee substitute, and moved to report the bill out with individual recommendations. Both motions passed without objection.

The meeting adjourned at 3:17 p.m.

PLANTS
PELICAN COLD STORAGE COMPANY, PELICAN ALASKA 99832
ALEUTIAN COLD STORAGE COMPANY, SAND POINT, ALASKA 99661
PORT ALEXANDER COLD STORAGE COMPANY
PORT ALEXANDER, ALASKA 99836

SEAFOOD SALES OFFICE
PELICAN SALES COMPANY, SEATTLE, WASHINGTON 98105

PELICAN
COLD STORAGE COMPANY

FISH AND SHELLFISH PROCESSING

BAIT AND ICE

OUTFITTING

GENERAL OFFICES: 653 N.E. NORTH LAKE WAY, SEATTLE, WASHINGTON 98105 • PHONE (206) 632-9000
GENERAL OFFICES MAILING ADDRESS: P.O. BOX 5538, SEATTLE, WASHINGTON 98105

January 17, 1983

Honorable Richard I. Eliason
Alaska State Senate
Pouch "V", State Capitol Building
Juneau, AK 99811

Re: Pelican Hydroelectric Project

Dear Senator Eliason,

In a recent letter I outlined the worthiness of the Pelican hydro-project for state funding. I also enclosed some recommendations from a private engineering firm hired to study the project. I was assured that this project was one of the most cost-effective projects being proposed anywhere in Alaska.

Since my last letter, our power generation plant housing the turbine and generator for the hydro has burned to the ground and is for all practical purposes, a total loss. I feel that these changed circumstances should make this project all the more worthy in the eyes of the legislature. Without hydro-electric power, the citizens of Pelican will have to pay two times the current rate for electricity because of the increased costs of generating 100% diesel electric power. Additionally, the town of Pelican is now totally dependent upon Pelican Cold Storage Company diesel output for their power needs. The demands upon the system may, unfortunately, necessitate power outages or rotation in service.

The purpose of my letter is to bring to your attention the changed circumstances at Pelican, and ask for your speedy approval of our project. If we are able to start this project soon, it may be possible to get relief by next summer. Please give the matter your closest attention.

Sincerely,

Greg Bloom
Production Services Manager

GB/mm

cc: Jim Ferguson
Bruce Mitchell
Cal Boord
Dave Haworth
Jerry Larson

Alaska State Legislature

Pouch V
State Capital
Juneau, Alaska 99811
Phone: (907) 465-3114

SENATE ADVISORY COUNCIL

MEMORANDUM

TO: Senator Eliason

FROM: Kurt S. Dzinich KSD
Senior Advisor

DATE: February 3, 1983

RE: Pelican Hydroelectric Project

As a result of our discussion last Friday, the information I have on Pelican is as follows:

Some weeks ago the privately owned hydroelectric powerplant was destroyed as a result of a fire. The owners are currently negotiating with the insurance company. The settlement could range from a few hundred thousand to around one million dollars.

Based on a Corps of Engineers dam safety report, APA had initiated the feasibility study and discussions with the owners about taking over the project and rebuilding and upgrading the facilities. They had requested $3,074,000 for FY84 in order to accomplish that. The Governor's budget decreased this amount to zero.

There is not sufficient time in which to complete the work for the 1983 fishing season. The Pelican utility company is making arrangements for a diesel powerplant as an interim solution. The APA could use $500,000 (of the total $3,074,000) in FY83 supplemental appropriations to immediately initiate work, and then complete the work with the balance appropriated in FY84. If the APA builds the project, then it would become part of the State system.

The alternative to APA takeover would be for the current owners, of Pelican, to request a loan from the State and rebuild the project themselves. For example, they might be able to obtain a low interest loan similar to the one for Green Lake.

The decision as to which way to go is somewhat complicated by the provisions of HB9 passed by the last Legislature, and the impact of those and earlier provisions on APA's power sales agreements. APA is currently analyzing the impact of these provisions as well as methods of resolving them. Ultimately, the power contracts should provide lowest reasonable costs.

Please let me know if you need further information.

Alaska State Legislature

Advisory Council Members
Senator Kerttula, Chairman
Senator Bennett
Senator Vic Fischer
Senator Fahrenkamp

Pouch V
State Capital
Juneau, Alaska 99811
Phone: (907)465-3114

SENATE ADVISORY COUNCIL

MEMORANDUM

TO: Senator Eliason
Alaska State Legislature

FROM: Kurt S. Dzinich KSD
Senior Advisor
Senate Advisory Council

DATE: February 15, 1983

SUBJECT: Pelican Energy Rates

In response to your request, listed below are the projected energy rates of Pelican assuming that the project is built and operated by APA as part of its statewide system. The current rate to the residential consumers is 23.5¢/KWH (unsubsidized). I would expect that no more than a few cents per KWH would have to be added to the APA wholesale price to cover distribution costs.

100% STATE GRANT $3,024,000

YEAR	SYSTEM SHARE	O & M	APA WHOLESALE PRICE
1985	5.71 ¢/KWH	3.12 ¢/KWH	8.83 ¢/KWH
86	5.22	3.11	8.33
87	5.14	3.41	8.56
88	4.41	3.26	7.67
89	4.12	3.41	7.53
90	4.42	4.04	8.46

100% BONDED $3,024,000

1985	6.26	3.10	9.36
86	5.58	3.11	8.69
87	5.49	3.42	8.91
88	4.71	3.26	7.97
89	4.40	3.41	7.80
90	4.72	4.01	8.75

GRANT $2 MILLION AND BONDS $1.024 MILLION

YEAR	SYSTEM SHARE	O & M	APA WHOLESALE PRICE
1985	6.07 ¢/KWH	3.11 ¢/KWH	9.18 ¢/KWH
86	5.46	3.11	8.57
87	5.37	3.41	8.79
88	4.61	3.26	7.87
89	4.30	3.41	7.71
90	4.62	4.03	8.65

PLANTS
PELICAN COLD STORAGE COMPANY, PELICAN ALASKA 99832
ALEUTIAN COLD STORAGE COMPANY, SAND POINT, ALASKA 99661
PORT ALEXANDER COLD STORAGE COMPANY
PORT ALEXANDER, ALASKA 99836

SEAFOOD SALES OFFICE
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PELICAN
COLD STORAGE COMPANY

FISH AND SHELLFISH PROCESSING

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OUTFITTING

GENERAL OFFICES: 653 N.E. NORTHLAKE WAY, SEATTLE, WASHINGTON 98105 • PHONE (206) 632-9000
GENERAL OFFICES MAILING ADDRESS: P.O. BOX 5538, SEATTLE, WASHINGTON 98105

January 11, 1983

Sen. Richard Eliason
Box 143
Sitka, AK 99835

Re: Pelican Hyroelectric Project

Dear Sen. Eliason,

In September 1982, a report was completed that confirmed the need for and cost effectiveness of a new hydroelectric dam at Pelican, AK. I have enclosed the introduction and conclusion and recommendation section of that report prepared by USKH - Engineering Science for the Alaska Power Authority. Suffice to say, Pelican Utility Company and the town of Pelican are anxious for legislative approval of this project, not only in anticipation of future power needs, but in concern for the safety of the existing dam.

Please give your support to this project in the State legislature. If state funding is unavailable, it is certain there will be no ofther source. We feel the project is cost effective and worthy of state funding. We ask your support.

Sincerely,

Greg Bloom
Production Services Manager

GB/mm

Enclosure

Jerry Lawson
APA

SECTION 1

INTRODUCTION

BACKGROUND

In November 1982, the Alaska Power Authority (APA) selected the joint venture of USKH-Engineering Science as consulting engineers to perform a feasibility study pertaining to provision of power to the community of Pelican, Chichagof Island, Alaska. Phase I, the Reconnaissance Study, was completed and the resulting report forwarded to APA by letter on 16 April 1982. That report contains detailed background information and alternative evaluations which are not repeated in this Phase II report. The Phase I and Phase II reports should be considered as two volumes of a single report.

The Phase I study was conducted during Winter 1981-82 when access to the Pelican Creek Dam was limited and heavy reliance was placed on past records and reports. The conclusions of the study were:

1. The energy demand at Pelican is increasing.
2. The present hydropower plant does not have the capacity of meeting present load demands and requires supplemental diesel power.
3. The diversion dam is in need of immediate repair. This would consist of replacing the lost rock mass.
4. The dam is in need of grouting, to keep the abutments from eroding, save water, improve power yield and safety, and extend the life of the facility for 50 more years.

5. The intake gate needs to be replaced and remotely operated, for protection of the operator.

6. Using the full head from the dam to the forebay would increase the hydropower production by 4 percent. It is recommended that a 60-inch pipe replace the present flume, some of which is in need of replacement. It would also avoid the chronic tunnel caving problem.

7. The forebay should be improved into a surge chamber and efficacious debris basin.

8. The penstock needs to be replaced.

9. The present control valve, turbine, governor, generator and switch gear should be replaced with a new machinery package (one 500-kW and one 250-kW turbine).

10. The powerhouse needs to be remodeled for the new equipment and repaired where needed.

11. Additional head should be utilized by extending the draft tube and building a new afterbay with tailwater elevation at MHW.

The availability of additional operating head by raising the crest of the existing dam was noted within the report, as was the potential for a new dam approximately 100 feet downstream which could also provide the same crest elevation.

PROJECT CHANGE

In April 1982, as part of Phase II work, an inspection of the existing Pelican Dam was conducted by the consultant. This inspection revealed that the previous assumptions concerning the structural integrity of the dam were optimistic, and that rehabilitation would require extensive effort. In particular, it was concluded that grouting of the dam as

originally recommended might not be effective because of moss growth on the existing rockfill. Cost estimates indicated that construction of a new dam would be less costly than the extensive rehabilitation effort now found to be necessary. Furthermore, the new dam afforded the opportunity for seven feet more head, representing 61.5 additional kilowatt capacity.

By letter of 29 May 1982 (Appendix A), the consultant recommended to APA that the preferred project recommended in Phase I be revised to include the new arch dam and replacement of all conduits with 48-inch pipe (including sleeving of the tunnel). As a result of these findings and recommendations, the project was revised to that described below by letter from APA dated 29 June 1982 (Appendix B). The base case for economic comparisons therefore became the diesel generator alternative.

PROJECT DESCRIPTION

A new concrete arch dam with crest at elevation +150 feet will be constructed approximately 100 feet downstream of the existing rock filled crib dam. See Figure 1. The existing dam will be inundated but not removed. The logistics of construction is critical because of the problems of stream diversion. There are four months during the winter when the stream can be contained in the power canal. Those are the months when the dam will be constructed.

Existing diversion, power canal, and penstock will be replaced. New diversion will be with a trash rack and hydraulically operated 48-inch sluice gate at the tunnel portal; followed by a 48-inch wood stave pipe power canal through the tunnel and along the invert of the existing flume; a wood stave tank with by-pass capability, to serve as surge chamber and rock box; and a new 8-inch wood stave penstock. The new power canal and penstock will use the existing support system, upgraded as necessary.

A new hydroelectric station, including afterbay and tailrace, will be constructed adjacent to the existing powerhouse. The existing powerhouse will continue to be used to house switchgear and ancillary equipment. The new generating station will have installed 500- and 250-kW turbine generators with provisions for installation of a third unit (250 - 500 kW). All existing machinery and switchgear will be removed. The existing tailrace will be replaced by a new after bay and tailrace which will afford optimum draft and thus develop maximum head for power generation.

Included will be all control, switching, and communications equipment permitting remote monitoring and control of the hydropower station from the diesel power station and two-way voice communications between the stations. Switching and control will be automatic with manual override provision. Figure 2 presents a single line drawing of the power and control system.

SECTION 7

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

- Neither the existing diesel nor the proposed hydroelectric systems are capable of satisfying the projected power demands on a year-round basis.

- The potential for failure of the crib dam and/or obsolete hydroelectric system dictates prompt action. A new dam and power generating facility should constructed.

- In comparison with the diesel generation base case, the proposed hydroelectric project is economically advantageous. Dependence on diesel, except as a supplement to hydroelectric power, places an undue cost burden on the consumer. The proposed hydroelectric project is economically feasible, with a benefit/cost ratio of 2.57.

- Equipment lead time and creek flow cycles dictate an equipment contract award by July 1 of a year to permit start operations 20 months later. The dam must be built over the first winter.

RECOMMENDATIONS

- Initiate final design of the project, targeting for a bid opening on the machinery contract on 15 May 1983.

- Apply to the U.S. Forest Service for permission to flood to elevation +156 upstream from the proposed dam location.

- Finalize financing methods targeting for construction contract award 1 September 1983 and project completion in March 1985.

REPRESENTATIVE
PETER GOLL

POUCH V
JUNEAU, ALASKA 99811
(907) 465-4925

STATE OF ALASKA
HOUSE OF REPRESENTATIVES

April 9, 1983

Senator Richard Eliason
Pouch V
Juneau, AK 99811

Dear Dick:

Attached please find information regarding the 130,000 dollar request from Thorne Bay for power cost assistance.

Brent Petrie of APA and others seem quite concerned that this money be developed by September 1, in order that Thorne Bay be able to purchase its power generating equipment.

I am seeking your advice and comments on steps you prefer to follow in implementing this request.

Your comments will be much appreciated.

Sincerely,

Peter

Peter Goll

ALASKA POWER AUTHORITY
334 West 5th Avenue,
2nd Floor
Anchorage, Alaska 99501

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

LETTER OF TRANSMITTAL

DATE 4/4/83 | JOB NO
ATTENTION
RE Thorne Bay Electrical Utility

TO HONORABLE PETER GOLL
HOUSE OF REPRESENTATIVES
Pouch V
Juneau, AK 99811

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO	DESCRIPTION
1	—	1	APA statutes re: Power Project Fund
1	12/10/82	1	Excerpts from 12/10/82 APA Financial Statement re: Power Project Fund Loans
1	3/22/83	1	Ltr. to APA from Thorne Bay w/a) sale and transfer agreement for electrical utility b) Grant for 1/3 of utility ($100,000) c) Misc. grant for other Thorne Bay facilities

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit_____copies for approval
☐ For your use ☐ Approved as noted ☐ Submit_____copies for distribution
☒ As requested ☐ Returned for corrections ☐ Return_____corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE_____19_____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Enclosed is background information on the Power Project Fund and Thorne Bay Electrical Utility as requested during your telecon w/ Mr. Ray Benish on 4/4/83.

COPY TO R. Benish

SIGNED: Brent Petrie

If enclosures are not as noted, kindly notify us at once.

CITY OF THORNE BAY
P. O. BOX 110
THORNE BAY, ALASKA 99950
(907)828-3380

March 22, 1983

Mr. Ray Benish
Director of Financing
Alaska Power Authority
334 W. 5th Ave., 2nd Floor
Anchorage, Alaska 99501

Dear Ray,

Attached is the information you need to familiarize yourself with the City of Thorne Bay's purchase of the electrical generation facility at Thorne Bay. I anticipate that we will have a temporary certificate of Public Necessity and Convenience for the utilities by May 1, 1983.

We have committed the City to pay Louisiana-Pacific, Inc. off entirely by September 1, 1983. To do this will require financing a balance of approximately $130,000 from commercial or other governmental sources.

Please give me any suggestions you may have concerning possible governmental sources of financing.

Sincerely,

Denis M. Kuntz

Denis M. Kuntz
Mayor

Lyn K. Applegate
City Clerk

DMK/ka

Enc.

TBCC

SALE AND TRANSFER AGREEMENT

THIS AGREEMENT, made and entered into this 30th day of July, 1982, by and between KETCHIKAN PULP COMPANY (a Washington corporation licensed to do business in the State of Alaska and is a wholly owned subsidiary of Louisiana-Pacific Corporation) hereinafter called KPC, and THE THORNE BAY COMMUNITY CLUB (a nonprofit Alaska corporation) hereinafter called TBC.

RECITALS

KPC is the owner of Logging Equipment and Logging Camp facilities at Thorne Bay, Alaska which are situated on property owned by the United States Department of Agriculture-Forest Service.

KPC has a right to use of the land on which its properties at Thorne Bay are located under Timber Sale Contract Alofs-1042 with the United States Department of Agriculture-Forest Service.

KPC has had the properties at Thorne Bay appraised by an independent appraisal firm, Hugh A. Thompson & Associates, Inc.

KPC has sold homes at Thorne Bay to individuals who are members of TBC.

KPC is willing to relinquish its right to the use of land on which properties to be sold and/or donated to TBC are located.

TBC is incorporating Thorne Bay as a municipality of the State of Alaska.

TBC as the incorporated Thorne Bay Community is in the process of acquiring title to land at Thorne Bay from the State of Alaska including the land on which properties to be purchased from and/or donated by KPC are located.

KPC is desirous of transferring the properties listed on Exhibit A attached hereto and thereby made a part of this agreement, to TBC to assist in the formation of the Thorne Bay Community for an agreed sales price of THREE HUNDRED SIXTY-EIGHT THOUSAND DOLLARS ($368,000) with the remaining value of ONE HUNDRED THREE THOUSAND NINE HUNDRED DOLLARS ($103,900) established by the Thompson Appraisal considered a gift by KPC.

NOW, THEREFORE, the parties hereto agree as follows:

1. KPC agrees by letter addressed to the United States Department of Agriculture-Forest Service to relinquish its interest in use of land on which the facilities at Thorne Bay, Alaska listed on Exhibit A are located.

2. KPC agrees to transfer and deed to TBC the properties listed on Exhibit A.

3. Terms of the sale shall be a payment of ONE THOUSAND DOLLARS ($1000) to be paid on or before July 31, 1982. The balance shall be paid according to the following schedule except that interest shall be paid monthly at twelve (12) percent on the unpaid balance beginning August 31, 1982.

On or before September 20, 1982-Sixty-Eight Thousand Dollars ($68,000);
On or before October 20, 1982-One Hundred Thousand Dollars ($100,000);
On or before January 20, 1983-Sixty Thousand Dollars ($60,000);
On or before April 20, 1983-Forty-Eight Thousand Dollars ($48,000);
On or before August 20, 1983-Ninety-Three Thousand Dollars ($93,000)

Interest shall be payable at the rate of prime plus 1% on any delayed payment from the scheduled due date until the date paid, calculated on a daily basis. Interest shall be 2% over prime for payments delayed more than six months beyond scheduled payment date, calculated on a daily basis. There shall be no penalty for early payoff of the balance due. Principal and interest is payable in lawful money of the United States.

4. TBC accepts as a gift from KPC the additional value of properties measured by the difference between Thompson Appraisal Value shown on Exhibit A and the agreed purchase price of $368,000 or an indicated gift value of $103,900

5. It is further agreed that if at any time TBC elects to move the electric generators to another location, KPC or its successor has the exclusive right to reacquire the buildings which house such generators for an agreed value not to exceed THIRTY THOUSAND (30,000) DOLLARS and a right to acquire the land parcels on which such buildings are located for the agreed price of TEN (10) DOLLARS. It is further agreed that should KPC or its successor elect to abandon the building and property after such acquisition, this same offer shall be made to TBC by KPC or its successor.

IN WITNESS WHEREOF the parties hereto have executed this agreement as of the date first above given.

KETCHIKAN PULP COMPANY

By M. R. Pihl

Title VICE PRESIDENT & CONTROLLER

THORNE BAY COMMUNITY CLUB

By Reginald W. Johnson
President

By Lou L. Kratz
Secretary

EXHIBIT A

1	Cat Generator Model D-348 s/n 77693 with wiring, controls, base, radiator, etc.
1	Cat Generator Model D-342T s/n 150TH3064 with wiring, controls, base, radiator, etc.
1	Cat Generator Model 8432 s/n 250TH3860 with wiring, controls, base, radiator, etc.
1	Washington Diesel Electric Plant s/n 7427 with wiring, controls, base, radiator, etc.
1	Lot of primary distribution switchgear, bus duct, transformers
1	Lot of overhead distribution cables complete with approximately 100± poles, 12,900± feet of cable, all necessary hardware.
1	Lot of miscellaneous equipment
1	Light plant building KPC 93-021
1	Transformer building KPC 93-007
1	Administrative building KPC 93-22
1	Cafe/Recreation building KPC 93-011
2	Sewage Lift Pumps each complete mounted on a 5' x 6' concrete pad.
1	1951 Mack fire truck s/n 95LS1272 KPC 83-132

Appraised Value	Agreed Purchase Price
$471,900	$368,000

GRANT CONTRACT

STATE OF ALASKA
Department of Community and Regional Affairs
Division of Local Government Assistance

Contract Summary

Project Name	Contract Number
Thorne Bay Electrical Generating Plant and Distribution System	RDA 83-19-04

Contract Ceiling	Period of Performance	Basis of State Authority to Contract
$ 100,000	July 30, 1982 to June 30, 1983	AS 44.07.050

State Contact Person		Contractor Contact Person	
Name: Suzanne Perry-Piper		Name: DENIS M. KUHTZ	
Title: Local Government Specialist IV		Title: Mayor of the City of Thorne Bay	
Street or P.O. Box: 225 Cordova, Bldg. B		Street or P.O. Box: Box 110	
City/State/Zip Code: Anchorage, Alaska 99501	Phone: 264-2201	City/State/Zip Code: Thorne Bay, Alaska 99950	Phone: 828-3393

Agreement

The Alaska Department of Community and Regional Affairs, Division of Local Government Assistance (hereinafter "Department") and the City of Thorne Bay, Alaska (hereinafter "Contractor") agree as set forth herein.

Section I. The Department shall pay the Contractor for the performance of the project work under the terms outlined in this contract. The amount of the payment is based upon project expenses incurred which are authorized under this contract. In no event shall the payment exceed $ 100,000.

Section II. The Contractor shall perform all of the work required by the contract.

Section III. The work to be performed under the contract shall begin July 30, 1982 and shall be completed no later than June 30, 1983.

Section IV. The contract consists of the following:

- This Agreement
- Attachment A - Standard Provisions
- Attachment B - Scope of Services
- Attachment C - Payment Schedule
- Any properly signed amendments to this contract.

This Agreement takes effect the last date shown below.

Department	Contractor
Signature of Certifying Officer: Palmer McCarter	Signature of Authorized Representative: Denis M. Kuhtz
Printed Name and Title: Palmer McCarter, Director	Printed Name and Title: Denis M. Kuhtz Mayor
Date: Aug 4 1982	Date: Aug 9 1982

ATTACHMENT A — STANDARD PROVISIONS

Article 1. Definitions. In this contract, attachments and amendments, "Certifying Officer" means the person who signs this contract on behalf of the Department and includes a successor or authorized representative.

Article 2. State Saved Harmless. The Contractor shall indemnify and hold and save the State, its officers, agents and employees harmless from liability of any nature or kind, arising from its performance of this contract in any way whatsoever. Such liability may include, but is not limited to, costs and expenses for or on account of any and all legal actions or claims of any character whatsoever resulting from injuries or damages sustained by any person or persons or property arising from its performance of this contract in any way whatsoever.

Article 3. Inspections and Retention of Records. The State may inspect, in the manner and at reasonable times it considers appropriate, all the Contractor's facilities, records and activities under this contract.

The Contractor agrees to retain financial and other records relating to the performance of this contract for a period of three years from completion of the project and furnish access to the State upon request.

Article 4. Disputes. Any dispute concerning a question of fact arising under this contract which is not disposed of by mutual agreement, shall be decided without bias by the Certifying Officer. The decision shall be in writing and mailed or otherwise furnished to the Contractor. The decision of the Certifying Officer is final and conclusive, unless, within 30 days from the date of receipt of the decision, the Contractor mails or otherwise furnishes a written appeal addressed to the Commissioner of the Department. The Commissioner shall hear the appeal. The decision of the Commissioner is final and conclusive. In any proceeding under this Article, the Contractor has a right to offer evidence in support of its appeal. Pending final decision of a dispute, the Contractor shall proceed with the performance of the contract in accordance with the Certifying Officer's decision.

Article 5. Equal Employment Opportunity (EEO). The Contractor may not discriminate against any employee or applicant for employment because of race, religion, color, national origin, age, physical handicap, sex, marital status, changes in marital status, pregnancy, or parenthood. The Contractor shall post in a conspicuous place, available to employees and applicants for employment, a notice setting out the provisions of this paragraph.

The Contractor shall state, in all solicitations or advertisements for employees to work on State funded projects, that it is an equal opportunity employer (EEO) and that all qualified applicants will receive consideration for employment without regard to race, religion, color, national origin, age, physical handicap, sex, marital status, changes in marital status, pregnanacy or parenthood.

The Contractor shall include the provisions of this EEO article in every subcontract relating to this contract and shall require the inclusion of these provisions in every agreement entered into by any of its subcontractors, so that those provisons will be binding upon each subcontractor.

Article 6. Termination. The Certifyng Officer, by written notice may terminate this contract, in whole or in part, when it is in the best interest of the State. The State is liable only for payment in accordance with the provisions of this contract for services rendered before the effective date of termination.

Article 7. No Assignment or Delegation. This contract is non transferable and the Contractor may not assign or delegate this contract, or any part of it, or any right to any of the money to be paid under it, except with the written consent of the Certifying Officer.

Article 8. No Additional Work or Material. No claim which will be allowed for services, which are performed or furnished by the Contractor, not specifically provided for in this contract.

Article 9. Independent Contractor. The Contractor and any agents and employees of the Contractor act in an independent capacity and are not officers or employees or agents of the State in the performance of this contract.

Article 10. Payment of Taxes. As a condition of this contract, the Contractor shall pay all Federal, State and local taxes incurred by the Contractor and shall require their payment by any subcontractor or any other persons in the performance of this contract.

Article 11. Workers' Compensation Insurance. The contractor shall provide and maintain workers' compensation insurance as required by AS 23.30 for all employees engaged in work under this contract.

Article 12. Insurance. The Contractor is responsible for obtaining any and all necessary liability insurance.

Article 13. Governing Law. This contract is governed by the laws of the State of Alaska and the Contractor shall perform all aspects of this project in compliance with all appropriate laws and regulations. It is the responsibility of the contractor to ensure that all permits required for the construction and operation of this project by the Federal, State or local goverments have been obtained.

Article 14. Officials not to Benefit. No member of or delegate to Congress or the Legislature, or officials or employees of the State or Federal government may share any part of this contract or to any profit to arise from it.

Article 15. Covenant Against Contingent Fees. The Contractor warrants that no person or agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, contingent fee, or brokerage except

employees or agencies maintained by the Contractor for the purpose of securing business. For the breach or violation of this warranty, the State may terminate this contract without liability or in its discretion, deduct from the contract price or consideration the full amount of the commission, percentage, brokerage, or contingent fee.

Article 16. Changes. Any changes which have been agreed to by both parties will be attached and made a part of this contract by use of an Amendment. Any such Amendment must be signed by both parties before the change is considered official and approved.

Article 17. Public Purposes. The Contractor agrees that the project to which this contract relates shall be dedicated to public purposes for its useful life. The benefits of the project shall be made available without regard to race, religion, color, national origin, age, physical handicap, sex, marital status, changes in marital status, pregnancy or parenthood.

If the Contractor is a non-municipal entity and if the project involves the acquisition of equipment or facilities, the Contractor agrees that in the event a municipal corporation is formed which possesses the power and jurisdiction to provide for such equipment or facilities, the Contractor shall offer to transfer ownership of such equipment or facilities to the municipal corporation without compensation.

Article 18. Assurance The Contractor will spend monies appropriated under this grant only for the purposes specified in this contract.

Article 19. Remission. The Contractor will return all unexpended grant monies to the State within 90 days of the project completion.

Article 20. Reporting requirements. The Contractor shall submit to the Department a report each month on the progress of the performance of this contract. Reports are due 20 days following the completion of each month and are delinquent if not received by the due date. The Department shall provide forms and instructions necessary for the preparation of such reports.

Article 21. Right to withhold funds. The Department may withhold payments under this contract if reports required in Article 20 above are incomplete or delinquent. The Department may also withhold payments under this contract for any other violation of this contract.

Article 22. Sovereign Immunity. If the Contractor is an entity which possesses sovereign immunity, it has been required as a condition of this grant to irrevocably waive its sovereign immunity with respect to this contract as well as any action arising out of the performance of the terms of this contract. The waiver of sovereign immunity, effected by a resolution of the entity's governing body, is hereby incorporated into this contract.

ATTACHMENT B — SCOPE OF SERVICES

By authority of this contract, the City of Thorne Bay has been awarded a grant of $100,000.00 from the Rural Development Assistance Grant Program.

These funds are to be used entirely for the completion of the Project. The Project consists of an expenditure of $100,000.00 by the Contractor toward the purchase of an electrical generation plant and distribution system from the Louisiana-Pacific Corporation for subsequent operation as a munically-owned public utility serving residents of the City of Thorne Bay. This $100,000.00 constitutes approximately one-third of the estimated purchase price of the utility; the remaining balance of the agreed-upon purchase price shall be obtained by the Contractor from sources other than RDA. The Contractor shall negotiate a purchase agreement with the seller of the utility (Louisiana - Pacific Corporation) for the acquisition of the property, and the purchase price shall not exceed the actual fair market value of the utility as determined by a third-party appraisal rendered by a qualifed appraiser. The Contractor shall furnish the State with a copy of the purchase agreement upon execution of the sale.

ATTACHMENT C — PAYMENT SCHEDULE

The Contract Sum of $100,000.00 is the total amount payable by the State to the Contractor for the performance of work under the Contract. Payment shall be made in one lump sum to the Contractor upon request as provided for below.

Prior to the disbursement of any grant funds to the Contractor, the following stipulations of the grant award must be complied with:

1. The Contractor must furnish evidence satisfactory to the State that it has adequate site control with respect to the tracts or parcels of land on which buildings, structures, or other project improvements will be located.

2. The Contractor must furnish evidence satisfactory to the State that it has obtained, or can obtain, all necessary easements, permits, rights-of-way, and all Federal, State and local approval necessary for the completion of the project.

3. The Contractor must demonstrate that it has made financial arrangements to purchase the electrical generating plant and distribution system without additional RDA funds.

4. The Contractor must obtain written permission from the Alaska Public Utilities Commission stating that the City of Therne Bay has the authority pursuant to AS 42.05 to provide electrical utility services within the municipality and that the services are required for the convenience and necessity of the public. The Contractor shall be required to furnish such documentation to the State.

GRANT CONTRACT

STATE OF ALASKA
DEPT OF COMMUNITY AND REGIONAL AFFAIRS
DIVISION OF LOCAL GOVERNMENT ASSISTANCE

CONTRACT NO. 1-72-3-401/3228

ISSUED and ADMINISTERED BY:

STATE OF ALASKA
DEPT OF COMMUNITY AND REGIONAL AFFAIRS
DIVISION OF LOCAL GOVERNMENT ASSISTANCE

Pouch BH

Juneau, Alaska 99811

Contact Person-State:
W.E. "Bill" Williams

Phone: (907) 465-4735

CONTRACTOR

Name and Address:

Thorne Bay Community Club

P. O. Box 110

Thorne Bay, Alaska 99950

Project Coordinator - Contractor:
Reginald W. Johnson

Phone: (907) 828-3991

PROJECT DESCRIPTION Purchase and upgrade of utilities and other approved community projects.

AUTHORITY. This contract is authorized by AS 37.05.315 and Chapter 60, SLA 1981
The parties to this contract agree as stated below.

GENERAL INTENT. This contract is awarded by the Department of Community and Regional Affairs, Local Government Assistance Division (the State) to the Thorne Bay Community Club (the contractor) in full accordance with the general and special provisions of this agreement. The contract consists of this sheet and attachments A through D governing standard provisions, scope of services, reporting and method of payment.

ESTIMATED COSTS. The total estimated cost of this activity is $ 320,000 to consist of $320,000 from State and -0- from the contractor.
The state share of this project will not exceed $ 320,000.

PERIOD OF PERFORMANCE. The period of performance shall be from June 15, 1982 to December 31, 1983

APPROVED BY THE STATE:

x Palmer McCarter
Signature

Palmer McCarter
Typed Name

Director
Title

Date July 12, 1982

APPROVED BY THE CONTRACTOR:

x Reginald W Johnson
Signature

Reginald W. Johnson
Typed Name

President
Title

Date July 7, 1982

ATTACHMENT B - SCOPE OF SERVICES

By the authority of this contract, the Thorne Bay Community Club, Inc. is being awarded a grant of $320,000 from the Unincorporated Community Aid program as authorized in Chapter 60, SLA 1981. Enclosed herein is a description of the tasks to be performed with these funds and the approved amount of funds to be utilized for each project.

1. The Thorne Bay Community Club, Inc. shall expend $100,000 toward the purchase of the electric utility which is in place and serves the Community. This $100,000 is one/third of the purchase price and the remaining two/thirds are to be obtained by the Community from other sources. A Certificate of Public Convenience and Necessity must be approved and issued to the Community for the operation of this utility before any funds will be disbursed for this electrical project. This permit is issued by the Alaska Public Utilities Commission.

   In addition to the certificate cited above, the grantee shall also provide documentation for site control of the land where the generation equipment is located and documentation for the easements where transmission lines are located above grade and where transmission lines are buried below the surface of the ground. This requirement stands for land which will be effected by electrical grid expansion funded with monies from this grant.

2. The Grantee shall expend $18,000 for the purchase and installation of electrical metering devices in conjunction with the services to be provided through Project #1 above.

3. A total of $35,000 shall be used to purchase portions of an existing sewer system, the repair of an existing water system, and to expand the existing water distribution grid. The following tasks are included in this project:

   (a) Purchase two sewer lift stations from Lousiana Pacific-Ketchikan (the present owner) for a total price of $6,000 or less.

   (b) Install new sewer lines and a sewerage lift station to serve the Whiskey Flat area of the community of Thorne Bay at a price not to exceed $20,000.

   (c) Repair damaged water and sewer lines that exist in the Community for a cost not to exceed $9,000.

A Certificate of Public Convenience and Necessity must be approved and issued to the Community for each of these public utilities before any funds will be disbursed for either the water or sewer services. These permits are issued by the Alaska Public Utilities Commission.

In addition to the certificates cited above, the grantee shall provide documentation for site control for the land where the existing sewerage lift stations are located, where the existing sewerage and water lines are located, and where the expansion of the sewerage and water lines will be accomplished.

4. The Grantee is authorized to purchase the "Old Louisiana Pacific-Ketchikan office" building for use as the Community's administration building and meeting hall. This building shall be purchased for no more than $68,000.

   The Grantee shall furnish documentation of site control for the expected life of the building which, for an existing structure, is fifteen years.

5. The Grantee shall buy equipment and furniture necessary to conduct the business of the community and to hold public meetings. This equipment and furniture may include but not be limited to the items found in the following list:

   Desks and office chairs
   Filing cabinets
   A Safe
   Conference table and chairs
   Typewriter
   Photocopy machine
   Office supplies
   Chairs and other equipment necessary to conduct public meetings

   The cost of this project shall not exceed $20,000.

6. An expenditure of not more than $20,00 shall be made from this grant for the renovation of the existing "Coop Building". All renovations made with monies from this grant shall by in compliance with appropriate fire, health, electrical and safety codes.

   Before these renovation may begin, the Grantee shall provide site control for the land upon which this building is located.

   The Grantee shall obtain any required building and sanitation permits necessary before work may begin on this project.

7. The Grantee shall expend $29,000 for the initial operation of the electrical utility. Subsequent operation expenses are to be paid from funds derived through charges made to subscribers of the service. Rates to be charged must be approved by the Alaska Public Utilities Commission.

8. The Grantee shall expend $5,000 for the rental of equipment to maintain roads in the Community. These funds shall also be used for the purchase of necessary materials for road maintenance. When necessary, the Grantee may pay salaries of equipment operators and laborers from the monies received through this project award. Documented site control must be obtained before road maintenance work may begin.

ATTACHMENT B - SCOPE OF SERVICES

9. The Grantee shall expend [illegible] correcting health and safety deficiencies relative to t[illegible]ity's float and docking facilities. The Community shall provide [illegible]ntrol on these facilities before work may begin. The Community sha[illegible]view plans for these changes and additions with the U.S. Army Corps of Engineers before work may begin. This review of plans is to determine if wetlands and navigable waters will be effected and to secure any permits that may be required.

BUDGET SUMMARY

Project	Project Name	Approved Budget
1	Purchase 1/3 of Electric Utilitiy	$100,000
2	Purchase and install electric meters	18,000
3	Up-grade water and sewer system	35,000
4	Purchase building for community office	68,000
5	Purchase office furniture and equipment	20,000
6	Renovate Coop Building	20,000
7	Initial operation of electric utility	29,000
8	Road maintenance equipment rental	5,000
9	Dock and float improvements	25,000
	Total of Projects	$320,000

The Contractor will spend the monies from this grant only for the services and purchases specifically listed above in this Scope of Services. Should conditions change and an amendment is justified, a written approval of the changes must be obtained from the Department prior to any deviation from the approved financial plan.

The Thorne Bay Community Club, Inc. is solely responsible for the administration of this grant and the expenditure of monies derived from the award.

1. The Contractor shall submit a financial status report every three months (a normal calendar quarter) during the life of the contract and/or with each request for the next incremental funding. This financial report shall include expenditures for the reporting period, the total expended to date, the budgeted amount and a projection of the use of funds that are being requested. The regular report shall be submitted or postmarked no later than 15 days after the close of a normal calendar quarter.

   Upon the complete expenditure of the community's grant, the Contractor shall submit a financial report to the Department detailing the expenditure of all funds received through the grant.

   These reports shall be prepared by a certified public accountant and shall be certified by that person as being true and correct.

2. A narrative report shall be submitted with each financial report and that narrative report shall describe the activities accomplished during the preceeding quarter and a narrative forecast as to what will be accomplished during the next calendar quarter.

   The final project(s) report shall be accompanied by a narrative report describing the accomplishments of the entire grant period. The final report, financial and narrative, shall be submitted within 15 days after the project is considered completed by the Contractor or 15 days after the end of the contracted performance period which ever is first.

   Under no circumstances will payments be made to a grantee that is delinquent in its financial and/or narrative reports.

ATTACHMENT A - STANDARD PROVISIONS

Article 1. Definitions. In this contract, attachments and amendments, "Certifying Officer" means the person who signs this contract on behalf of the Department and includes a successor or authorized representative.

Article 2. State Saved Harmless. The Contractor shall indemnify and hold and save the State, its officers, agents and employees harmless from liability of any nature or kind, arising from its performance of this contract in any way whatsoever. Such liability may include, but is not limited to, costs and expenses for or on account of any and all legal actions or claims of any character whatsoever resulting from injuries or damages sustained by any person or persons or property arising from its performance of this contract in any way whatsoever.

Article 3. Inspections and Retention of Records. The State may inspect, in the manner and at reasonable times it considers appropriate, all the Contractor's facilities, records and activities under this contract.

The Contractor agrees to retain financial and other records relating to the performance of this contract for a period of three years from completion of the project and furnish access to the State upon request.

Article 4. Disputes. Any dispute concerning a question of fact arising under this contract which is not disposed of by mutual agreement, shall be decided without bias by the Certifying Officer. The decision shall be in writing and mailed or otherwise furnished to the Contractor. The decision of the Certifying Officer is final and conclusive, unless, within 30 days from the date of receipt of the decision, the Contractor mails or otherwise furnishes a written appeal addressed to the Commissioner of the Department. The Commissioner shall hear the appeal. The decision of the Commissioner is final and conclusive. In any proceeding under this Article, the Contractor has a right to offer evidence in support of its appeal. Pending final decision of a dispute, the Contractor shall proceed with the performance of the contract in accordance with the Certifying Officer's decision.

Article 5. Equal Employment Opportunity (EEO). The Contractor may not discriminate against any employee or applicant for employment because of race, religion, color, national origin, age, physical handicap, sex, marital status, changes in marital status, pregnancy, or parenthood. The Contractor shall post in a conspicuous place, available to employees and applicants for employment, a notice setting out the provisions of this paragraph.

The Contactor shall state, in all solicitations or advertisements for employees to work on State funded projects, that it is an equal opportunity employer (EOE) and that all qualified applicants will receive consideration for employment without regard to race, religion, color, national origin, age, physical handicap, sex, marital status, changes in marital status, pregnancy or parenthood.

The Contractor shall include the provisions of this EEO article in every subcontract relating to this contract and shall require the inclusion of these provisions in every agreement entered into by any of its subcontractors, so that those provisions will be binding upon each subcontractor.

Article 6. Termination. The Certifying Officer, by written notice may terminate this contract, in whole or in part, when it is in the best interest of the State. The State is liable only for payment in accordance with the provisions of this contract for services rendered before the effective date of termination.

Article 7. No Assignment or Delegation. This contract is non trasferable and the Contractor may not assign or delegate this contract, or any part of it, or any right to any of the money to be paid under it, except with the written consent of the Certifying Officer.

Article 8. No Additional Work or Material. No claim which will be allowed for services, which are performed or funished by the Contractor, not specifically provided for in this contract.

Article 9. Independent Contractor. The Contractor and any agents and employees of the contractor act in an independent capacity and are not officers or employees or agents of the State in the performance of this contract.

Article 10. Payment of Taxes. As a condition of this contract, the Contractor shall pay all Federal, State and local taxes incurred by the Contractor and shall require their payment by any subcontractor or any other persons in the performance of this contract.

Article 11. Worker's Compensation Insurance. The contractor shall provide and maintain workers' compensation insurance as required by AS 23.30 for all employees engaged in work under this contract.

Article 12. Insurance. The Contractor is responsible fo obtaining any and all necessary liability insurance.

Article 13. Governing Law. This contract is governed by the laws of the State of Alaska and the Contractor shall perform all aspects of this project in compliance with all appropriate statutes.

Article 14. Officials not to Benefit. No member of or delegate to Congress or the Legislature, or officials or employees of the State or Federal government may share any part of this contract or to any profit to arise from it.

Article 15. Covenant Against Contingent Fees. The Contractor warrants that no person or agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, contingent fee, or brokerage except employees or agencies maintained by the Contractor for the purpose of securing business. For the breach or violation of this warranty, the State may terminate this contract without liability or in its discretion, deduct from the contract price or consideration the full amount of the commission, percentage, brokerage, or contingent fee.

Article 16. Changes. Any changes which have been agreed to by both parties will be attached and made a part of this contract by use of an Amendment. Any such Amendment must be signed by both parties before the change is considered official and approved.

Article 17. Public Purposes. The Contracor agrees that the project to which this contract relates shall be dedicated to public purposes for its useful life. The benefits of the project shall be made available without regard to race, religion, color, national origin, age, physical handicap, sex, marital status, changes in marital status, pregnancy or parenthood.

If the Contractor is a non-municipal entity and if the project involves the acquisition of equipment or facilities, the Contractor agrees that in the event a municipal corporation is formed which possessess the power and jurisdiction to provide for such equipment or facilities, the Contractor shall offer to transfer ownership of such equipment or facilities to the municipal corporation without compensation.

Article 18. Assurance. The Contractor will spend monies appropriated under this grant monies only for the purposes specified in this contract.

Article 19. Remission. The Contractor will return all unexpended grant monies to the State within 90 days of the project completion.

Article 20. Reporting requirements. The Contractor shall submit to the Department a report each quarter on the progress of the performance of this contract. Reports are due 20 days following the completion of each quarter and are delinquent if not received by the due date. The Department shall provide forms and instructions neccessary for the preparation of such reports.

Article 21. Right to withhold funds. The Department may withhold payments under this contract if reports required in Article 20 above are incomplete or delinquent. The Department may also withhold payments under this contract for any other violation of this contract.

ATTACHMENT D - METHOD OF PAYMENT

The State will pay the Contractor no more than $320,000 and this amount shall constitute the full amount of the grant.

The following payment schedule is established and approved by the Contractor and the State:

1. Upon the approval and signing of this contract by both the Contractor and the State, the State will pay the Contractor a sum of $80,000. Of this amount, $20,000 shall be for Project number five (5) as detailed in Attachment B and the remaining $60,000 is 20% of the balance ($300,000) of the award.

2. The remaining balance shall be paid in four (4) equal payments of $60,000 each and upon the requisitioning of payments by the Contractor as described in Attachment C.

In the event some other payment schedule would facilitate the completion of the approved projects, an amendment to the "four equal payments" clause may be requested by the contractor and may be approved by the Department. All requests for and approvals of changes must be written.

Due to the unusual site control and permit requirements of the projects within this grant, funds will only be disbursed by the State when the individual contract stipulations are met for the particular projects.

ALASKA POWER AUTHORITY

FINANCIAL STATEMENTS

AND

ADDITIONAL INFORMATION

JUNE 30, 1982 AND 1981

Price Waterhouse 12/10/82

Operating Fund -

The Operating Fund accounts for appropriations from the State which are to be expended by the Authority for administrative and operating costs. Any appropriations unexpended or unencumbered at the end of a fiscal year lapse into the State's General Fund.

Power Development Fund -

Effective August 4, 1981, the legislature of the State of Alaska established the Power Development Fund of the Authority. The Power Development Fund accounts for appropriations for the energy program for the State of Alaska to be expended by the Authority for reconnaissance and feasibility studies, power project finance plans, power project construction, debt service and power project operating costs. Formerly such costs were accounted for in the Capital Projects Fund; however, since August 4, 1981 all activities and balances of the Capital Projects Fund have been reflected in the Power Development Fund.

Power Development Fund project costs are accounted for in accordance with the policy described in Note 1. Such capital projects appropriations are generally expended over the life of the related projects and unexpended amounts do not lapse into the State's General Fund until the project is completed.

Power Project Loan Fund -

The Power Project Loan Fund accounts for appropriations from the State which are to be expended by the Authority in the form of loans for feasibility studies or loans for the design and construction of power projects consistent with the Authority's mandate. These funds are to be expended at the direction of the Authority's Board of Directors or by legislative mandate and do not lapse at the end of the fiscal year.

All power project loan earnings and repayments (on loans not redesignated as grants as more fully described below) revert to the State of Alaska General Fund.

Effective August 4, 1981, legislation was passed which redesignated $18,624,875 of the June 30, 1981 balance of Power Project Loan Fund loans and $6,450,000 of undisbursed loan proceeds as grants subject to the newly established Power Development Fund established on the same date. Accordingly, such loans in connection with the acquisition and construction of the Terror and Swan Lake Hydroelectric Projects from Kodiak Electric Association and Ketchikan Public Utilities, respectively, have been reclassified as deferred project costs in the accompanying financial statements. The related loans payable to the State of Alaska have been reclassified as contributed capital.

Lake Tyee Hydroelectric Project -

With respect to the construction of the Lake Tyee Hydroelectric Project, the Authority adopted a resolution dated January 22, 1982 authorizing the issuance of $50,000,000 principal amount of Alaska Power Authority Variable Rate Demand Notes (Lake Tyee Hydroelectric Project) dated February 17, 1982 and maturing January 2, 1985. The Authority has covenanted to issue long-term bonds on or before October 1, 1984 in an amount sufficient to pay principal and interest on the notes; such bonds will be secured by a capital reserve fund of the Authority. The notes are subject to certain early redemption provisions both mandatory and at the option of the Authority, on or after June 30, 1982.

The notes bear interest paid quarterly equal to the TENR plus ½ of 1% as described above for the Terror Lake Hydroelectric Project.

The notes are general obligations of the Authority and are secured in the same manner as the Terror Lake Variable Rate Demand Notes described above. Additionally, the notes are secured by and payable from monies available under an irrevocable standby letter of credit in the amount of $52,000,000 expiring January 18, 1985. As of June 30, 1982 no amounts had been drawn under the letter of credit arrangment.

The letter of credit requires advance annual commitment fees of ½ of 1% of the undrawn stated amount. Additionally, an advance annual sales agency fee of 3/8 of 1% of the average aggregate amount of notes outstanding is required.

NOTE 6 - POWER PROJECT LOAN FUND:

Pursuant to the Power Project Loan Fund program the Authority has loans receivable at June 30, 1982 and 1981 from various utilities as set forth below:

Date of Loan	Borrower	Rate of Interest	June 30, 1982 Principal	Accrued Interest	Total
	Alaska Electric Light and Power -				
4/78	Improvements	6.5%	$ 449,000	$ 6,157	$ 455,157
10/80	Improvements	8.6%	1,047,988	45,063	1,093,051
3/81	Upper Salmon Creek	7.0%	202,031	7,071	209,102
12/81	Transmission and Distribution	11.8%	2,321,963	136,996	2,458,959
8/80	City of King Cove	7.0%	200,203	7,007	207,210
6/81	Nuthol Cogeneration Utility	5.0%	600,000(1)	12,679	612,679
10/80	Williams-New Halen	8.6%	300,000	47,191	347,191
			$ 5,121,185(1)	$ 262,166	$ 5,383,351

(1) Excludes undisbursed loan proceeds of $400,000

Date of Loan	Borrower	Rate of Interest	June 30, 1981 Principal	Accrued Interest	Total
	Alaska Electric Light and Power -				
4/78	Improvements	6.5%	$ 483,000	$ 6,536	$ 489,536
10/80	Improvements	8.6%	1,000,000	59,847	1,059,847
3/81	Upper Salmon Creek	7.0%	200,000	4,450	204,450
	Kodiak Electric Association (1) -				
11/78	Terror Lake	5.0%	100,000	13,811	113,811
8/79	Terror Lake	5.0%	2,000,000	190,832	2,190,832
10/79	Mennonite Creek	7.0%	89,198	3,121	92,319
8/80	Port Lions	7.0%	205,677	7,199	212,876
8/80	Terror Lake	5.0%	1,050,000	48,218	1,098,218
	Ketchikan Public Utilities (1) -				
11/78	Swan Lake	5.0%	200,000	27,375	227,375
12/78	Swan Lake	5.0%	135,000	17,747	152,747
7/79	Swan Lake	5.0%	3,115,000	289,414	3,404,414
6/80	Swan Lake	5.0%	11,550,000(2)	455,958	12,005,958
	Thomas Bay Power Commission (1) -				
12/78	Lake Tyee	5.0%	120,000	15,769	135,769
7/79	Lake Tyee	5.0%	60,000	6,132	66,132
8/80	City of King Cove	7.0%	205,140	7,180	212,320
9/80	Akutan	7.0%	125,641	7,254	132,895
10/80	Iliamna-New Halen	8.6%	300,000	19,156	319,156
			$20,938,656(2)	$1,179,999	$22,118,655

(1) Redesignated as grants effective August 4, 1981.
(2) Excludes undisbursed loan proceeds of $6,450,000.

Each of the loans was made pursuant to legislative direction and all principal and interest repayments revert directly to the State of Alaska General Fund. Accordingly, the Authority has recorded payables to the State of Alaska equal to the outstanding balance of Power Project Loan Fund loans, interest receivable and available undisbursed loan proceeds of $400,000 and $6,450,000 at June 30, 1982 and 1981, respectively. Effective August 4, 1981 approximately $18,624,875 of the loans outstanding at June 30, 1981 and $6,450,000 of undisbursed loan proceeds were redesignated as grants and accounted for as discussed in Notes 2 and 5 above.

NOTE 7 - UNEXPENDED APPROPRIATIONS:

Following is a summary of unexpended appropriations by fund as of June 30, 1982:

Power Project Loan Fund	$ 28,850,000
Rural Electrification Revolving Loan Fund	6,500,000
Grant Fund	1,464,628
Power Development Fund -	
Construction Work in Progress	117,515,938
Deferred Projects	154,222,370
Power Cost Assistance Fund	2,837,367
Operating Fund	10,428,100*

* Appropriated for fiscal year 1983

AMENDMENTS TO CSSB--11, APA APPROPRIATIONS

1) Daves Creek--Seward Transmission Line (design only) $ 1.35 million

This amendment was advocated by Dawson and Seward and is not on APA's original priority list.

2) Thorne Bay generation purchase (loan) .13 million

This amendment was made by Eliason. Does not appear on APA list

3) Pelican generation (replace burned down plant) 3.074 million

Eliason. The APA BOard approved same amount

4) Kake-Petersburg Intertie (design) .545 million

Eliason. The APA Board approved this amount.

5) Susitna project. (Design and studies) reduce from 22 mil. to 17.5 mil.

Fischer. This amount was approved in Gov's second budget. Dzenick says 22 Mil. needed.

6) Chakachamna feasibility study 2.9 mil.

Fischer. This was approved by APA Board.

7) Other railbelt energy studies, North Slope gas generation, wind, coal, conservation, 1.6 mil.

Fischer. APA Board approved 1mil. for North SLope gas

FY84 APA CAPITAL BUDGET (1,000.0)

Project Name	Original Request	Revised Request	Approved By APA Board	Governor's 1st Budget	Governor's 2nd Budget	Remarks
Anchorage-Fairbanks Intertie	$54,000.0	$54,000.0	$54,000.0	$44,000.0	-0-	Under const. 35.
Susitna Hydroelectric Design & Studies	71,286.0	47,000.0	47,000.0	37,000.0	17,500.0	Continuing 22.
Swan Lake Hydroelectric	35,000.0	-0-	-0-	-0-	-0-	Under const. 2.
Tyee Lake Hydroelectric	50,000.0	-0-	-0-	-0-	-0-	Under const.
Terror Lake Hydroelectric	115,000.0	-0-	-0-	-0-	-0-	Under const.
North Slope Gas Feasibility Study	1,000.0	1,000.0	1,000.0	1,000.0	-0-	Being compl. 0.
Chakachamna Feasibility Study	2,943.0	2,943.0	2,943.0	2,500.0	-0-	Continuing 0. (no Su alternative)
Black Bear Lake Hydroelectric Design	8,311.0	8,311.0	1,200.0	-0-	-0-	Continuing 1.2
Bradley Lake Hydroelectric	30,520.0	200,000.0	46,380.0	32,000.0	-0-	Scope/design being reviewed
Rural Reconnaissance Studies	1,275.0	1,275.0	1,275.0	1,000.0	-0-	Continuing 1.
Chester Lake Hydroelectric	5,449.0	13,750.0	5,449.0	5,449.0	-0-	New const. 5.5
Kake-Petersburg Transmission Line Study	9,500.0	545.0	545.0	-0-	-0-	New study .545
Lower Kuskokwim Feasibility Study	2,725.0	2,725.0	2,725.0	1,000.0	-0-	Continuing 1.0
Unalaska Geothermal Power Dev. Study	3,500.0	3,500.0	3,500.0	2,000.0	-0-	Continuing 0
Old Harbor Hydroelectric	4,120.0	3,915.0	3,915.0	Note [1]	-0-	New const./small hydro 3.915
King Cove Hydroelectric	4,574.0	4,780.0	4,780.0	7,000.0[1]	-0-	New const./small hydro 4.780
Larson Bay Hydroelectric	3,493.0	3,617.0	3,617.0	Note [1]	-0-	New const./small hydro 3.617
Scammon Bay Hydroelectric	1,778.0	1,760.0	1,760.0	Note [1]	-0-	New const./small hydro 1.760
Rural Alternatives	5,00.0	5,000.0	5,000.0	4,000.0	-0-	New const./waste heat & wind 5.0
Cordova/Silver Lake Study	7,000.0	832.0	832.0	832.0	-0-	Continuing .832
Hoonah/Juneau Intertie Study	1,205.0	1,432.0	-0-	-0-	-0-	New study 0
Kotzebue Coal-Fired Generation	3,050.0	3,050.0	3,050.0	1,000.0	-0-	Continuing 1.0
Bristol Bay Regional Plan	1,635.0	1,635.0	1,635.0	1,000.0	-0-	Continuing 1.0
Grant Lake Hydroelectric Study	3,400.0	-0-	-0-	-0-	-0-	Completed draft 0
West Creek Design Study	500.0	-0-	-0-	-0-	-0-	Updating draft 0
Reynolds Creek Feasibility Study	491.0	-0-	-0-	-0-	-0-	0
Tenakee and Chignik Hydroelectric	13,000.0	-0-	-0-	-0-	-0-	New const./small hydro 0
Pelican Hydroelectric	2,990.0	3,074.0	3,074.0	-0-	-0-	New const./replace damaged plant 3.074
	$442,745.0	$364,144.0	$193,680.0	$140,781.0	$17,500.0	$68-69 mil
Loan Funds						
Power Development	-0-	$25,000.0	$25,000.0	-0-	-0-	
Rural Electrification Revolving	2,500.0	2,500.0	2,500.0	1,000.0	-0-	
	$2,500.0	$27,500.0	$27,500.0	$1,000.0	-0-	

[1] Governor's budget combined these four projects and provided a total of $7 million with remainder to be financed.

PROPOSED AMENDMENT TO SB 11 offered by Sen. Eliason

Add a new section to read:

Sec. _____. "The sum of $130,000 is appropriated to the Alaska Power Authority for loan to the City of Thorne Bay under the Power Project Loan Fund for the balance needed to fund the purchase of the electrical generation facility."

SB 11
AMENDMENT

Susitna project
Delete 22,000,000 and insert in its place 17,500,000.

Add

Chakachamna feasibility	2,900,000
Other railbelt energy studies, including North Slope and Cook Inlet gas, wind, coal, conservation, and price elasticity	1,600,000

The Governor has included in his capital budget $17.5 million, rather than $22 million, for continuing the feasibility studies needed for the Susitna FERC license.

Other railbelt energy studies must be performed in order to be prepared to meet railbelt electrical needs should Susitna be found to be either uneconomic or unfinancible.

This amendment would decrease the funding for Susitna and appropriate the same amount for alternatives studies.

Project Title	Type	Location	Agency ID #	Elect Dist	Start Date	Complete Date
Chakachamna Hydroelectric Project		South Central		24		12/7/89

Cash Flow		Operating Impact		First Op. Yr. FY 89	Ult. Annual Yr. FY 90
FY 84	2,943.0	Funding Source	Fed. Rec.		
FY 85	68,909.0		Gen. Fund		
FY 86	777,017.0		Other		
FY 87	564,631.0		Proj Rev	1,000.0	2,000.0
FY 88	307,725.0		Total	1,000.0	2,000.0
FY 89	335,420.0	Positions (FTE)	7		
TOTAL	2,056,645.0				

Funding Information Agency		FY 84
1002	Fed. Rec.	
1004	Gen. Fund	2,943.0
	G.O. Bonds	
	Total	2,943.0
Priority:		Prior Year 83-18

Funding Information	Gov. FY	FY	FY
Agency	84-7		
Governor			

Special Features:	One of Several Phases	External Funding Source	Funds to Enable Completion	Contingent Upon Other Projects	Site Owned?	Utilities Available?	Access Available?
	X						

Project Description:

Chakachamna Lake (Water-Surface Elevation 1140 ft.) lies in the southern part of the Alaska Range of mountains about 85 miles due west of Anchorage. The most likely alternative to develop this resource would be by a diversion via a tunnel 23 ft. in diameter and 12 miles long) of the lake outflow to the valley of the McArthur River which lies southeast of the lake outlet. The power plant would have an installed capacity of 330 MW and could produce 1,374,000 MWH. In addition, approximately 19% of the average annual flow has been allocated to be released through the natural water course (Chakachatna River) for fish purposes.

The FY 82 appropriation was utilized to study the engineering and environmental aspects of the Project and culminated with an interim report in December of 1981. The FY 83 funds are coming from Susitna funds since Chakachamna is considered as an alternative to the Susitna Project. This phase of the Project will see a threshold level of environmental evaluation and additional engineering studies to confirm the construction cost estimate and cost of power.

Project Justification:

Project Need Statement. The Anchorage area presently receives the majority of its electricity from thermal plans which have an ever increasing cost of fuel along with high operation and maintenance costs. In the future some of these plants will be shut down due to age. In addition, the Anchorage area is growing and there is a continuing need for more energy and capacity. The Susitna Hydroelectric Project could provide energy into the same load area as the Chakachamna project. If the demand is available, it is possible that both projects could be utilized by the Railbelt area.

Documentation of Estimated Capital Cos The Interim Report estimated a $1.45 billion cost of the project in 1982 dollars. This is a rough estimate of cost since the feasibility study is not complete and the schedule is uncertain.

Analysis of Estimate on Operational Expense. The project economics has assessed a 1.5 mil/kwh operation and maintenance expense or about $2 million annually. This, too, is a rough estimate for same reasons as stated in Estimated of Capital Cost.

35a PROPOSED PROJECT

Chakachamna Hydroelec Proj

Project Title

CATEGORY Power Development

AGENCY Alaska Power Authority

PROGRAM Energy Development

PROPOSED FUNDING YEAR FY 84

Revised Date

FY 84

PROJECT DESCRIPTION (CONTINUED):

The FY 84 budget of $2.9 million will be required to complete the engineering and environmental studies necessary for the detailed feasibility study along with processing of the FERC license application. Upon completion of the feasibility study, a recommendation will be made to the Power Authority Board of Directors concerning whether a FERC application should be prepare and submitted.

PROJECT JUSTIFICATION (CONTINUED):

Identification of Alternatives Considered. Some of the alternatives to the Chakachamna project would be 1) Susitna Hydroelectric Project, 2) other hydroelectric projects, 3) coal-fired plants, and 4) gas fired plants. A decision on the Susitna project feasibility will be available in 1982. The Chakachamna project could be in operation by 1989, which could provide the Anchorage area with 300-400 MW's of power. If the Chakachamna project is not pursued then either other hydroelectric projects or thermal alternatives (gas or coal) will have to be pursued. This study will impact the Susitna study and that study will impact the feasibility of this project. The every increasing cost of fossil fuels is a disadvantage which may preclude their use in the future. There are no other hydroelectric projects (with the exception of Susitna) close to the Anchorage area which could provide the capacity and energy needed in the near future.

35b PROPOSED PROJECT (Continued)

Chakachamna Hydroelectric Proj.
Project Title

CATEGORY POWER DEVELOPMENT

AGENCY ALASKA POWER AUTHORITY

PROGRAM ENERGY DEVELOPMENT

PROPOSED FUNDING YEAR FY 84

Revised Date 84

FY 84

Project Title	Type	Location	Agency ID #	Elect Dist	Start Date	Complete D...
NORTHSLOPE GAS GENERATION	I	North Slope and South Central			NA	NA

Cash Flow		Operating Impact		First Op. Yr.	Ult. Annual Yr.
FY 84	1,000.0	Funding Source	Fed. Rec.		
FY			Gen. Fund		
FY			Other	NA	NA
FY					
FY			Total	NA	NA
FY		Positions (FTE)			
TOTAL	1,000.0				

Funding Information			Funding Information		
Agency		FY 84	Gov. FY	FY	FY
100%	Fed. Rec.				
100%	Gen. Fund	1,000.0			
	G.O. Bonds				
	Total	1,000.0			

Priority:	Prior Year	Agency	Governor
	83 - 14	84 - 6	

Special Features:	One of Several Phases	External Funding Source	Funds to Enable Completion	Contingent Upon Other Projects	Site Owned?	Utilities Available?	Access Available?
	[X]	[ ]	[ ]	[ ]			

Project Description:

This project would provide the capacity and electrical energy required in the Railbelt in the absence of an alternative major power supply project such as Susitna. The project lacks definition at this point in the sequential development process. Conceptually, the project would entail either power generation facilities on the North Slope with electrical transmission lines to the Railbelt or a small-diameter, single or multi-purpose gas pipeline to Fairbanks with electrical generation there at the north end of the interconnected Railbelt system. Ultimate energy output would be phased to match load requirements, perhaps as much as 6 billion KWH by 2010.

No specific sites have yet been identified, but general siting will be considered in the present reconnaissance level study.

The specific activity for which FY-84 funds are sought is a feasibility study. It is anticipated that an additional year would subsequently be required for design, with yet another for necessary permits and land use rights. The use

Project Justification:

a) Between 1982 and 1993, many of the long-term contracts now held by utility companies for very favorably priced Cook Inlet gas will expire. Not only will major increases in electric energy costs result from the requirement by Anchorage utilities to purchase gas of market prices will above present average prices, but also known Cook Inlet gas reserves may have been depleted in the early 1990's to the point that reliance on Cook Inlet natural gas as the principal fuel for electrical energy generation would no longer be possible. Further, substantial future need for electrical energy in the Railbelt has been forecasted.

The Susitna Hydroelectric Project is being considered as a means of both forestalling major price adjustments in the 1990's and of satisfying increased demand. There remain, however, a number of uncertainties about the economic and financial viability of the Susitna Project, primarily revolving around the future value of oil. Before a construction decision can be made for the Susitna Project, all reasonable alternatives must be adequately explored. One alternative not adequately evaluated in the recently completed Battelle

35a PROPOSED PROJECT

Northslope Gas Generation
Project Title

CATEGORY DEVELOPMENT

AGENCY ALASKA POWER AUTHORITY

PROGRAM ENERGY DEVELOPMENT

PROPOSED FUNDING YEAR FY 84

Revised Date

FY 84

PROJECT DESCRIPTION (CONTINUED):

of the gas for this purpose is fraught with institutional constraints which will also impact the viability of this project.

PROJECT JUSTIFICATION (CONTINUED):

Alternatives Study is the use of North Slope natural gas. Previous evaluations of this alternative presumed all North Slope gas would be dedicated to the Alaska Natural Gas Transportation System (ANGTS) for transport and utilization outside the Railbelt market area. It now appears ANGTS will experience substantial if not indefinite delay, thus making the gas resource potentially available for Railbelt utilization.

An initial assessment of this concept was mandated by legislative appropriation in FY 83. That reconnaissance level evaluation is being coordinated with related activities by a state task force and by a Governor-appointed citizen committee, both exploring state options for use of North Slope gas.

Proceeding with this feasibility study contingent upon favorable findings from the reconnaissance study presently underway and upon some indication that the gas will be available for this use at a sufficiently low price.

b. Neither the construction nor operating costs of this project are known at this point in time. The reconnaissance study will provide the initial estimate of construction costs. The estimate for feasibility study costs is based on Power Authority experience on similar activities.

c. The primary alternatives to this project are: 1) no state action with result that Railbelt utilities would be required to rely on their own efforts in pursuit of long-term supply options, 2) development of the Susitna Hydroelectric Project, 3) development of coal-fired power generation and 4) development of the Chakachamna Hydroelectric Project in concert with other options. Feasibility level studies will be required to gain enough knowledge about the North Slope gas alternative to be able to adequately compare it to these alternatives.

35b PROPOSED PROJECT (Continued)

Northslope Gas Gerneration
Project Title

CATEGORY DEVELOPMENT

AGENCY ALASKA POWER AUTHORITY

PROGRAM ENERGY DEVELOPMENT

PROPOSED FUNDING YEAR FY 84

Revised Date

FY 84

PROPOSED AMENDMENT TO SB 11 offered by Sen. Eliason

Add a new section to read:

Sec. ____. "The sum of $500,000 is appropriated to the Alaska Power Authority for completion of design work for the Kake-Petersburg intertie."

Kake

II. PRIORITIES NOT REQUIRING DIRECT FUNDING TO THE CITY

This section describes the seven priorities which do not require funds to be made available directly to the City. However, each of the projects described below is extremely important for the orderly development of the community, and for providing an improved standard of living. Each is described separately, and is listed in order of importance and priority.

II.A. Hydro-Electric Power Development - Kake-Petersburg Intertie

The single most critical need in Kake this year, as it has been for the past several years, is for more reliable and less expensive electrical power. All residential and commercial consumers are severely handicapped by having to pay 4 to 5 times as much for electricity as people pay in places like Juneau and Anchorage. During the past year the Alaska Power Authority (APA) completed a feasibility study for a project to connect Kake with a hydro-electric project serving Petersburg. The study concluded that the Kake-Petersburg Intertie is the most feasible long-term solution for electrical power in Kake. The City heartily endorses all efforts to bring that service to Kake as soon as possible, and strongly recommends that APA be appropriated funds this year to design the intertie so that construction can be coordinated with completion of the Tyee Lake Project. It should be noted that the design phase will require about $ 500,000, with actual construction estimated to cost $9,000,000 if the APA takes on the project. The City firmly believes that both the design and construction of the intertie can be done more quickly and at lower cost if the money is granted directly to the City, as evidenced by our projects last year.

The City of Kake clearly does not want to continue depending on diesel fuel for future electrical needs. This increasingly undependable and costly source of electricity is not suitable for Kake's future. Dependence on diesel fuel will continue to force Kake to use the State energy subsidy program. This program is costly to the state and the

City does not like this dependency, because if the program were to cease the Kake electricity bills would double almost immediately and vital city services would have to be curtailed.

Community leaders have expressed a strong preference for hydro power. They have stated they are willing to do what they can through local native corporation and other means to bring Tyee Lake hydro-power to Kake. The intertie project would enable all Kake residents to plan on a stable electricity supply. This stability is necessary for Kake's continued well being and growth. In addition, the intertie would help the entire Tyee Lake hydro system by providing another market for its power production.

For all of the reasons listed above, the City of Kake urges the Alaska Legislature and executive branch to support this important project.

rec. 4-15-83, 1pm SB 11

City of Kake

"HOME OF THE WORLD'S LARGEST TOTEM POLE"

P.O. BOX 500
KAKE, AK 99830
907-785-3804

April 14, 1983

The Honorable Betty Fahrenkamp
Chairman
Senate Resources Committee
Alaska State Capitol
Pouch V
Juneau, Alaska 99811

SUBJECT: Testimony on Proposed CS for SB-11, Relating to the Alaska Power Authority

Dear Chairman and Members of the Senate Resources Committee:

The residents of Kake have for years suffered through the shortcomings and cost of diesel-fired electric power. We do not wish for this to continue. We, and the State, now have the opportunity to end this dangerous dependence, but we need your help in the form of design funds for the Kake-Petersburg Electric Power Intertie project.

The original SB-11 included $545,000 to complete design details and prepare for construction of the Intertie. However, the proposed Committee Substitute before you does not include this project. We strongly hopethat you will reinsert these funds, so that this much-needed project can proceed without delay.

The Kake-Petersburg Power Irtertie project is much too feasible and important to be dropped. Not only will it provide another customer to purchase power from the Tyee Lake hydroelectric project which is nearing completion, but it will provide the least expensive and most reliable power that Kake could have. Even though the Alaska Power Authority has not yet completed its update of the project's feasibility study, we know enough already to conclude that the project will definitely be feasible and the most cost-effective long term power source for Kake. In addition to the cost effectiveness of the project, there are additional benefits which will be extremely important to Kake residents over the next 20-30 years. For instance,

1. Kake will have reliable hydroelectric power, rather than suffering through the chronic breakdowns and

brownouts which plague the current diesel-electric system;

2. Kake will no longer be dependent on foreign-supplied oil for power generation, which is becoming increasingly less stable and dependable. In effect, the Intertie will enable power costs to be relatively constant and known;

3. Kake residents will be charged between 18-22¢/kwh, depending on the outcome of the Tyee Lake appropriation request in the FY-84 budget. This is less than the subsidized cost passed on to the Kake customer at this time!

4. At some time in the future, the State power subsidy may no longer be available to rural communities. If this occurs, Kake residents will be subjected to the full power generation costs of approximately 37¢/kwh, if the diesel-electric power generation is continued. The 1982 Kake subsidy amounted to $248,824!

5. The availability of hydroelectric power will substantially improve the ability of Kake to develop and diversify the local economy. In contrast, the current system does not have the capacity, flexibility or reliability to assist this much-needed development.

We hope that you will give serious consideration to providing funds for the Kake-Petersburg Power Intertie. Kake needs this project and it is economically feasibible. We would be more than willing to provide any backup or additional information that you might need. This project is the single most important need for the City of Kake, and we sincerely hope that there will be no delay in its design and construction.

Sincerely yours,

Lonnie Anderson

Lonnie Anderson
Mayor

cc: The Honorable Senator Eliason
The Honorable Representative Goll

ALASKA RURAL ELECTRIC COOPERATIVE ASSOCIATION, INC.

237 E. FIREWEED LANE • SUITE 301
ANCHORAGE, ALASKA 99503 • (907) 276-3235

RECOMMENDED FY 84 APA CAPITAL BUDGET
(1,000)

Anchorage-Fairbanks Intertie Construction	$ 34,000
Susitna Studies and Licensing	22,000
Tyee Debt Service Assistance	2,000
Chakachamna Study	2,500
Black Bear Lake Design	1,200
Rural Reconnaissance Studies	1,000
Chester Lake Design and Construction	5,449
Kake-Petersburg Transmission Study	545
Lower Kuskokwim/Bristol Bay Feasibility	2,000
Unalaska Geothermal Study	2,000
Old Harbor Hydro Construction	3,915
King Cove Hydro Construction	4,780
Larson Bay Hydro Construction	3,617
Scammon Bay Hydro Construction	1,760
Pelican Hydro Construction	3,074
Rural Alternatives Studies	5,000
Cordova/Silver Lake Study	832
Hoonah-Juneau Transmission Study	1,400
Kotzebue Coal Study	1,000
Rural Electrification Loan Fund	2,500
	$100,572

DEMOCRACY IN ACTION

FY84 APA CAPITAL BUDGET (1,000.0)

Project Name	Original Request	Revised Request	Approved By APA Board	Governor's 1st Budget	Governor's 2nd Budget	Remarks
Anchorage-Fairbanks Intertie	$54,000.0	$54,000.0	$54,000.0	$44,000.0	-0-	Under const.
Susitna Hydroelectric Design & Studies	71,286.0	47,000.0	47,000.0	37,000.0	17,500.0	Continuing
Swan Lake Hydroelectric	35,000.0	-0-	-0-	-0-	-0-	Under const.
Tyee Lake Hydroelectric	50,000.0	-0-	-0-	-0-	-0-	Under const.
Terror Lake Hydroelectric	115,000.0	-0-	-0-	-0-	-0-	Under const.
North Slope Gas Feasibility Study	1,000.0	1,000.0	1,000.0	1,000.0	-0-	Being compl.
Chakachamna Feasibility Study	2,943.0	2,943.0	2,943.0	2,500.0	-0-	Continuing
Black Bear Lake Hydroelectric Design	8,311.0	8,311.0	1,200.0	-0-	-0-	Continuing
Bradley Lake Hydroelectric	30,520.0	200,000.0	46,380.0	32,000.0	-0-	Scope/design being reviewed
Rural Reconnaissance Studies	1,275.0	1,275.0	1,275.0	1,000.0	-0-	Continuing
Chester Lake Hydroelectric	5,449.0	13,750.0	5,449.0	5,449.0	-0-	New const.
Kake-Petersburg Transmission Line Study	9,500.0	545.0	545.0	-0-	-0-	New study
Lower Kuskokwim Feasibility Study	2,725.0	2,725.0	2,725.0	1,000.0	-0-	Continuing
Unalaska Geothermal Power Dev. Study	3,500.0	3,500.0	3,500.0	2,000.0	-0-	Continuing
Old Harbor Hydroelectric	4,120.0	3,915.0	3,915.0	Note [1]	-0-	New const./small hydro
King Cove Hydroelectric	4,574.0	4,780.0	4,780.0	7,000.0[1]	-0-	New const./small hydro
Larson Bay Hydroelectric	3,493.0	3,617.0	3,617.0	Note [1]	-0-	New const./small hydro
Scammon Bay Hydroelectric	1,778.0	1,760.0	1,760.0	Note [1]	-0-	New const./small hydro
Rural Alternatives	5,00.0	5,000.0	5,000.0	4,000.0	-0-	New const./waste heat & wind
Cordova/Silver Lake Study	7,000.0	832.0	832.0	832.0	-0-	Continuing
Hoonah/Juneau Intertie Study	1,205.0	1,432.0	-0-	-0-	-0-	New study
Kotzebue Coal-Fired Generation	3,050.0	3,050.0	3,050.0	1,000.0	-0-	Continuing
Bristol Bay Regional Plan	1,635.0	1,635.0	1,635.0	1,000.0	-0-	Continuing
Grant Lake Hydroelectric Study	3,400.0	-0-	-0-	-0-	-0-	Completed draft
West Creek Design Study	500.0	-0-	-0-	-0-	-0-	Updating draft
Reynolds Creek Feasibility Study	491.0	-0-	-0-	-0-	-0-	
Tenakee and Chignik Hydroelectric	13,000.0	-0-	-0-	-0-	-0-	New const./small hydro
Pelican Hydroelectric	2,990.0	3,074.0	3,074.0	-0-	-0-	New const./replace damaged plant
	$442,745.0	$364,144.0	$193,680.0	$140,781.0	$17,500.0	
Loan Funds						
Power Development	-0-	$25,000.0	$25,000.0	-0-	-0-	
Rural Electrification Revolving	2,500.0	2,500.0	2,500.0	1,000.0	-0-	
	$2,500.0	$27,500.0	$27,500.0	$1,000.0	-0-	

[1] Governor's budget combined these four projects and provided a total of $7 million with remainder to be financed.

Resource Development Council for Alaska, Inc.

444 West 7th Avenue, Anchorage, Alaska 99501
Box 100516, Anchorage, Alaska 99510 — 907/278-9615

May 27, 1983

MAY 3 1 1983

Senator Jalmar Kerttula
Alaska State Legislature
Pouch V, Mail Stop 3100
Juneau, Alaska 99811

Dear Senator Kerttula:

As you know, the Resource Development Council has supported State funding for the construction of the electrical power transmission intertie between Fairbanks and Anchorage as a priority project.

On the 18th of May, 1983 the Executive Committee of the Council adopted the enclosed resolution supporting funding of intertie construction. We are forwarding our resolution for your consideration.

We believe very strongly that the benefits to be accrued to all citizens of Alaska from the intertie construction make it one of the most valuable means by which the State can provide for the wellbeing of our citizens. Your support in ensuring rapid completion of this project that is so vital to our entire state is appreciated by the Council.

Sincerely,

RESOURCE DEVELOPMENT COUNCIL
for Alaska, Inc.

Chuck Webber, President

enclosure

cc: senators

CW/cr

Resource Development Council
Energy Committee
May 18, 1983

Subject: Anchorage-Fairbanks (Railbelt Transmission)
Intertie Project

WHEREAS the railbelt transmission intertie would benefit three-quarters of the population of Alaska, and

WHEREAS power pooling and the exchange of economy power have been a long sought goal of the electric utilities from Fairbanks to Homer, and

WHEREAS delay or non-completion of this transmission line would cloud and make power planning efforts much more difficult, and

WHEREAS this intertie will result in greatly improving the power supply reliability, and

WHEREAS the project would significantly enhance cooperative endeavors among the railbelt communities,

BE IT THEREFORE RESOLVED that the Resource Development Council supports the continued State funding of the Railbelt Transmission Intertie Project between Anchorage and Fairbanks for a total of $25,000,000 in FY-84.

Copies of this resolution shall be sent to all members of the Alaska State House of Representatives, the Alaska State Senate and the Office of the Governor.

ANALYSIS OF
VOLTAGE DROP AND ENERGY LOSSES

PREPARED FOR:
CITY OF SEWARD
SEWARD ALASKA

OCTOBER, 1982

BY:
DWANE LEGG ASSOCIATES
7526 OLD HARBOR RD.
ANCHORAGE, ALASKA 99504
PHONE 337-2303

INDEX

I. INTRODUCTION

This report is presented in response to purchase order 7463 from the City of Seward. The report is not intended to be an exhaustive original work, but rather a summary of and careful analysis of existing information, together with brief projections of future conditions.

The City of Seward is experiencing brownout (low voltage) problems during periods of peak load. This is not a new problem. It is addressed in detail in the "City of Seward Electric System Planning Study" by CH2M Hill, Inc., August, 1979.

Considerable new commercial/industrial construction is underway in Seward. More is in advanced planning/design stages and should appear as new electrical loads in the very near future. These new loads along with normal load growth will further aggravate existing problems.

Chugach Electric Association (CEA) provides power at wholesale to the City of Seward via a 14.4/24.9 kV line from Daves Creek to Lawing, a distance of approximately 16 miles. The City of Seward owns a 69 kV line, operated at 14.4/24.9 kV, from Lawing to Seward, A distance of 18 miles. The City of Seward supplies several consumers from this line before it reaches Seward. At the outskirts of Seward, the voltage is reduced to 7.2/12.5 kV for additional distribution.

Seward owns two 1500 kW and one 2500 kW diesel-generators. During periods of peak load these generators are operated in order to maintain proper voltage levels at Seward.

When supply voltage at Lawing is increased even to 130 V on a 120 Volt base, the voltage at Seward is 110 V or below during peak loads.

When a CEA outage occurs, the supply from CEA is opened and the Seward generators supply the Seward Load. When the CEA supply is re-established, the CEA no-load voltage is too high to close the tie.

II. LOAD HISTORY AND PROJECTIONS

Historical kW demand and kWh consumption information was obtained from utility records and from previous engineering studies. This information indicates that consumption grew at an annual rate of 10% per year from 1967 through 1981. Data for the first 8 months of 1982 indicates that consumption in 1982 will probably be about 14% above 1981.

Peak demand grew at an average rate of 10.6 percent from 1967 through 1978, experienced an unusually high value of 6697 kW in 1979, and has remained at slightly above 5000 kW since 1980. Since 1980, demand has been relatively stable, growing at less than 5% per year. It is most probable that the 1982 peak will be in the range of 5200-5600 kW. It should be noted that the indicated peak load values are at the CEA metering point at Lawing. Seward generators are used to shave the peak, therefore peak load values are actually higher than the indicated values by an unknown amount.

A number of major new loads are under construction or planned for the very near future. The most prominent are listed below.

DESCRIPTION	STATUS	LOAD
State grain terminal	Being constructed	500-1000 kW
AVTEC Student Center	Construction/Design	300-500 kW
Fourth of July Shiplift	Being constructed	500-1000kW
Fourth of July Industrial	Planned	1000-2000kW
Reactivate Lumber Mill	Uncertain	500kW

Total		2300-5000kW

These loads will be in addition to normal growth, and will likely spur additional growth in residential and light commercial sectors as well.

Figures 1 and 2 are graphs indicating historical peak load and consumption, as well as several possible future growth rates. Based upon historical information and known load additions, it is only remotely possible that load growth will be as low as 5%. However, even ignoring the peak shaving by Seward generation, peak load will be 6000kW by 1985. If 10% growth is realized, peak load will be 7800 kW by 1985. Further analysis in this report will be based upon the top curve of 20% growth through 1983, and 10% thereafter. If, in fact, peak loads during 1980 and 1981 have been artificially depressed by peak shaving, even these projections could be low.

The magnitude of these voltage drops and energy loss

problems are so imminent and so drastic in nature that immediate corrective action is needed.

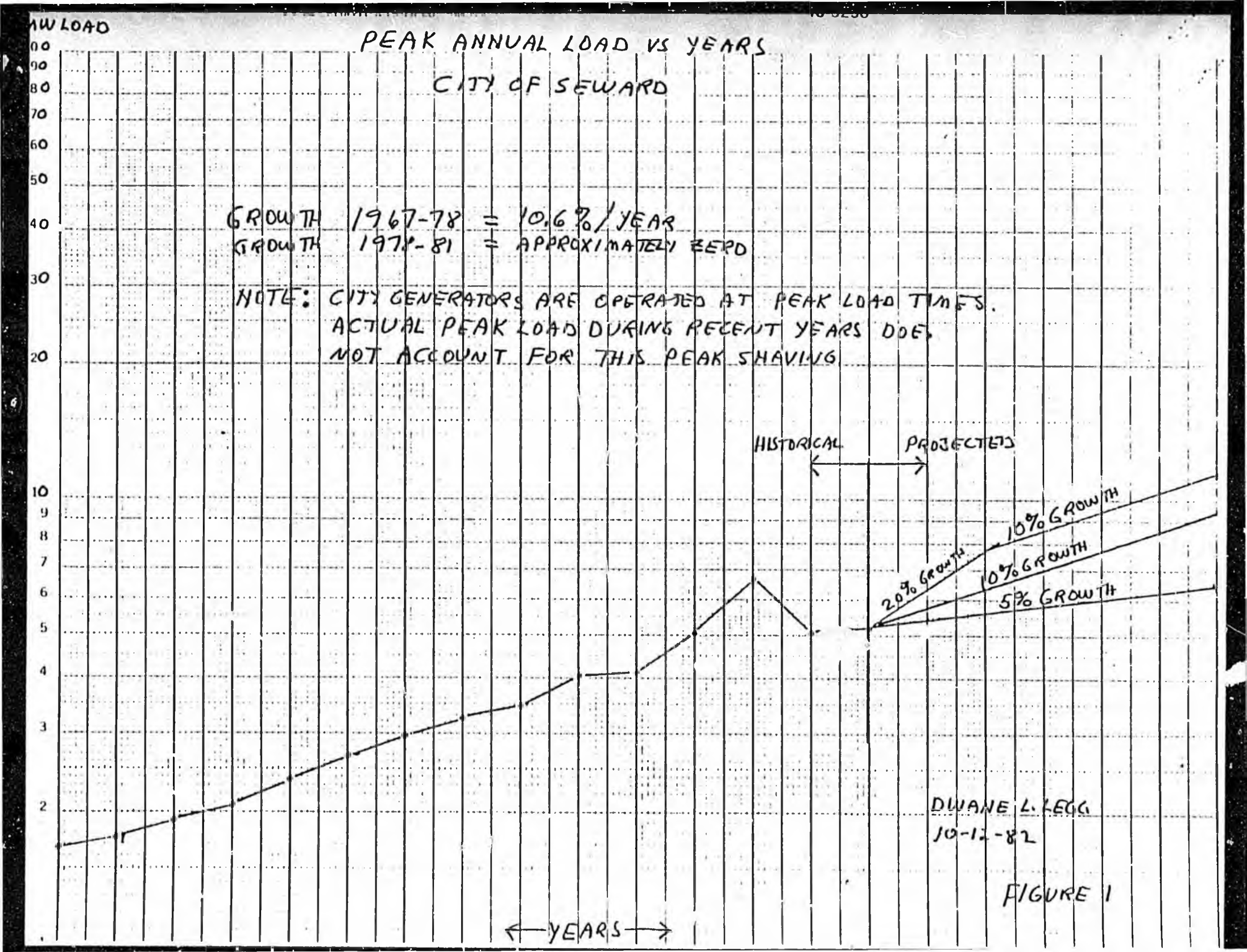
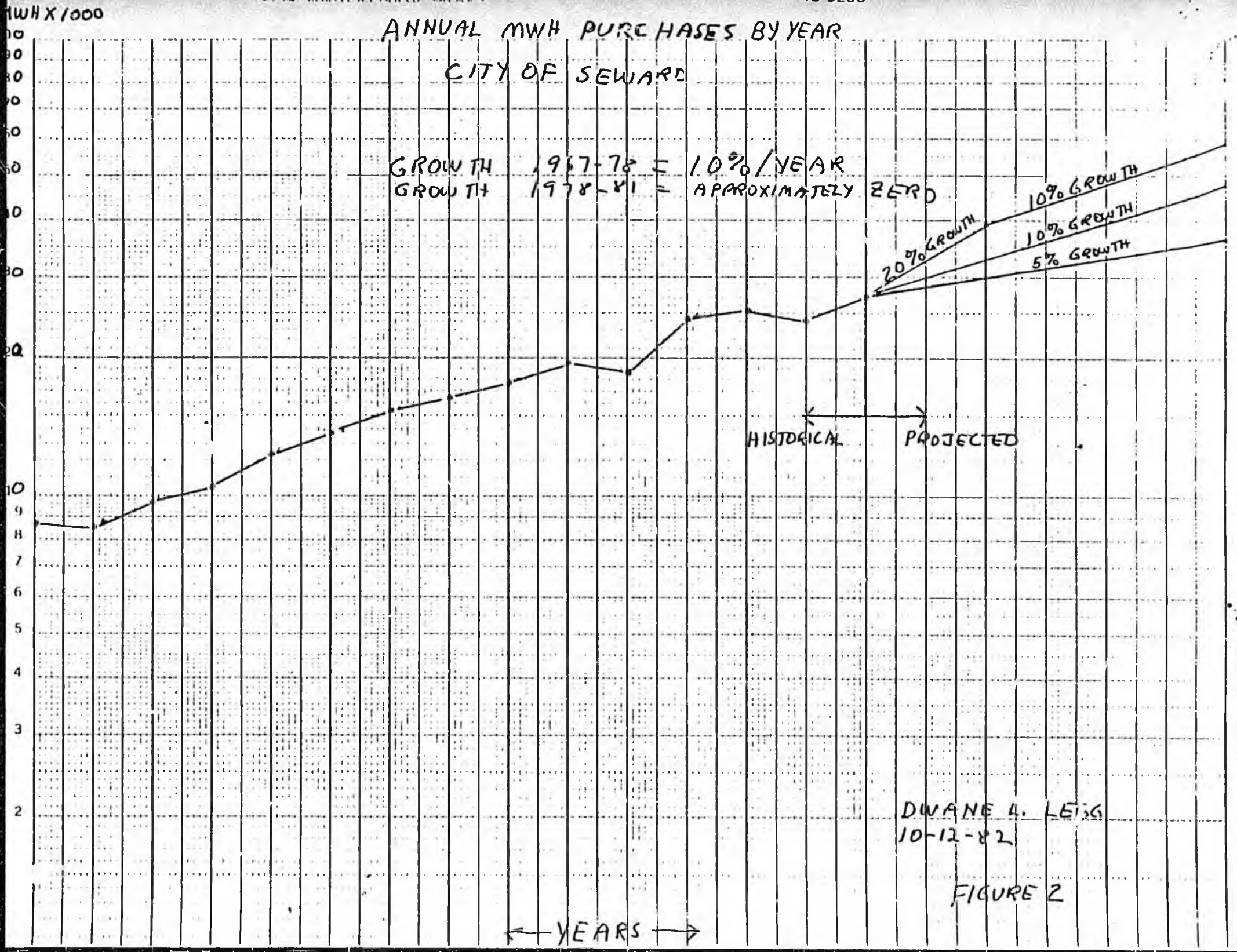

MW LOAD
PEAK ANNUAL LOAD VS YEARS
CITY OF SEWARD
GROWTH 1967-78 = 10.6%/YEAR
GROWTH 1978-81 = APPROXIMATELY ZERO
NOTE: CITY GENERATORS ARE OPERATED AT PEAK LOAD TIMES. ACTUAL PEAK LOAD DURING RECENT YEARS DOES NOT ACCOUNT FOR THIS PEAK SHAVING
HISTORICAL
PROJECTED
20% GROWTH
10% GROWTH
10% GROWTH
5% GROWTH
YEARS
DUANE L. LEGG
10-12-82

FIGURE 1



DUANE A. LEIG
10-12-82

FIGURE 2

III. VOLTAGE DROP AND ENERGY LOSS

Voltage drop and energy loss calculations were performed for a range of loads from 4 to 20 mW for three configurations. Table 1 is for the present configuration, table 2 is for operation of the line from Daves Creek to Seward at 69 kV, and table 3 is for operation of the line at 115 kV. All cases assume unit voltage at Daves Creek. Adding 5% boost at Daves Creek, at Lawing, and at Seward substation will increase the supply voltage at Seward by 15%, but losses will remain approximately the same.

Table 4 is a summary of expected load, service voltage conditions, and energy losses through 1990.

TABLE 1

VOLTAGE DROP AND ENERGY LOSSES
EXISTING SYSTEM

CALCULATED AT .90 POWER FACTOR
1000 KW LOAD AT MOOSE PASS

KW LOAD SEWARD	---PU VOLTAGE-- LAWING	SEWARD	--------ANNUAL MWH LOSSES---- D.C-LAWING	LAWING-SEWARD	TOTAL
4000	.899	.806	1413	1081	2494
5000	.883	.771	2063	1690	3753
6000	.867	.738	2839	2433	5272
7000	.853	.708	3738	3312	7050
8000	.840	.680	4761	4326	9087
9000	.827	.654	5909	5476	11385
10000	.816	.630	7179	6760	13939
11000	.805	.608	8574	8180	16754
12000	.795	.587	10092	9735	19827
13000	.786	.567	11735	11425	23160
14000	.778	.549	13502	13251	26753
15000	.769	.532	15392	15211	30603
16000	.762	.515	17407	17307	34714
17000	.754	.500	19545	19538	39083
18000	.748	.485	21808	21905	43713
19000	.741	.472	24194	24406	48600
20000	.735	.459	26703	27043	53746

TABLE 2

VOLTAGE DROP AND ENERGY LOSSES
69 kV OPERATION

CALCULATED AT .90 POWER FACTOR
1000 KW LOAD AT MOOSE PASS
69kV, 556.5 MCM ACSR, TP-69 CONSTRUCTION DAVES CREEK-LAWING
EXISTING LINE LAWING-SEWARD

KW LOAD	---PU VOLTAGE--		---------ANNUAL MWH LOSSES---------		
SEWARD	LAWING	SEWARD	D.C-LAWING	LAWING-SEWARD	TOTAL
4000	.992	.977	50	141	191
5000	.990	.972	74	220	294
6000	.988	.967	103	318	421
7000	.987	.962	136	432	568
8000	.985	.956	174	565	739
9000	.983	.951	215	715	930
10000	.981	.946	262	883	1145
11000	.980	.941	313	1068	1381
12000	.978	.936	369	1272	1641
13000	.976	.931	429	1492	1921
14000	.975	.926	494	1731	2225
15000	.973	.921	563	1987	2550
16000	.971	.917	637	2261	2898
17000	.970	.912	715	2552	3267
18000	.968	.907	798	2862	3660
19000	.967	.902	885	3188	4073
20000	.965	.898	977	3533	4510

TABLE 3

VOLTAGE AND ENERGY LOSSES
115 kV OPERATION

CALCULATED AT .90 POWER FACTOR
1000 KW LOAD AT MOOSE PASS
115 KV, 336 MCM ACSR, TH1A STRUCTUES

KW LOAD SEWARD	---PU VOLTAGE-- LAWING	SEWARD	--------ANNUAL MWH LOSSES-------- D.C-LAWING	LAWING-SEWARD	TOTAL
4000	.997	.992	18	50	68
5000	.996	.990	26	79	105
6000	.996	.988	37	114	151
7000	.995	.986	48	155	203
8000	.995	.984	62	203	265
9000	.994	.982	77	257	334
10000	.993	.980	93	318	411
11000	.993	.978	112	384	496
12000	.992	.976	132	457	589
13000	.991	.974	154	537	691
14000	.991	.973	178	623	801
15000	.990	.971	202	715	917
16000	.990	.969	228	814	1042
17000	.989	.967	257	919	1176
18000	.988	.965	287	1030	1317
19000	.988	.963	318	1148	1466
20000	.987	.961	351	1272	1623

TABLE 4

PROJECTED CONDITIONS

YEAR	LOAD	SERVICE VOLTAGE-P.U.			-----LOSSES-MWH----		
	MW	24.9kV	69kV	115kV	24.9kV (1)	69kV (1)	115kV (2)
1982	6.4	.73	.96	.98	2784	364	172
1983	7.7	.69	.95	.98	4022	525	246
1984	8.5	.67	.95	.98	4901	640	303
1985	9.3	.65	.95	.98	5861	765	357
1986	10.3	.62	.94	.98	7186	939	437
1987	11.3	.60	.94	.98	8647	1129	524
1988	12.4	.58	.93	.98	10411	1360	630
1989	13.6	.56	.93	.97	12521	1635	757
1990	15.0	.53	.92	.97	15211	1987	917

(1) Losses from Lawing to Seward

(2) Losses from Daves Creek to Seward, assumming the metering point is moved to Daves Creek

IV. POSSIBLE COURSES OF ACTION

Several possible courses of action are available. They are listed below and discussed in brief detail.

1. CONTINUE AS AT PRESENT. This alternative will continue to produce substandard service voltages and high energy losses. It will be mandatory that the Seward generators be operated at peak-load times to prevent voltage levels from dipping to completely unacceptable levels. As system load continues to grow, it will be necessary to operate the generators more hours each month which will cause fuel and operating costs to rise.

2. ADD POWER FACTOR CORRECTING CAPACITORS. Correcting power factor with capacitors will cause a measurable but not significant increase in voltage level, and decrease in energy losses. This would at best be only a temporary patch.

3. ADD AUTOMATIC VOLTAGE REGULATORS. This also would be a temporary fix. It would be possible, by installing a sufficient number of regulators, to provided proper levels of service voltage, but losses would continue to mount. The ultimate limitation will be the 16 mVA rating of the 4/0 transmission conductor at 24.9 kV

4. CONVERT TO 69 kV TRANSMISSION VOLTAGE. This would be implemented by operating the existing line from Lawing to Seward at 69 kV and by building a new 69 kV line from Daves Creek to Lawing or converting the existing one. It would provide a good solution for now and the near future.

However, by the time the system load reaches 15-20 mW (1990-1995), voltage drop and energy losses will again become of concern.

5. CONVERT TO 115 kV TRANSMISSION VOLTAGE. This would require rebuilding or replacing the total line from Daves Creek to Seward. It would accommodate 10% per year load growth for up to 30 years.

6. COMBINATION 115/69 kV TRANSMISSION. This would require a new 115 kV line from Daves Creek to Lawing, a 115-69 kV substation at Lawing, and operation of the existing line from Lawing to Seward at 69 kV. It would hold down immediate construction costs, but it would still be necessary to convert to 115 kV from Lawing to Seward within a few (say 5) years.

V. ANALYSIS

Seward is experiencing approximately 20% system energy loss. The losses appear to be split approximately evenly between the distribution system and the 24.9kV transmission system. At the present wholesale rate of 2.5 cents per kwh, the losses in the transmission system have a real cost of $64,000 per year. The cost of these losses will increase many fold during the next few years as a result of increased consumption and wholesale rate increases. Any of the possible actions to reduce voltage drop will also reduce system losses, but not sufficiently to pay for the improvements. The improvements will represent a cost which is made necessary by the requirement to maintain acceptable system voltages.

Options 1, 2 and 3 are not considered for further analysis, as they do not provide a lasting solution to the problem. Option, 4, convert to 69 kV, would provide relief for a few years. However, it would require a major expenditure to upgrade the Daves Creek-Lawing line to 69 kV and that would soon be inadequate. Therefore the final analysis is a comparison of option 5, convert to 115 kV, and option 6, use a combination of 69 kV and 115 kV.

Option 5, convert 115 kV will require the following approximate expenditures:

1983-84

34 miles 115 kV line at $400,000/mi	$13,600,000
20 mVA 115kV substation at Seward	200,000
115kV tap at Daves Creek	100,000
Local 12.5 or 24.9 kV underbuild	240,000
Total	$14,140,000

Option 6, operate at 115/69 kV will require the following approximate expenditures:

1983-84 Expenditures

16 mi 115kV, Daves Creek-Lawing at $400,000	$6,400,000
20 mVA 115kV to 69/24.9 kV sub at Lawing	200,000
115 kV tap at Daves Creek	100,000
Local 12.5 or 24.9 kV underbuild	240,000
Total 1983-84	$6,940,000

1988-89 Expenditures (1983-84 dollars)

18 miles 115 kV, (Lawing-Seward) at $400,000	$7,200,000
Relocate 115 kV sub from Lawing to Seward	100,000
Total 1988-89	$7,300,000

Cost of debt service will vary, depending upon the interest rate and length of loan. The following factors, multiplied by the amount of the loan, will approximate the annual repayment amount for the terms and rates indicated.

TERM/RATE	6%	8%	10%	12%	15%
15 years	.10296	.11683	.13147	.14682	.17102
20 years	.08718	.10185	.11746	.13388	.15976
25 years	.07823	.09368	.11017	.12750	.15470
30 years	.07265	.08883	.10608	.12414	.15230

Using, for example, a factor of 0.10608 for 10%, 30 years, the repayment schedule for option 5 will be $1,500,000 per year. It would require an average retail rate increase of about $0.038/kWh in 1983 to pay the debt service. In later years, as kWH consumption increases, the cost would be spread over the larger number of kwh and would be less per kWH.

Using this same factor, the repayment schedule for option 6 would be $736,000 per year from 1983-87 and $1,511,000 beyond 1988. This would require a retail rate increase of $0.019/kwh in 1983 and an additional $0.005/kWh in 1988.

These analysis are all based upon constant 1983-84 dollars.

VI. CONCLUSION AND RECOMMENDATIONS

The City of Seward should immediately proceed with detailed engineering analysis/design for transmission system improvements, and should immediately investigate methods of financing construction.

This engineer's recommendation, based upon only a brief study and subject to verification by a more detailed study, is that option 6 be implemented. This would construct in 1983-84 a 115 kV line from Daves Creek to Lawing, a 115 kV to 69/24.9 kV substation at Lawing, convert the line from Lawing to Seward to 69 kV, and build local 12.5 or 24.9 kV underbuild as required on the line from Lawing to Seward. In 1988-89 the line from Lawing to Seward would be converted to 115 kV and the 115 kV to 69/24.9 kV substation would be relocated to Seward.

This plan will require an approximate retail rate increase of $0.019/kwh in 1983 and an additionl $0.005 in 1988.

DWANE LEGG ASSOCIATES (907) 337-2303
7526 OLD HARBOR ROAD, ANCHORAGE, ALASKA 99504

January 31, 1983

Mr. Ron Garzini, City Manager
City of Seward
P.O. Box 167
Seward, Alaska 99664

Subj: Transmission Line loan

Dear Mr. Garzini:

Enclosed per your request are some computer generated tables which will enable you to make a rapid evaluation of numerous loan payback possibilities for the proposed Daves Creek to Seward transmission line. The tables are prepared for two consumption levels. Case I, the lower level, represents a projection based upon historical growth. Case II, the higher level, represents an increased load level due to the many projects planned or under construction in seward. These two cases represent the upper two curves in Figure 2 of our October report.

The accompanying charts are to be used as follows:

1. For a given loan amount, term, and interest rate, find the annual repayment amount in millions of dollars from Table I. For instance, on a work copy I have indicated that the repayment schedule for a $14,000,000, 30 year, 10% loan will be $1,493,000 per year.

2. Use Table II for lower consumption rate or table III for higher consumption rate to determine the added cost in cents/kWh to meet the annual repayment requirements determined in step 1. For instance, Table II indicates that at the lower consumption level it would be necessary to add 45.5 cents per kWh to existing rates to cover a $1,500,000 annual repayment. At the higher consumption rate it would be necessary to add 38.5 cents per kWh to existing rates to cover a $1,500,000 annual repayment. Note that in later years as energy consumption increases, the added cost per kWh will become less.

This same exercise can be conducted for any other loan values, terms, etc. within the range of the tables. Interpolation may be used for intermediate values.

I believe this will give you the tools you need to make quick analyses of various plans. If we can give more specific help in any area we will be glad to do so.

Sincerely,

Dwane L. Legg

Dwane L. Legg, P.E.

encl.
dll/al

TABLE I

CITY OF SEWARD POWER LINE CONSTRUCTION
REPAYMENT SCHEDULE IN MILLIONS OF DOLLARS PER YEAR

ANNUAL INTEREST RATE (%)		4	6	8	10	12	15	18
$8,000,000	15 YEAR LOAN	.72	.82	.93	1.05	1.17	1.37	1.57
$8,000,000	20 YEAR LOAN	.59	.70	.81	.94	1.07	1.28	1.49
$8,000,000	25 YEAR LOAN	.51	.63	.75	.88	1.02	1.24	1.46
$8,000,000	30 YEAR LOAN	.46	.58	.71	.85	.99	1.22	1.45
$9,000,000	15 YEAR LOAN	.81	.93	1.05	1.18	1.32	1.54	1.77
$9,000,000	20 YEAR LOAN	.66	.78	.92	1.06	1.20	1.44	1.68
$9,000,000	25 YEAR LOAN	.58	.70	.84	.99	1.15	1.39	1.65
$9,000,000	30 YEAR LOAN	.52	.65	.80	.95	1.12	1.37	1.63
$10,000,000	15 YEAR LOAN	.90	1.03	1.17	1.31	1.47	1.71	1.96
$10,000,000	20 YEAR LOAN	.74	.87	1.02	1.17	1.34	1.60	1.87
$10,000,000	25 YEAR LOAN	.64	.78	.94	1.10	1.27	1.55	1.83
$10,000,000	30 YEAR LOAN	.58	.73	.89	1.06	1.24	1.52	1.81
$11,000,000	15 YEAR LOAN	.99	1.13	1.29	1.45	1.62	1.88	2.16
$11,000,000	20 YEAR LOAN	.81	.96	1.12	1.29	1.47	1.76	2.06
$11,000,000	25 YEAR LOAN	.70	.86	1.03	1.21	1.40	1.70	2.01
$11,000,000	30 YEAR LOAN	.64	.80	.98	1.17	1.37	1.68	1.99
$12,000,000	15 YEAR LOAN	1.08	1.24	1.40	1.58	1.76	2.05	2.36
$12,000,000	20 YEAR LOAN	.88	1.05	1.22	1.41	1.61	1.92	2.24
$12,000,000	25 YEAR LOAN	.77	.94	1.12	1.32	1.53	1.86	2.20
$12,000,000	30 YEAR LOAN	.69	.87	1.07	1.27	1.49	1.83	2.18
$13,000,000	15 YEAR LOAN	1.17	1.34	1.52	1.71	1.91	2.22	2.55
$13,000,000	20 YEAR LOAN	.96	1.13	1.32	1.53	1.74	2.08	2.43
$13,000,000	25 YEAR LOAN	.83	1.02	1.22	1.43	1.66	2.01	2.38
$13,000,000	30 YEAR LOAN	.75	.94	1.15	1.38	1.61	1.98	2.36
$14,000,000	15 YEAR LOAN	1.26	1.44	1.64	1.84	2.06	2.39	2.75
$14,000,000	20 YEAR LOAN	1.03	1.22	1.43	1.64	1.87	2.24	2.62
$14,000,000	25 YEAR LOAN	.90	1.10	1.31	1.54	1.78	2.17	2.56
$14,000,000	30 YEAR LOAN	.81	1.02	1.24	1.49	1.74	2.13	2.54
$15,000,000	15 YEAR LOAN	1.35	1.54	1.75	1.97	2.20	2.57	2.95
$15,000,000	20 YEAR LOAN	1.10	1.31	1.53	1.76	2.01	2.40	2.80
$15,000,000	25 YEAR LOAN	.96	1.17	1.41	1.65	1.91	2.32	2.74
$15,000,000	30 YEAR LOAN	.87	1.09	1.33	1.59	1.86	2.28	2.72
$16,000,000	15 YEAR LOAN	1.44	1.65	1.87	2.10	2.35	2.74	3.14
$16,000,000	20 YEAR LOAN	1.18	1.39	1.63	1.88	2.14	2.56	2.99
$16,000,000	25 YEAR LOAN	1.02	1.25	1.50	1.76	2.04	2.48	2.93
$16,000,000	30 YEAR LOAN	.93	1.16	1.42	1.70	1.99	2.44	2.90

PREPARED BY DWANE LEGG ASSOCIATES
7526 OLD HARBOR RD
ANCHORAGE, ALASKA 99504
JAN. 31, 1983

TABLE II

CITY OF SEWARD
TRANSMISSION LINE AMORTIZATION

CASE I--LOWER CONSUMPTION RATE

YEAR	1983	1984	1985	1986	1987	1988	1989	1990
MWH /YEAR	33.0	36.3	39.9	43.9	48.3	53.1	58.5	64.3
ANNUAL PAYMENT				COST, CENTS/KWH SOLD				
$500,000	15.2	13.8	12.5	11.4	10.3	9.4	8.6	7.8
$600,000	18.2	16.5	15.0	13.7	12.4	11.3	10.3	9.3
$700,000	21.2	19.3	17.5	15.9	14.5	13.2	12.0	10.9
$800,000	24.2	22.0	20.0	18.2	16.6	15.1	13.7	12.4
$900,000	27.3	24.8	22.5	20.5	18.6	16.9	15.4	14.0
$1,000,000	30.3	27.5	25.0	22.8	20.7	18.8	17.1	15.6
$1,100,000	33.3	30.3	27.5	25.0	22.8	20.7	18.8	17.1
$1,200,000	36.4	33.1	30.1	27.3	24.8	22.6	20.5	18.7
$1,300,000	39.4	35.8	32.6	29.6	26.9	24.5	22.2	20.2
$1,400,000	42.4	38.6	35.1	31.9	29.0	26.3	23.9	21.8
$1,500,000	45.5	41.3	37.6	34.2	31.0	28.2	25.7	23.3
$1,600,000	48.5	44.1	40.1	36.4	33.1	30.1	27.4	24.9
$1,700,000	51.5	46.8	42.6	38.7	35.2	32.0	29.1	26.4
$1,800,000	54.5	49.6	45.1	41.0	37.3	33.9	30.8	28.0
$1,900,000	57.6	52.3	47.6	43.3	39.3	35.8	32.5	29.5
$2,000,000	60.6	55.1	50.1	45.5	41.4	37.6	34.2	31.1
$2,100,000	63.6	57.9	52.6	47.8	43.5	39.5	35.9	32.7
$2,200,000	66.7	60.6	55.1	50.1	45.5	41.4	37.6	34.2
$2,300,000	69.7	63.4	57.6	52.4	47.6	43.3	39.3	35.8
$2,400,000	72.7	66.1	60.1	54.6	49.7	45.2	41.1	37.3
$2,500,000	75.8	68.9	62.6	56.9	51.7	47.0	42.8	38.9
$2,600,000	78.8	71.6	65.1	59.2	53.8	48.9	44.5	40.4
$2,700,000	81.8	74.4	67.6	61.5	55.9	50.8	46.2	42.0
$2,800,000	84.8	77.1	70.1	63.7	58.0	52.7	47.9	43.5
$2,900,000	87.9	79.9	72.6	66.0	60.0	54.6	49.6	45.1
$3,000,000	90.9	82.6	75.1	68.3	62.1	56.4	51.3	46.7

PREPARED BY DWANE LEGG ASSOCIATES
7526 OLD HARBOR RD.
ANCHORAGE, ALASKA 99504
PHONE 907-337-2303
JAN. 31, 1983

TABLE III

CITY OF SEWARD
TRANSMISSION LINE AMORTIZATION

CASE II--HIGHER CONSUMPTION RATE

YEAR	1983	1984	1985	1986	1987	1988	1989	1990
MWH /YEAR	39.0	42.9	47.2	51.9	57.1	62.8	69.1	76.0
ANNUAL PAYMENT	COST, CENTS/KWH SOLD							
$500,000	12.8	11.7	10.6	9.6	8.8	8.0	7.2	6.6
$600,000	15.4	14.0	12.7	11.6	10.5	9.6	8.7	7.9
$700,000	17.9	16.3	14.8	13.5	12.3	11.1	10.1	9.2
$800,000	20.5	18.6	17.0	15.4	14.0	12.7	11.6	10.5
$900,000	23.1	21.0	19.1	17.3	15.8	14.3	13.0	11.8
$1,000,000	25.6	23.3	21.2	19.3	17.5	15.9	14.5	13.2
$1,100,000	28.2	25.6	23.3	21.2	19.3	17.5	15.9	14.5
$1,200,000	30.8	28.0	25.4	23.1	21.0	19.1	17.4	15.8
$1,300,000	33.3	30.3	27.5	25.0	22.8	20.7	18.8	17.1
$1,400,000	35.9	32.6	29.7	27.0	24.5	22.3	20.3	18.4
$1,500,000	38.5	35.0	31.8	28.9	26.3	23.9	21.7	19.7
$1,600,000	41.0	37.3	33.9	30.8	28.0	25.5	23.2	21.1
$1,700,000	43.6	39.6	36.0	32.7	29.8	27.1	24.6	22.4
$1,800,000	46.2	42.0	38.1	34.7	31.5	28.7	26.1	23.7
$1,900,000	48.7	44.3	40.3	36.6	33.3	30.3	27.5	25.0
$2,000,000	51.3	46.6	42.4	38.5	35.0	31.8	28.9	26.3
$2,100,000	53.8	49.0	44.5	40.5	36.8	33.4	30.4	27.6
$2,200,000	56.4	51.3	46.6	42.4	38.5	35.0	31.8	28.9
$2,300,000	59.0	53.6	48.7	44.3	40.3	36.6	33.3	30.3
$2,400,000	61.5	55.9	50.9	46.2	42.0	38.2	34.7	31.6
$2,500,000	64.1	58.3	53.0	48.2	43.8	39.8	36.2	32.9
$2,600,000	66.7	60.6	55.1	50.1	45.5	41.4	37.6	34.2
$2,700,000	69.2	62.9	57.2	52.0	47.3	43.0	39.1	35.5
$2,800,000	71.8	65.3	59.3	53.9	49.0	44.6	40.5	36.8
$2,900,000	74.4	67.6	61.5	55.9	50.8	46.2	42.0	38.2
$3,000,000	76.9	69.9	63.6	57.8	52.5	47.8	43.4	39.5

PREPARED BY DWANE LEGG ASSOCIATES
/526 OLD HARBOR RD.
ANCHORAGE, ALASKA 99504
PHONE 907-337-2303

CITY OF SEWARD

SEWARD, ALASKA 99664

February 10, 1983

City Manager 224-5214
City Clerk 224-5213
Finance 224-5216
Police 224-5201
Harbor [illegible]
Utility Information [illegible]

MEMORANDUM

TO: RON GARZINI, CITY MANAGER

FROM: JOSEPH GALE, FINANCE DIRECTOR

SUBJECT: POTENTIAL CONSUMER COST REQUIRED FOR REPAYMENT OF $14,000,000 LOAN AT VARIED INTEREST RATES, OVER A 30 YEAR PERIOD.

The schedule set out below is based on information from tables provided by Dwane Legg Associates, of Anchorage, Alaska, dated January 31, 1983.

ANNUAL INTEREST RATE	REPAYMENT PER YEAR	COST, CENTS/KWH SOLD RANGE CONSUMPTION RATE		INCREASED COST RATIO TO CONSUMERS	
		LOW	HIGH	LOW	HIGH
10%	$1,490,000	45.5¢	38.5¢	7.937	6.601
8%	1,240,000	37.9¢	31.8¢	6.498	5.452
6%	1,020,000	30.9¢	26.1¢	5.298	4.475
4%	810,000	27.6¢	20.7¢	4.732	3.549

By applying the ratios of the schedule column headed Increased Cost Ratio to Consumer/Low - High, to a consumer, using sufficient electrical power for an average monthly billing of $100.00 at current Seward rates, the following schedule illustrates the increased average monthly billing.

The current Seward rate is .0512 per KWH plus a surcharge of .007127 per KWH for residential consumers.

INCREASE COST RATIO TO CONSUMER		CURRENT AVERAGE BILLING	INCREASED AVERAGE BILLING	
LOW	HIGH		LOW	HIGH
7.937	6.601	$100	$793.70	$660.10
6.498	5.452	100	649.80	545.20
5.298	4.475	100	529.80	447.50
4.732	3.549	100	473.20	354.90

TABLE I

CITY OF SEWARD POWER LINE CONSTRUCTION
REPAYMENT SCHEDULE IN MILLIONS OF DOLLARS PER YEAR

ANNUAL INTEREST RATE (%)		4	6	8	10	12	15	18
$8,000,000	15 YEAR LOAN	.72	.82	.93	1.05	1.17	1.37	1.57
$8,000,000	20 YEAR LOAN	.59	.70	.81	.94	1.07	1.28	1.49
$8,000,000	25 YEAR LOAN	.51	.63	.75	.88	1.02	1.24	1.46
$8,000,000	30 YEAR LOAN	.46	.58	.71	.85	.99	1.22	1.45
$9,000,000	15 YEAR LOAN	.81	.93	1.05	1.18	1.32	1.54	1.77
$9,000,000	20 YEAR LOAN	.66	.78	.92	1.06	1.20	1.44	1.68
$9,000,000	25 YEAR LOAN	.58	.70	.84	.99	1.15	1.39	1.65
$9,000,000	30 YEAR LOAN	.52	.65	.80	.95	1.12	1.37	1.63
$10,000,000	15 YEAR LOAN	.90	1.03	1.17	1.31	1.47	1.71	1.96
$10,000,000	20 YEAR LOAN	.74	.87	1.02	1.17	1.34	1.60	1.87
$10,000,000	25 YEAR LOAN	.64	.78	.94	1.10	1.27	1.55	1.83
$10,000,000	30 YEAR LOAN	.58	.73	.89	1.06	1.24	1.52	1.81
$11,000,000	15 YEAR LOAN	.99	1.13	1.29	1.45	1.62	1.88	2.16
$11,000,000	20 YEAR LOAN	.81	.96	1.12	1.29	1.47	1.76	2.06
$11,000,000	25 YEAR LOAN	.70	.86	1.03	1.21	1.40	1.70	2.01
$11,000,000	30 YEAR LOAN	.64	.80	.98	1.17	1.37	1.68	1.99
$12,000,000	15 YEAR LOAN	1.08	1.24	1.40	1.58	1.76	2.05	2.36
$12,000,000	20 YEAR LOAN	.88	1.05	1.22	1.41	1.61	1.92	2.24
$12,000,000	25 YEAR LOAN	.77	.94	1.12	1.32	1.53	1.86	2.20
$12,000,000	30 YEAR LOAN	.69	.87	1.07	1.27	1.49	1.83	2.18
$13,000,000	15 YEAR LOAN	1.17	1.34	1.52	1.71	1.91	2.22	2.55
$13,000,000	20 YEAR LOAN	.96	1.13	1.32	1.53	1.74	2.08	2.43
$13,000,000	25 YEAR LOAN	.83	1.02	1.22	1.43	1.66	2.01	2.38
$13,000,000	30 YEAR LOAN	.75	.94	1.15	1.38	1.61	1.98	2.36
$14,000,000	15 YEAR LOAN	1.26	1.44	1.64	1.84	2.06	2.39	2.75
$14,000,000	20 YEAR LOAN	1.03	1.22	1.43	1.64	1.87	2.24	2.62
$14,000,000	25 YEAR LOAN	.90	1.10	1.31	1.54	1.78	2.17	2.56
$14,000,000	30 YEAR LOAN	.81	1.02	1.24	1.49	1.74	2.13	2.54
$15,000,000	15 YEAR LOAN	1.35	1.54	1.75	1.97	2.20	2.57	2.95
$15,000,000	20 YEAR LOAN	1.10	1.31	1.53	1.76	2.01	2.40	2.80
$15,000,000	25 YEAR LOAN	.96	1.17	1.41	1.65	1.91	2.32	2.74
$15,000,000	30 YEAR LOAN	.87	1.09	1.33	1.59	1.86	2.28	2.72
$16,000,000	15 YEAR LOAN	1.44	1.65	1.87	2.10	2.35	2.74	3.14
$16,000,000	20 YEAR LOAN	1.18	1.39	1.63	1.88	2.14	2.56	2.99
$16,000,000	25 YEAR LOAN	1.02	1.25	1.50	1.76	2.04	2.48	2.93
$16,000,000	30 YEAR LOAN	.93	1.16	1.42	1.70	1.99	2.44	2.90

PREPARED BY DWANE LEGG ASSOCIATES
7526 OLD HARBOR RD
ANCHORAGE, ALASKA 99504
JAN. 31, 1983

TABLE II

CITY OF SEWARD
TRANSMISSION LINE AMORTIZATION

CASE I--LOWER CONSUMPTION RATE

YEAR	1983	1984	1985	1986	1987	1988	1989	1990
MWH /YEAR	33.0	36.3	39.9	43.9	48.3	53.1	58.5	64.3
ANNUAL PAYMENT	COST, CENTS/KWH SOLD							
$500,000	15.2	13.8	12.5	11.4	10.3	9.4	8.6	7.8
$600,000	18.2	16.5	15.0	13.7	12.4	11.3	10.3	9.3
$700,000	21.2	19.3	17.5	15.9	14.5	13.2	12.0	10.9
$800,000	24.2	22.0	20.0	18.2	16.6	15.1	13.7	12.4
$900,000	27.3	24.8	22.5	20.5	18.6	16.9	15.4	14.0
$1,000,000	30.3	27.5	25.0	22.8	20.7	18.8	17.1	15.6
$1,100,000	33.3	30.3	27.5	25.0	22.8	20.7	18.8	17.1
$1,200,000	36.4	33.1	30.1	27.3	24.8	22.6	20.5	18.7
$1,300,000	39.4	35.8	32.6	29.6	26.9	24.5	22.2	20.2
$1,400,000	42.4	38.6	35.1	31.9	29.0	26.3	23.9	21.8
$1,500,000	45.5	41.3	37.6	34.2	31.0	28.2	25.7	23.3
$1,600,000	48.5	44.1	40.1	36.4	33.1	30.1	27.4	24.9
$1,700,000	51.5	46.8	42.6	38.7	35.2	32.0	29.1	26.4
$1,800,000	54.5	49.6	45.1	41.0	37.3	33.9	30.8	28.0
$1,900,000	57.6	52.3	47.6	43.3	39.3	35.8	32.5	29.5
$2,000,000	60.6	55.1	50.1	45.5	41.4	37.6	34.2	31.1
$2,100,000	63.6	57.9	52.6	47.8	43.5	39.5	35.9	32.7
$2,200,000	66.7	60.6	55.1	50.1	45.5	41.4	37.6	34.2
$2,300,000	69.7	63.4	57.6	52.4	47.6	43.3	39.3	35.8
$2,400,000	72.7	66.1	60.1	54.6	49.7	45.2	41.1	37.3
$2,500,000	75.8	68.9	62.6	56.9	51.7	47.0	42.8	38.9
$2,600,000	78.8	71.6	65.1	59.2	53.8	48.9	44.5	40.4
$2,700,000	81.8	74.4	67.6	61.5	55.9	50.8	46.2	42.0
$2,800,000	84.8	77.1	70.1	63.7	58.0	52.7	47.9	43.5
$2,900,000	87.9	79.9	72.6	66.0	60.0	54.6	49.6	45.1
$3,000,000	90.9	82.6	75.1	68.3	62.1	56.4	51.3	46.7

PREPARED BY DWANE LEGG ASSOCIATES
7526 OLD HARBOR RD.
ANCHORAGE, ALASKA 99504
PHONE 907-337-2303
JAN. 31, 1983

TABLE III

CITY OF SEWARD
TRANSMISSION LINE AMORTIZATION

CASE II--HIGHER CONSUMPTION RATE

YEAR	1983	1984	1985	1986	1987	1988	1989	1990
MWH /YEAR	39.0	42.9	47.2	51.9	57.1	62.8	69.1	76.0
ANNUAL PAYMENT	COST, CENTS/KWH SOLD							
$500,000	12.8	11.7	10.6	9.6	8.8	8.0	7.2	6.6
$600,000	15.4	14.0	12.7	11.6	10.5	9.6	8.7	7.9
$700,000	17.9	16.3	14.8	13.5	12.3	11.1	10.1	9.2
$800,000	20.5	18.6	17.0	15.4	14.0	12.7	11.6	10.5
$900,000	23.1	21.0	19.1	17.3	15.8	14.3	13.0	11.8
$1,000,000	25.6	23.3	21.2	19.3	17.5	15.9	14.5	13.2
$1,100,000	28.2	25.6	23.3	21.2	19.3	17.5	15.9	14.5
$1,200,000	30.8	28.0	25.4	23.1	21.0	19.1	17.4	15.8
$1,300,000	33.3	30.3	27.5	25.0	22.8	20.7	18.8	17.1
$1,400,000	35.9	32.6	29.7	27.0	24.5	22.3	20.3	18.4
$1,500,000	38.5	35.0	31.8	28.9	26.3	23.9	21.7	19.7
$1,600,000	41.0	37.3	33.9	30.8	28.0	25.5	23.2	21.1
$1,700,000	43.6	39.6	36.0	32.7	29.8	27.1	24.6	22.4
$1,800,000	46.2	42.0	38.1	34.7	31.5	28.7	26.1	23.7
$1,900,000	48.7	44.3	40.3	36.6	33.3	30.3	27.5	25.0
$2,000,000	51.3	46.6	42.4	38.5	35.0	31.8	28.9	26.3
$2,100,000	53.8	49.0	44.5	40.5	36.8	33.4	30.4	27.6
$2,200,000	56.4	51.3	46.6	42.4	38.5	35.0	31.8	28.9
$2,300,000	59.0	53.6	48.7	44.3	40.3	36.6	33.3	30.3
$2,400,000	61.5	55.9	50.9	46.2	42.0	38.2	34.7	31.6
$2,500,000	64.1	58.3	53.0	48.2	43.8	39.8	36.2	32.9
$2,600,000	66.7	60.6	55.1	50.1	45.5	41.4	37.6	34.2
$2,700,000	69.2	62.9	57.2	52.0	47.3	43.0	39.1	35.5
$2,800,000	71.8	65.3	59.3	53.9	49.0	44.6	40.5	36.8
$2,900,000	74.4	67.6	61.5	55.9	50.8	46.2	42.0	38.2
$3,000,000	76.9	69.9	63.6	57.8	52.5	47.8	43.4	39.5

PREPARED BY DWANE LEGG ASSOCIATES
7526 OLD HARBOR RD.
ANCHORAGE, ALASKA 99504
PHONE 907-337-2303

CITY OF SEWARD

SEWARD, ALASKA 99664

February 10, 1983

MEMORANDUM

TO: RON GARZINI, CITY MANAGER

FROM: JOSEPH GALE, FINANCE DIRECTOR

SUBJECT: POTENTIAL CONSUMER COST REQUIRED FOR REPAYMENT OF $14,000,000 LOAN AT VARIED INTEREST RATES, OVER A 30 YEAR PERIOD.

The schedule set out below is based on information from tables provided by Dwane Legg Associates, of Anchorage, Alaska, dated January 31, 1983.

ANNUAL INTEREST RATE	REPAYMENT PER YEAR	COST, CENTS/KWH SOLD RANGE CONSUMPTION RATE		INCREASED COST RATIO TO CONSUMERS	
		LOW	HIGH	LOW	HIGH
10%	$1,490,000	45.5¢	38.5¢	7.937	6.601
8%	1,240,000	37.9¢	31.8¢	6.498	5.452
6%	1,020,000	30.9¢	26.1¢	5.298	4.475
4%	810,000	27.6¢	20.7¢	4.732	3.549

By applying the ratios of the schedule column headed Increased Cost Ratio to Consumer/Low - High, to a consumer, using sufficient electrical power for an average monthly billing of $100.00 at current Seward rates, the following schedule illustrates the increased average monthly billing.

The current Seward rate is .0512 per KWH plus a surcharge of .007127 per KWH for residential consumers.

INCREASE COST RATIO TO CONSUMER		CURRENT AVERAGE BILLING	INCREASED AVERAGE BILLING	
LOW	HIGH		LOW	HIGH
7.937	6.601	$100	$793.70	$660.10
6.498	5.452	100	649.80	545.20
5.298	4.475	100	529.80	447.50
4.732	3.549	100	473.20	354.90