

SCOMM

#44:27

# ALASKA POWER AUTHORITY

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

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

May 9, 1980

The Honorable Hugh Malone  
House of Representatives  
Alaska State Legislature  
Pouch V  
Juneau, Alaska 99811

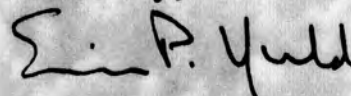
Dear Representative Malone:

Thank you for your letter of May 5, 1980 concerning Susitna appropriations.

I do not agree with your position regarding the \$3.3 million needed to insure full year funding for Susitna activities. While all of our Susitna contracts are indeed subject to the availability of funds as you have suggested, the implication of your position is that we can stop and start this program at will. I reiterate that this is a very complex undertaking and is the product of painstaking planning and coordination. In the event that Susitna does prove to be the best option, but supplemental funds are not available on a timely basis, the wording of our contracts will be of little value. My point is, adequate lead time is necessary to insure resources are available to accomplish the myriad of tasks that must be performed. If termination did occur but funds were later appropriated, the administrative process alone needed to reinstate the numerous people working on this project both in the State and private sector would be a veritable nightmare leading to lost time and increased cost to the program.

I hope that you will reconsider your recommendation.

Sincerely,



Eric P. Yould  
Executive Director

cc: Ron Lehr  
Representative Meekins  
Senator Sackett

# ALASKA POWER AUTHORITY

MAY 5 RECD

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

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

April 30, 1980

Honorable Brian Rogers  
House of Representatives  
Pouch V  
Juneau, Alaska 99811

Dear Mr. Rogers:

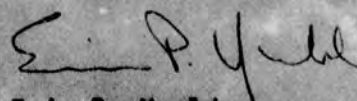
It has been brought to my attention that there is misunderstanding concerning funding needs for the Susitna Hydropower studies. FY '81 requirements remain unchanged from those submitted by the Governor: \$7.5 million in the supplemental budget request, and \$3.3 million in the normal capital budget request for a total of \$10.8 million. This level of funding is the minimum needed to allow the Power Authority to remain on its "critical path" of 30 months. The program additions recommended by Arlon Tussing (costing an additional \$1.4 million) could be incorporated into this 30 month program if the Legislature desired.

There has been an exhaustive effort made to initiate this very complex program. Thus, in the event the project is found to be feasible in roughly the February 1981 time frame, should prior actions have been taken by this Legislature that would preclude or restrict funds that would normally have been expended in parallel with next year's legislative decisions on FY '82 Susitna appropriations, the entire program would be in serious jeopardy of grinding to a halt.

The termination of logistics, geotechnical and biological data collection contracts, as well as prime contractor, sub-contractor, Power Authority staff, and Native agreements would occur as a result of nonavailability of program funds. Should this occur, it would be virtually impossible to reinitiate this level of support in a time frame to salvage our existing program even in the event the Legislature did concur to proceed with the remainder of the study program. In all probability, the FY '82 summer field season and program continuity would be lost.

Please consider very seriously our full budget request for the Susitna program.

Sincerely,



Eric P. Yould  
Executive Director

EPY/va13/1

May 5, 1980

Mr. Eric P. Yould  
Executive Director  
Alaska Power Authority  
333 West 4th Avenue, Suite 31  
Anchorage, AK 99501

Dear Mr. Yould:

Thank you for your letter of April 30 regarding your funding recommendations for the Susitna Project.

I can understand your reasons for requesting the entire \$10.8 million appropriation this session. However, I do not agree that the \$3.3 million must be appropriated at this time. Although the situation was different this year, supplemental requests are normally approved by March.

Contracts can be written contingent on the availability of funds for future work as a normal course of action.

My own recommendation is that the legislature appropriate the \$7.5 million plus \$1.2 million for revisions to the plan of study as recommended by Arlon Tussing, this year. The 1981 session can act in a timely manner on funding required next year.

Sincerely,

Hugh Malone

cc: Mr. Ron Lehr  
Rep. Gardiner  
Senator Tillion  
Rep. Meekins  
Senator Sackett  
Rep. Duncan  
Rep. Rogers  
Rep. Miles

HM/jk

# ALASKA POWER AUTHORITY

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Phone: (907) 277-7641  
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April 30, 1980

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Juneau, Alaska 99811

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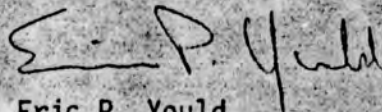
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Eric P. Yould  
Executive Director

EPY/va13/1

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Phone: (907) 277-7641  
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April 30, 1980

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House of Representatives  
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Juneau, Alaska 99811

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Please consider very seriously our full budget request for the Susitna program.

Sincerely,



Eric P. Yould  
Executive Director

EPY/va13/1

# Energy for the Future...

...A Community Meeting  
on the Susitna Hydroelectric Project  
and Other Power Alternatives



**B**e among the first to have input during the early stages of the Susitna hydroelectric feasibility study. Hear about the power alternatives to Susitna hydro that are being considered, and learn about the citizen participation process, and how you can be involved during the next two and a half years.

#### Community Meetings:

**Fairbanks,** 7 pm, Monday, April 14  
Travelers Inn Gold Room, 813 Noble

**Talkeetna,** 7 pm, Tuesday, April 15  
Talkeetna Elementary School

**Wasilla,** 7 pm, Wednesday, April 16  
Wasilla High School

**Anchorage,** 7 pm, Thursday, April 17  
Bartlett High School Yellow Cafeteria  
(Enter from Muldoon and Glenn Hwy. interchange;  
follow signs once inside building.)

Review copies of the plan of study are available at public libraries in your community. For more information, call the Public Participation Office at 276-0001.

**Alaska Power Authority**

# ALASKA POWER AUTHORITY

## SUSITNA HYDROELECTRIC PROJECT

### AGENDA Community Meetings April 14, 15, 16 and 17, 1980

WELCOME - 5 Minutes Power Authority  
DESCRIBE PLAN OF STUDY - 25 Minutes Acres  
ENERGY SOURCES FOR THE RAILBELT AND EVALUATION PROCESS  
- 15 Minutes Power Authority  
QUESTIONS AND ANSWERS - 20 Minutes Power Authority and Acres  
TABLE TOP DISCUSSION BY CITIZENS  
- 20 Minutes Power Authority  
DESCRIBE PUBLIC PARTICIPATION PROGRAM AND ACTION LISTS  
- 15 Minutes Power Authority  
SHORT REPORT ON TABLE TOP DISCUSSIONS  
- 20 Minutes Power Authority and Acres  
PERMITS - 5 Minutes CIRI/H&N  
SUMMARY - 5 Minutes Power Authority  
PUBLIC COMMENT - Until all comments have been heard.  
CLOSING - 5 Minutes Power Authority

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#### COMMUNITY MEETING -- DATES, TIMES, AND PLACES

April 14: Fairbanks 7:00 p.m. Traveler's Inn Gold Room  
April 15: Talkeetna 7:00 p.m. Talkeetna Elementary School  
April 16: Wasilla 7:00 p.m. Wasilla High School  
April 17: Anchorage 7:00 p.m. Bartlett High School  
Yellow Cafeteria (near visitor  
parking lot); North Muldoon Road  
(enter from the Muldoon and  
Glenn Highway interchange)

# ALASKA POWER AUTHORITY

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

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

April 7, 1980

Representative Brian Rogers  
Pouch V  
Juneau, Alaska 99811

APR 9 RECD

Dear Representative Rogers:

I want to be sure that you knew that the first round of community meetings for the Susitna hydroelectric plan of study will be held next week. I have enclosed a copy of a flyer for the meetings. Please pass it around or post it to help advertise the meeting.

You are especially invited to join us at the meetings because of the work you are doing for the Power Alternatives Study Committee.

An agenda is attached. Of particular interest is the part describing the process by which alternatives to Susitna will be examined and analyzed, and the points at which the public is involved.

We are making every effort possible to give the public ample opportunity to make comments, especially in the early stages of the study when additions or changes to the plan of study are easier to accomodate.

I also want you to know that I am receiving copies of your work and will be using some of it as I prepare information for the general public throughout this year. I will be checking with Mark Wittow to make sure that I am referencing your work accurately.

Reserve copies of the plan of study are available at libraries in these areas: Anchorage--Z. J. Loussac, Alaska Resources Library, the University of Alaska Library, and Eagle River; Fairbanks--Noel Wien and Elmer E. Rasmuson at U of A; Kenai Peninsula--Seward, Homer, and Kenai; Mat-Su Borough--Palmer, Wasilla, Willow and Talkeetna. The Alaska Resources Library and Rasmuson Library also have one copy each that may be taken from the library.

I hope to see you at one of the meetings next week.

Sincerely,



Nancy Blunck  
Director  
Public Participation Program

Enclosures

# ALASKA POWER AUTHORITY

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

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

March 12, 1980

The Honorable Hugh Malone  
Alaska State Legislature  
Box 9  
Kenai, Alaska 99611

Dear Senator Malone:

In February, Eric Yould, Executive Director of the Alaska Power Authority, sent you a copy of the plan of study for the Susitna Hydroelectric Project and invited you to attend community meetings at which you will receive more information and have the opportunity to influence the manner in which the work within the plan of study is to be accomplished.

The first round of community meetings will be held April 14, 15, 16, and 17, a few weeks later than originally scheduled. Hopefully, the change in schedule will give you more time to review the plan of study and prepare your questions and comments. The meetings will be held:

April 14:	Fairbanks	7:00 p.m.	Traveler's Inn Gold Room
April 15:	Talkeetna	7:00 p.m.	Talkeetna Elementary School
April 16:	Wasilla	7:00 p.m.	Wasilla Junior High School
April 17:	Anchorage	7:00 p.m.	Bartlett High School Yellow Cafeteria (near visitor parking lot) North Muldoon Road (enter Muldoon and Glenn Highway interchange)

We expect this first series of meetings to be informative and dynamic. ACRES, the consultant conducting the plan of study, will present a slide show outlining various aspects of the feasibility study. Information summarizing current knowledge of alternatives to the Susitna Hydroelectric Project will also be presented. We will explain the Public Participation Program and the "Action Lists", the primary method for receiving public comment throughout the 30 month period of the plan of study.

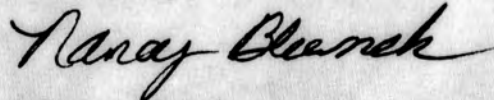
After you have been given information, you will have time to ask questions and make comments. Some discussion will take place in small groups where there will be opportunity to share ideas. A written record of the comments of each group will be considered as part of the official record of the meeting. Since the format of this meeting does not allow time for testimony, those wishing to testify may present their comments in writing or tape record their remarks on recorders provided at the end of the meeting. Action List forms will be provided at the meeting; comments

filled out on Action List forms will be reviewed by ACRES and responded to in writing.

If you can't make it to the April meetings, please note that this first series of meetings will not be your only opportunity to make comments and receive information. I urge you to contact my office to see how you can participate. I can be reached at 276-0001.

I look forward to working with you over the next two and a half years.

Sincerely,

A handwritten signature in cursive script that reads "Nancy Blunck".

Nancy Blunck  
Director  
Public Participation Program

# ALASKA POWER AUTHORITY

## SUSITNA HYDROELECTRIC PROJECT

### AGENDA Community Meetings April 14, 15, 16 and 17, 1980

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DESCRIBE ACTION LISTS	- 10 Minutes	Power Authority
SHORT REPORT ON TABLE TOP DISCUSSION RESULTS	- 20 Minutes	Power Authority and Acres
PERMITS	- 5 Minutes	Acres and CIRI/H&N
CLOSING	- 5 Minutes	Power Authority

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After the meeting officially ends, persons are invited to:

1. Submit written testimony.
2. Record verbal testimony.
3. Fill out action forms and turn in that night.
4. Ask questions of Power Authority staff, Acres, or their sub-contractors.

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### COMMUNITY MEETING -- DATES, TIMES, AND PLACES

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# MEMORANDUM

TO:  Ron Lehr, Director  
Division of Budget & Management  
Office of the Governor

DATE: January 23, 1980

FILE NO: RP 80-350X

TELEPHONE NO:

FROM: George Matz, Budget Analyst  
Division of Budget & Management  
Office of the Governor

SUBJECT: Alaska Power Authority Request  
to Establish Seven Positions  
for the Susitna River Feasibility  
Study

The Alaska Power Authority (APA) requests permission to establish seven CIP positions for work directly related to and funded by the Susitna River Hydroelectric Project Feasibility Study. Positions requested for project management include: Project Engineer, Field Auditor II, Project Inspector, and Secretary I. Positions requested for a public information program include an Information Officer III, Administrative Assistant III and Clerk IV. All positions will be located in Anchorage.

Funding for each of these positions will come from the Susitna River Hydroelectric Project Feasibility Study which was appropriated \$8,528,000 in the FY 80 Capital Budget.

The feasibility study is expected to take 2½ years and require another \$21,084,280 in funds. The appropriation was to the Office of the Governor, but contracted to the APA by RSA. Although the APA has responsibility for the timely and satisfactory completion of the study, a majority of the effort has been contracted to a private engineering firm, ACRES American. The project management position will oversee performance by ACRES and sub contractors to assure the State that the feasibility study objectives and tasks are met. Responsibilities for each position are as follows:

Project Engineer - The Project Engineer will have lead responsibility for monitoring the performance of the contractor and subcontractors and will provide the Division of Energy and Power Development with information relevant to energy planning.

Project Inspector - the Project Inspector will monitor the performance of study activities on Native lands as well as affirmative action minority hiring for the project and will provide project reports to the Cook Inlet Native Corporation.

Field Auditor II - the Field Auditor will review the accounting and financial procedures of contractors to assure the State of accurate and timely cost controls.

Secretary I - The Secretary will provide secretarial and clerical support to the project management staff.

January 23, 1980

A significant part of the feasibility study is the public information program. The APA has decided to conduct the public information program rather than delegating this responsibility to ACRES. In addition to providing the public with information via workshops, news releases, and literature, a system will be established to provide timely and detailed answers to all study questions submitted by the public. In essence, the public information program will provide a public forum which addresses future energy strategies for the Railbelt. Positions required for this level of effort include the following:

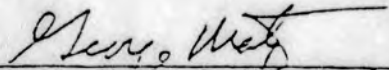
Information Officer III - This position will be responsible for overall management of the program, and for organizing a number of planned public meetings and workshops.


Administrative Assistant III - The Administrative Assistant will be responsible for researching, writing and producing much of the written information which is being planned. Emphasis will be placed on translating technical data to laymen's terms. A memo from Nancy Blunck (see attached) lists the responsibilities of this position.

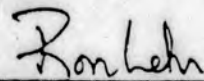
Clerk IV - The Clerk will provide secretarial and clerical support for the public information program. It should be noted that only one third of this position is expected to be devoted to clerical duties. In addition, one third of this position's time will be spent on writing/editing and the remaining one third on research/investigation. Consequently, the professional to clerical ratio will be about eight to one.

All of these positions and the approximate level of funding was in the Plan of Study which predicated the FY 80 capital appropriation for the Susitna River Hydroelectric Project Feasibility Study. These positions will expire on the RSA completion date which is March 31, 1981 unless additional funding becomes available.

Your approval is recommended.

  
George Matz, Budget Analyst  
Division of Budget and Management

 Approved this 29 day of Jan, 1980.

  
Ron Lehr, Director  
Division of Budget and Management  
Office of the Governor

# ALASKA POWER AUTHORITY

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

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

October 19, 1979

The Honorable Brian Rogers  
Alaska State Legislature  
Post Office Box K  
College Branch, Fairbanks, Alaska 99708

Dear Representative Rogers:

The planning for Railbelt power generation will move another step forward at an Alaska Power Authority Board of Directors meeting scheduled for November 2, 1979. At this meeting the Board will consider the choice between the Corps of Engineers and Acres American Incorporated as engineer for the Susitna Feasibility Studies. You are invited to comment on that choice during the November 2 meeting which will begin at 1:00 PM at the offices of the Power Authority in Anchorage.

The Acres draft Plan of Study, provided to you in early September, is now under revision. Acres will submit an updated study cost estimate at the November 2 meeting. The revised cost estimate will be the result of Power Authority and public comment provided to Acres and will reflect the elimination of the electrical load forecast from the study, a newly coordinated biological impact assessment program and certain other changes.

If it is decided by the Board and Governor to choose Acres over the Corps of Engineers, these and any additional changes will be incorporated in a revised plan of study document which will be available for widespread public and agency review in late November or early December. The scope and timing of public participation in refining the plan of study is outlined on Plate T 12.1 of the Acres draft Plan of Study. Note the typographical error on Plate T 12.1 which shows the POS available for public review in December 1980 instead of December 1979.

If you have any questions regarding this procedure, please do not hesitate to call me or Mr. Robert Mohn at 277-7643 for clarification.

Sincerely,



Eric P. Yould  
Executive Director

# ALASKA POWER AUTHORITY

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

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

June 4, 1979

Mr. Gregg Erickson, Director  
Legislative Affairs Agency  
Pouch Y  
Juneau, Alaska 99811

Dear Mr. Erickson:

As promised at our meetings in Anchorage on May 24 and 25, 1979, I am providing some initial comments on the study of alternatives to Susitna hydropower development.

1. The plan for Susitna development selected by the Corps of Engineers after preliminary feasibility studies consists of two large dam projects. This plan was arrived at through consideration of three factors: technical feasibility, maximization of long-term economic benefit and minimization of environmental impact. A factor not considered in plan formulation was economic/financial risk in the face of uncertainty. The recent supplemental studies completed by the Corps of Engineers include tests to assess the economic sensitivity of the proposed plan to variation in load growth, discount rates, and costs of the alternative modes. No attempt, however, has been made by the Corps to reformulate the plan to reduce economic/financial risk.

The need to develop a reduced risk plan to facilitate project financing was recognized and noted by several engineering firms that have reviewed the Corps of Engineers plan. Such a plan might include a staged development at the Watana site or perhaps a completely new development plan for the basin. The detailed feasibility studies to be conducted over the next several years will address this issue. I have attached information provided in 1977 by Harza Engineering Company in which more moderately sized initial development is recommended. (See attached, page 4-6.)


As you proceed in the study, then, please keep in mind that the currently accepted 2-dam plan is by no means the only way to develop the Susitna potential. A more gradually staged plan of development may emerge from the detailed studies. This, in fact, is my hope and expectation.

2. In the determination of the various generation mode power cost estimates (or probability distributions), there is a need for consistent uniform treatment among alternatives. This applies to locational cost factors, unit prices, contingency factor assumptions, etc. The lack of such consistency could severely bias the study conclusions. I recommend that this issue of uniform treatment be addressed in the study plan. For this reason, it would seem to me that the use of a single consultant for estimating the cost of all alternatives would be preferable to using several different consultants.
3. As I understand it, the impetus for this study was largely from the environmental community. One of the major concerns of the environmentalists is that the "soft path" of energy provision, using "appropriate technology" in small dispersed increments, is not receiving adequate consideration in the decision making process. It seems only reasonable, then, to address the full range of energy alternatives in this study. I recommend that the environmental groups be contacted early on and given an opportunity to offer their suggested generation scenarios. It would then fall upon you to select from among the full range of alternatives those that deserve detailed attention in the study.
4. In a related matter, geothermal energy has been suggested by some as an alternative to Susitna. Our research indicates that "hot dry rock" applications offer the best hope of economic development on a significant scale. This technology is presently under development by Los Alamos Scientific Laboratories in New Mexico. Drilling for wet steam in the vicinity of volcanic activity may also be a possibility. A cost of study for geothermal development in Alaska is under way at Energy Systems, Inc. of Anchorage. I suggest that the geothermal alternative be one that is explored, at least initially.
5. Another alternative requiring consideration is smaller hydroelectric potential in the Railbelt area. The Alaska Power Administration in Juneau is the authority on this issue. The Power Administration just recently completed an analysis of alternate sites for the Corps of Engineers' supplemental feasibility studies of Susitna. Another source of information on the subject is the CH2M Hill study done for the Corps. As I mentioned during our discussion, this latter work is primarily an environmental and land use review with the participation of environmental interests. I have asked the Corps (Ron Turner, 752-3432) to send you a copy.

6. Information on electrical energy alternatives for Southcentral Alaska is currently being gathered as part of the inter-governmental Southcentral Level B Water Resources Study. The Alaska Power Administration is the lead agency for the electric power task force and can probably provide a useful assessment of energy options.
7. The provision of Railbelt electrical power is now and will continue to be the responsibility of the several utilities. With this in mind, I hope you maintain frequent contact with the utility managers through the course of the study. It is really their problems that we are trying to shed light on.

It was very beneficial for Robert and I to talk with you about the study. Robert, by the way, will be coordinating most of our Susitna Activities and I would appreciate his being kept informed on your studies as they progress. It appears that you intend to drive to the heart of the controversy. We look forward to clear and useful results, hopefully followed by definitive action on the part of the State. Please keep us informed as the study plan takes shape.

Sincerely,

  
Eric P. Yould  
Executive Director

Attachments:  
as noted

cc: Chuck Behlke

# ALASKA POWER AUTHORITY

## AGENDA

Anchorage, Alaska

September 27, 1979

- ~ I. Review and Approval of Minutes of the August 10, 1979 meeting in Anchorage.
- ~ II. Opportunity for public comment.
- ~ III. Consideration of a loan from the Power Project Revolving Loan Fund for the Mennonite Creek Hydro-electric Project.
- ~ IV. Consideration of actions with respect to the Swan Lake Project.
- ~ V. Selection of a consultant for the Nome/Kotzebue Study.
- ~ VI. Consideration of the Lake Tye Letter of Understanding.
- VII. Internal Operations of the Power Authority:
  - ~ (a) Susitna Project Management Proposals.
  - ~ (b) Bond Counsel Contract.
  - ~ (c) Power Authority Budgets. *\$41 million FY81 \$400 K operating*  
*\$ 8 million FY82*  
*\$ 6 million FY83*
  - ~ (d) Proposed Legislation.
- VIII. *Result - Authorization legislation Not appropriate for Governor*  
Any other Business or Action which may properly come before the Board.
- IX. Actions Relative to the Susitna Project:
  - (a) The proposed agreement with Cook Inlet Native Corporations.
  - (b) Presentations by the three Engineering firms on Alternative Methods of Proceeding with the Susitna Project.

① Redesignation \$2M power proj → APA Tye  
② Gov Solomon Lake. 2-county rule. Stop-the-clock - (No legis authorization?)

# ALASKA POWER AUTHORITY

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

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

July 2, 1979


The Honorable Mike Gravel  
United States Senate  
3121 Dirksen Senate Office  
Building  
Washington, D.C. 20510

Dear Senator Gravel:

It was a pleasure having the opportunity to discuss the Susitna project with you last Friday. As you requested, I have attempted to outline those actions which might be taken to hasten the development of Susitna. I have laid out four options that are reasonably available. For your convenience, I have also included the State appropriation bill, and the existing and amended versions of your Federal legislation (Sec. 203). The remainder of this document summarizes the "pros" and "cons" of using the private sector or the Corps of Engineers to accomplish the Susitna project.

★ I know that this document is more than you asked for, but I feel it is important for you to be fully aware of all of the avenues available and some of the issues. [Common to all approaches is the need for Tax legislation before completion of the field explorations.] Without this legislation, Susitna will probably not be constructed. If this technical problem can be effectively dealt with, the overriding considerations involve the length of time before the start of construction, but more importantly, the length of time to power-on-line. While the question of which avenue would be most expedient remains unanswered at this time, perhaps with special legislation that you would be successful in implementing, the joint venture with the Corps of Engineers would be the best approach. In any event, the Power Authority has contracted with three private engineering firms to develop competing proposals to the Corps plan and I think it is imperative that we see what they have to offer before locking ourselves into the Corps of Engineers. Previous contact with the private sector has indicated that expeditious treatment by FERC could result in a construction start within three and one-half years from this fall.

Sincerely,

  
Eric P. Yould  
Executive Director

Attachments

# Hydroelectric Power Development Act of 1979

## (Amendment to Section 203 of the Water Resources Development Act of 1976, pending in Congress.)

"Sec. 203(a)(1) The Congress finds that the expeditious development of hydroelectric power generating facilities that are environmentally sound to assist the Nation in meeting existing and future energy demands is in the national interest.

"(2) The Congress therefore declares that the expertise of the Chief of Engineers can and should be utilized, in accordance with this section, for the benefit of local public bodies in the development of projects in any case where the Secretary determines that 50 per centum or more of the benefits of the project are attributable to hydroelectric power generation when the project is fully operational.

"(b) There is hereby established in the Treasury of the United States a Hydroelectric Power Development Fund (hereafter in this section referred to as the "fund") to be and remain available for expenditures authorized by this section. The fund shall consist of (1) repayments by non-Federal public authorities of expenditures made from the fund, (2) any appropriations made to the fund, and (3) interest on moneys in the fund invested in accordance with subsection (d).

"(c) There is authorized to be appropriated for deposit in the fund established by subsection (b) of this section the sum of \$25,000,000.

"(d)(1) If the Secretary determines that moneys in the fund are in excess of current needs, he may request the investment of such amounts as he deems advisable by the Secretary of the Treasury in direct, general obligations of, or obligations guaranteed as to both principal and interest by, the United States.

"(2) With the approval of the Secretary of the Treasury, the Secretary may deposit moneys of the fund in any Federal Reserve bank or other depository for funds of the United States, or in such other banks and financial institutions and under such terms and conditions as the Secretary and the Secretary of the Treasury may mutually agree.

"(e)(1) The Secretary is authorized, for any project that meets requirements of subsection (a)(2) of this section, to obligate moneys in the fund to pay for, or reimburse expenditures for, the cost of the phase I design memorandum made by a non-Federal public authority pursuant to this subsection. The Secretary is authorized to enter into an agreement with a non-Federal public authority to pay from the fund the cost to such non-Federal authority of preparing a phase I design memorandum on condition that such non-Federal authority repay such cost to the fund if (A) the phase I design memorandum report demonstrates the feasibility of constructing the project, and (B) the non-Federal authority within three years of the date of completion of the report, is either able to borrow money for construction costs based upon the security of the project or its revenues or actually commences construction of such project. If either of the conditions in clause (A) or (B) is not met, such costs shall be borne by the United States and the report on such project shall be submitted to Congress. The Secretary is also authorized to accept funds from a non-Federal authority for costs incurred for preparing phase I design memorandum if the Secretary first agrees with the non-Federal public authority to reimburse such costs from the fund (i) if the report demonstrates infeasibility of the project, or (ii) if the report is feasible, the non-Federal public authority is not able to borrow money to pay construction costs of the project, including the costs of the phase I design memorandum, based on the security of the project or its revenues within three years of the completion of the phase I design memorandum. Payments by the Secretary from the fund shall be subject to appropriations acts. Payments by the Secretary under this subsection for phase I reimbursement shall include reimbursement of any interest expense of the non-Federal public authority resulting from bonds or notes such authority has issued to finance the phase I design memorandum and for any other expenses normally associated with the issuance and administration of revenue bond and note financings. Failure to complete a phase I report being prepared in accordance with the provisions of this subsection within a reasonable time in accordance with the schedule fixed in the phase I design memorandum agreement entered into by the Secretary with a non-Federal public authority due to Federal actions or inactions not primarily occasioned by the actions or inactions of the non-Federal public authority, including, but not limited to, Federal inaction in failing to appropriate at any time amounts necessary to reimburse such

costs and expenses in accordance with the schedule fixed in the phase I design memorandum agreement, shall also constitute a determination that such report demonstrates the project is infeasible for purposes of this subsection except that if such project is constructed within five years of the date of such determination of infeasibility, the non-Federal authority shall repay to the fund all phase I costs. The Secretary shall hold and apply any moneys in the fund available for reimbursement of the phase I costs of a particular project of a non-Federal public authority for which the Secretary has expended non-Federal funds, in accordance with the terms of a phase I design memorandum agreement entered into by the Secretary with the non-Federal public authority for the benefit of the holders of bonds or notes issued to provide such non-Federal funds. The Secretary shall transmit a copy of a completed phase I report, including a proposed agreement between the Corps of Engineers and the non-Federal public authority setting forth the terms and conditions for construction of the project, in accordance with the provisions of this section, to Congress and to the non-Federal public authority, not later than thirty days after the date of completion of the report. If the proposed agreement for construction of the project is entered into and approved pursuant to subsection (g) within two years of completion of the favorable report, the project shall be constructed in accordance with subsection (g) if the non-Federal public authority is able to borrow money to pay construction costs of the project, including the costs of the phase I design memorandum, based on the agreement and the security of the project or its revenues within three years after completion of the favorable report. The Governors of the States or their designee may use the phase I design memorandum report prepared in accordance with the provisions of this subsection as they determine necessary to undertake construction of a project by a non-Federal public authority. The United States shall not be liable for the payment of any damages resulting from a non-Federal authority's use of the phase I report and the construction of any project by a non-Federal public authority in connection therewith, other than damages due to negligence of the United States.

"(f) The Secretary, in accordance with a contract between the non-Federal public authority and the Secretary, is authorized to construct projects eligible under subsection (a)(2) of this section, including engineering and design, land acquisition, site development, and offsite improvements necessary for construction.

"(g)(1) Prior to initiating any construction work under the authority of this section, the agreement submitted to Congress in accordance with subsection (c) must be approved by resolution of the Committee on Environment and Public Works of the Senate and of the Committee on Public Works and Transportation of the House of Representatives. The non-Federal authority shall pay the full anticipated costs of constructing the project determined by the agreement at the time such costs are incurred, together with normal contingencies and related administrative expenses of the Secretary, and such payments shall be held by the Secretary for payment of obligations incurred by the Secretary on a project for construction under this section.

"(2)(A) The United States shall pay all costs over the anticipated costs fixed in the agreement with the non-Federal public authority, if such costs are (i) occasioned by acts of nature, (ii) occasioned by failure on the part of the Secretary to adhere to the agreed schedule of work or a failure of design, or (iii) are necessary to be paid by the United States to permit operation of the project in accordance with the initial determination of feasibility. Payments by the Secretary of such costs shall be subject to appropriations Acts.

"(B) Any Federal funds paid under subparagraph (A) of this paragraph shall be repaid to the Treasury with interest by the non-Federal public authority from revenues received from the sale of power. Payments shall commence following retirement of all bonds issued by the non-Federal public authority for the project. Interest payable under this subparagraph shall be at the rate the Federal Government must pay on such obligations at the time of payment pursuant to such subparagraph (A).

"(h) As used in this section the term 'Secretary' means the Secretary of the Army, acting through the Chief of Engineers.

"(i) This section may be cited as the 'Hydroelectric Power Development Act of 1979'."

I. Take advantage of existing \$5.45 million (existing Sec. 203)

This plan would require the Power Authority to enter into an agreement with the Secretary of the Army to repay the Secretary for all costs of the Phase I studies if the project proves "economically feasible." Since the Power Authority has no funds with which to commit itself to repayment, the legislature would either have to appropriate funds annually, or it could appropriate all funds during the upcoming special session or during the next legislature. The \$8.178 million appropriated to the Governor could suffice to get us through the first year if the funds were released. In addition, Congress would have to appropriate the balance of federal funds needed to complete the Phase I studies. Upon completion of the Phase I studies, a construction agreement between the Power Authority and the Secretary would be authorized by Congress. It would appear that at this point a new law would be needed to insure that the Corps documents fulfill the FERC requirements in the event it became desirable to construct the project with the private sector. On the other hand if we decided to construct with the Corps, we would either have to wait for the authorization to construct, or we would need a change in Sec. 203 to circumvent this requirement. Finally, during this four year period of time, a change in the IRS laws would be needed in order to sell tax-exempt bonds.

## II. Study and Construct as a Federal Project (Sec. 160)

Use of Section 160 would be tantamount to developing the project as a traditional Corps of Engineers civil works project. One variation might be, however, to accomplish Phase I under Section 160 and then switch to the private sector or Section 203 for construction. However, use of Section 160 could seriously delay project development. The normal Phase I study envisioned by the Corps under Section 160 would still require four years but only \$12.5 million worth of field explorations would be accomplished. Thus if it were desirable to switch to Section 203 at the end of Phase I, a minimum additional \$12 million would need to be expended before starting construction.

### III. Amend Existing Section 203

Under the terms of the state appropriation bill that makes \$8.178 million available to initiate the Susitna project under a Federal/State joint venture, funds can be obligated at such time as federal guarantees are passed by Congress which provide state payback if the project is not economically feasible or financable. This alternative provides much the same advantage as the preceding method except that it requires changes to Section 203 before we can initiate the studies. Federal authorization to construct would not be needed however if we desired to use the private sector to construct, legislation would be needed to insure that Corps studies fulfill FERC requirements. State appropriations would still be needed.

#### IV. Total Development through the Private Sector

The Power Authority has entered into contracts with three engineering firms to develop competing proposals to the Corps of Engineers Plan of Study. Preliminary discussions would indicate that the field investigations and FERC license process will cost roughly \$15 million and be accomplished within three and a half years. Thus, construction may start in 1983. The \$8.178 million appropriated by the Legislature could be supplemented during the next legislative session. Assuming the project does prove feasible, the State could be repaid through the first bond sale. The success in actually starting construction in 1983 will be dependent on how much pressure can be applied to FERC. Finally, financing will be dependent upon Federal legislation which will allow us to use tax exempt bonds.

**SUMMARY OF THE QUESTION -**

**CORPS of ENGINEERS vs PRIVATE SECTOR?**

**Factors Advantageous to Selecting the Corps of Engineers.**

1. Section 203 amendments may provide for payback of study costs and federal financing of cost overruns with delayed principal and interest payments.
2. The Corps of Engineers Plan of Study will result in a Comprehensive Study addressing engineering, economic, and environmental issues for the proposed development.
3. A Federal Energy Regulatory License to Construct will not be required.
4. The Corps of Engineers is familiar with the project having completed reports in 1975 and 1978.
5. The Corps of Engineers has an excellent record of quality engineering and construction management.
6. Federal involvement may make revenue bond financing easier to accomplish.

**Factors Advantageous to Selecting the Private Sector.**

1. The Corps Plan of Study is too long and costly.
2. Federal involvement will create delays in completion of the study, authorization for construction, and actual construction.
3. The Corps of Engineers will utilize conservative design, cost estimates, and construction schedule.
4. The private sector will utilize cost escalation in formulation of a less conservative economic feasibility determination which can result in a higher benefit/cost ratio.
5. The private sector is profit and time oriented in the interest of both itself and the State.
6. Use of the private sector will result in a lower project cost due to lower engineering, construction, and inflation costs.
7. The Corps of Engineers has no experience in underground powerhouses, concrete arch dams, or rock fill dams of the height proposed.

8. The private sector is experienced at working with revenue bond financing and developing power marketing arrangements.

9. The private sector is not burdened with lengthy review procedures, congressional approvals, and approvals of the federal Office of Management and Budget.

10. Use of the private sector provides more flexible engineering, it would permit more state control of the project, federal politics would not influence the development, and the project developed would be responsive to the interests of Alaska.

11. Section 203 construction financing makes federal funds subject to appropriation which might not be acceptable to the revenue bond financing community.

12. The private sector does not have extensive civil and military construction programs that compete for limited personnel resources that are authorized for Corps of Engineers activities.

**4 - FACTORS TO BE CONSIDERED IN DECIDING WHETHER  
THE STATE SHOULD TAKE OVER THE SUSITNA PROJECT**

Given increasing international pressures on the costs and availability of fossil fuels, there can be little doubt that alternative means of energy production involving the use of renewable resources should be vigorously sought. It follows that the national interest will be well served if feasibility is shown and the Susitna Hydroelectric Project is ultimately constructed. In addition to the conservation of fossil fuels, however, is the important fact that the Alaskan employment picture would be greatly improved by the construction of a major project and the long-term economic outlook would be enhanced by the availability of large blocks of power at a reasonably stable price. Regardless of which route the State of Alaska chooses to follow, the proposed project should not be allowed to sink into bureaucratic oblivion. The questions of economic viability, environmental acceptability, and technical feasibility should be resolved and a decision regarding the future of the project should then be made. Factors worthy of consideration in deciding whether the State should take over the Susitna Project include:

- (a) Historical experience on major water resources projects undertaken by the Corps of Engineers demonstrates that intermittent funding, frequent imposition of manpower ceilings, and other constraints imposed by the executive or legislative branches of the Federal Government tend to be extremely time consuming. Indeed, Senator Gravel (Dem., Alaska) noted in a speech just prior to his introduction of Public Law 94-578, that the average time the Corps of Engineers takes from authorization of a project to receipt of first construction funds is 18 years. This extreme length of time is not necessarily indicative of deficiencies on the part of the COE, but rather indicates that the combination of events which must take place sequentially in the bureaucratic process can lead to significant delays.
- (b) Federal management will necessarily create a situation wherein national interests are always given precedence over the interests of the State of Alaska.
- (c) The Corps has a solid reputation for quality engineering and construction management. A Corps-designed dam has never failed.
- (d) The Corps tends to be overly conservative on large engineering projects. In this regard, for example, it is extremely unlikely that the Corps will allow the concept of a thin-arch dam to survive during the Phase I design studies.
- (e) The Corps has never built a large hydroelectric dam in a subarctic environment with the attendant dangers of substantial ice buildup.
- (f) On a nominal \$2 billion project, a one-year delay is equivalent to \$200 million when the interest rate is 10 percent.

- (g) The national perception of Alaska may create difficult barriers to the passage of necessary authorizing legislation to provide monies for the revolving fund. In this regard, for example, Alaska is seen in the Lower 48 as a wealthy oil state whose needs for further Federal assistance are far less than those areas wherein heavy concentrations of high unemployment or low income are concentrated. In addition, the Lower 48 generally views Alaska as the last virgin land, which the remainder of the nation should put in trust to protect the environment for future generations. The recent House vote on the Alaska Lands Bill is indicative of this latter attitude. As a result, it may be difficult to get sustained Federal support for a Federal project which removes some pristine land from the domain of the untouched.
- (h) Federal spending per capita in Alaska typically amounts to twice the per capita income of Alaskans. This statistic may well be cited as a defense against authorizing large sums for a revolving fund which will be tapped primarily by the State of Alaska; even though repayment would ultimately be made, the probability that large sums will be placed annually in the revolving fund is not very high.
- (i) The cost of advanced engineering and development for this project will probably run about \$15 million per year for a period of 4 years. This amount is more than 50 percent of the money requested for advanced engineering and design for all projects in the 1977 Federal budget. It may be difficult to sustain, in periods of tight money, such a level of funding, even if it is to be later repaid.
- (j) The project will be regarded as benefiting 1/10 of 1 percent of the total population in the U.S. On the other hand, it can be argued that the nation would receive the benefit of nonrenewable resources conserved for other purposes.
- (k) The State can follow a low risk path on the Phase I work if the Federal Government provides the necessary concept of relieving the State of liability for the monies expended in the event that feasibility is not shown. Accepting this low risk, nonetheless, has to be balanced against the possibility that bureaucratic delays could cost much more than the \$25 million or so involved.
- (l) In the event that the Federal Government does provide sufficient money to maintain the revolving fund at the required level, the State could defer a decision to proceed on its own until that point at which Federal monies dry up.
- (m) The Federal hydroelectric development process is extremely cumbersome. It is time consuming, sometimes confusing, and often laced with conflicting regulatory requirements. On the other hand, it has been effective in ensuring that there is ample opportunity for consideration of all issues and for hearing the voice and arguments of the opposition.

(n) If the Corps is to use consultants, chances are great that most of the design will be done outside the State of Alaska. The Corps has a hydroelectric branch currently in Portland, Oregon; and, in addition, the work load is relatively slack at the Walla Walla District office, which has been involved over the years in a number of large hydroelectric projects. The use of a private consultant would allow the State to set specific minimum percentages of work which would have to be performed in-state.

- (o) As a Federal project progresses, need for a significant change to the originally authorized purpose can result in extended delays while changes are sought to the authorization. It is reasonable to assume that the State could streamline this process if it were footing the entire bill.
- (p) There is an element of State pride to be associated with undertaking this important giant project without having to rely upon the Federal government for subsidies and support. In that regard, the State of Alaska could be viewed as taking a leadership role, providing an incentive and an example for other states who may wish to have a greater hand in their own destinies.
- (q) One danger associated with Federal development is that there may be strong Federal influence as customer priority preferences are set.
- (r) In light of recent accelerated increases in the costs of fossil fuels, the chances that the project will be shown feasible are currently reasonably good. It follows that Alaska's expectation of having to reimburse the revolving fund for the cost of the Corps work must be correspondingly high. There is at least the chance that a private consulting team, unconstrained by certain bureaucratic layering and able to avoid the inefficiencies associated with year-to-year funding variations and uncertainties, can deliver a feasibility study and all the necessary exhibits required for FERC licensing at a markedly lower price than the \$25 million (in 1977 dollars) proposed by the Corps.

- A. A brief discussion of the factors the state of Alaska should consider in deciding whether to study and develop this project in cooperation with the federal government or undertake it as a state project using the private sector

The Alaska Power Authority (APA) is considering the ramifications of studying and developing the project in conjunction with the federal government, as a total state project supported by the private sector or some combination thereof. This question involves key policy and economic issues concerning the future business, organization and operation of the APA.

Section 203 of the Water Resources Development Act offers federal funds to states considering the study, construction and operation of qualified hydro projects. However, the use of federal funds also results in the imposition of constraints which could impact a state's control and flexibility over a given project.

The principal advantage of using federal funds lies in the financial assistance that might be available. Under Section 203, the federal government will underwrite the cost of studies which upon completion prove a project non-feasible. If the project moves to the development stage, the federal government will guarantee construction cost overruns and allow the building party to defer repayment of said capital overruns until the end of the license period. Upon completion of a project financed using funds appropriated by Congress, the marketing of project power will be the responsibility of APA. Principal drawbacks to the use of federal funds lie in the degree of increased government intervention generally fostered, the whimsical nature of the Congress in actually appropriate funds and the pure availability of funds.

APA would, no doubt, retain a greater degree of flexibility in marketing, allocating and pricing power from a state project.

Local or state control would streamline the planning, engineering, construction, operating and financing processes required for such a project. Also, orderly development of Alaska's natural, economic and human resources can be more easily sponsored, encouraged and coordinated if the state controls this most important power resource.

Local control would no doubt require a larger APA staff. If properly managed and controlled, the state's technical, financial, management and business resources should gradually expand.

A detailed Plan of Study developed with the supervision of the staff of the Alaska Power Authority and Stone & Webster's project team utilizing mutual incentives and motivation could jointly develop a necessary level of confidence on the engineering, economical and environmental feasibility of the Susitna River Basin Project at an early phase, or stage, of the POS. With a built-in series of check points and agreed upon milestones,



the State of Alaska could reach, at lower total expenditure, an early decision of the viability of the project and proceed with construction of the project. The state of Alaska could decide with a level of confidence to proceed with federal funding, state supported under Section 203 of the Water Resources Development Act or totally financed by the State of Alaska.

To display our confidence in our ability to perform the services on time and within budget, we would be willing to earn a portion of our engineering and construction fee against agreed upon schedule and performance targets. From our experience in both feasibility studies, engineering design and construction management, APA will recognize many advantages to the Susitna hydroelectric project by a closely coordinated effort where APA would control members of the project team, their schedule and quality of work. All services are provided by the same firm with single responsibilities.

In summary, development of the project by the state of Alaska using the private sector has the following advantages:

1. Studies and investigations would be completed more expeditiously.
2. State of Alaska would retain full control over the studies.
3. Private consultants would be more responsive toward the best interests of Alaska.
4. Plan formulations, power market and power benefit analysis, and economic evaluations would be performed to meet the requirements of Alaska and APA.
5. Major decisions as to the extent of development of hydroelectric resources and environmental and social considerations would be made by Alaskan authorities.

# ALASKA POWER AUTHORITY

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

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

June 4, 1979

Mr. Gregg Erickson, Director  
Legislative Affairs Agency  
Pouch Y  
Juneau, Alaska 99811

Dear Mr. Erickson:

As promised at our meetings in Anchorage on May 24 and 25, 1979, I am providing some initial comments on the study of alternatives to Susitna hydropower development.

1. The plan for Susitna development selected by the Corps of Engineers after preliminary feasibility studies consists of two large dam projects. This plan was arrived at through consideration of three factors: technical feasibility, maximization of long-term economic benefit and minimization of environmental impact. A factor not considered in plan formulation was economic/financial risk in the face of uncertainty. The recent supplemental studies completed by the Corps of Engineers include tests to assess the economic sensitivity of the proposed plan to variation in load growth, discount rates, and costs of the alternative modes. No attempt, however, has been made by the Corps to reformulate the plan to reduce economic/financial risk.

The need to develop a reduced risk plan to facilitate project financing was recognized and noted by several engineering firms that have reviewed the Corps of Engineers plan. Such a plan might include a staged development at the Watana site or perhaps a completely new development plan for the basin. The detailed feasibility studies to be conducted over the next several years will address this issue. I have attached information provided in 1977 by Harza Engineering Company in which more moderately sized initial development is recommended. (See attached, page 4-6.)


As you proceed in the study, then, please keep in mind that the currently accepted 2-dam plan is by no means the only way to develop the Susitna potential. A more gradually staged plan of development may emerge from the detailed studies. This, in fact, is my hope and expectation.

2. In the determination of the various generation mode power cost estimates (or probability distributions), there is a need for consistent uniform treatment among alternatives. This applies to locational cost factors, unit prices, contingency factor assumptions, etc. The lack of such consistency could severely bias the study conclusions. I recommend that this issue of uniform treatment be addressed in the study plan. For this reason, it would seem to me that the use of a single consultant for estimating the cost of all alternatives would be preferable to using several different consultants.
3. As I understand it, the impetus for this study was largely from the environmental community. One of the major concerns of the environmentalists is that the "soft path" of energy provision, using "appropriate technology" in small dispersed increments, is not receiving adequate consideration in the decision making process. It seems only reasonable, then, to address the full range of energy alternatives in this study. I recommend that the environmental groups be contacted early on and given an opportunity to offer their suggested generation scenarios. It would then fall upon you to select from among the full range of alternatives those that deserve detailed attention in the study.
4. In a related matter, geothermal energy has been suggested by some as an alternative to Susitna. Our research indicates that "hot dry rock" applications offer the best hope of economic development on a significant scale. This technology is presently under development by Los Alamos Scientific Laboratories in New Mexico. Drilling for wet steam in the vicinity of volcanic activity may also be a possibility. A cost of study for geothermal development in Alaska is under way at Energy Systems, Inc. of Anchorage. I suggest that the geothermal alternative be one that is explored, at least initially.
5. Another alternative requiring consideration is smaller hydroelectric potential in the Railbelt area. The Alaska Power Administration in Juneau is the authority on this issue. The Power Administration just recently completed an analysis of alternate sites for the Corps of Engineers' supplemental feasibility studies of Susitna. Another source of information on the subject is the CH2M Hill study done for the Corps. As I mentioned during our discussion, this latter work is primarily an environmental and land use review with the participation of environmental interests. I have asked the Corps (Ron Turner, 752-3432) to send you a copy.

6. Information on electrical energy alternatives for Southcentral Alaska is currently being gathered as part of the inter-governmental Southcentral Level B Water Resources Study. The Alaska Power Administration is the lead agency for the electric power task force and can probably provide a useful assessment of energy options.
7. The provision of Railbelt electrical power is now and will continue to be the responsibility of the several utilities. With this in mind, I hope you maintain frequent contact with the utility managers through the course of the study. It is really their problems that we are trying to shed light on.

It was very beneficial for Robert and I to talk with you about the study. Robert, by the way, will be coordinating most of our Susitna Activities and I would appreciate his being kept informed on your studies as they progress. It appears that you intend to drive to the heart of the controversy. We look forward to clear and useful results, hopefully followed by definitive action on the part of the State. Please keep us informed as the study plan takes shape.

Sincerely,

  
Eric P. Yould  
Executive Director

Attachments:  
as noted

cc: Chuck Behlke

STATE  
of ALASKA**MEMORANDUM**TO:  All Interested Persons

DATE: 10/24/79

FILE NO:

TELEPHONE NO:

FROM:

Eric P. Yould *EPY*  
Executive Director

SUBJECT:

## ALASKA POWER AUTHORITY

PLEASE TAKE NOTICE that the Board of Directors of the ALASKA POWER AUTHORITY will hold a public meeting in the Windsor Room of the Sheffield House Anchorage, 720 West Fifth Avenue, Anchorage, Alaska, on Friday, November 2, 1979 at 1:00 P.M. for the purposes of: (1) Review and approval of Minutes of the September 27, 1979 Board Meeting held in Anchorage, Alaska; (2) Opportunity for public comment; (3) Consideration of actions relative to the Lake Tye Hydroelectric Project FERC license application; (4) Any other business or action which may properly come before the Board; and (5) Actions with respect to the Susitna Hydropower Project: (a) Agreements and (b) Selection of method and engineer for proceeding with Feasibility Study.

May 24, 1977

Mr. W. C. McConkey, Director  
Division of Energy and Power  
Development  
Department of Commerce and  
Economic Development  
State of Alaska  
7th Floor Mackay Building  
Anchorage, Alaska 99501

Re: Susitna River Development

Dear Mr. McConkey:

In accordance with your request, we are pleased to present our Proposal for professional services to carry out an appraisal of the Susitna River including a Master Plan for ultimate river development and selection of an initial project.

Our Proposal, attached to this letter, contains:

1. Scope of Services
2. Work Program
3. Project Organization
4. Personnel Experience Records
5. Harza Engineering Company Experience

In this letter we review the more significant conceptual aspects of the Susitna River Program and of our Proposal.

Need for Study

To date the Susitna River has had three major appraisal studies; two by U. S. Federal agencies and one by a consultant formerly associated with a large aluminum producer and construction firm. The ultimate development and initial projects proposed in each of these prior studies differ substantially from each other. The solutions of the Federal agencies appear to be

based upon traditional Federal financing with very large initial investments. This would require repayment deferrals or annual subsidies during the early years of Project operation.

The development proposed by the private firm, while physically different from the others, also would require a very large initial investment as well as a fill dam of unprecedented height. The justification for this large initial investment appears to be based on the superposition of a major aluminum reduction load upon the normal growth of Railbelt power demands.

Our analysis of the existing studies leads us to believe that the developments proposed are inappropriate for the power market, the environment and the current private money market. We urge that a more moderate approach to river development be followed in the first stages. This course of action will prepare the way for maximum realization of the river's energy potential in the future.

The existing studies, while well done, have created initial projects which are appropriate to mature power markets. In those markets the energy from new projects is easily absorbed in an already functioning multi-billion dollar industry. This is not the case in Alaska, where we are trying to establish an integrated power system. The economics of such a system should offer some rate of relief for retail customers and some protection from the price spiral soon to boost even more the Railbelt power rates.

State financing of the projects would now appear more feasible than Federal financing, and probably represents the only way to achieve early development of this valuable hydroelectric resource. Federal funds for large water projects are now difficult to obtain whereas there is an extensive market for tax-exempt revenue bonds.

Limitations on repayment capacity will most likely rule out very large initial projects. Therefore, a State-financed project should be of a size compatible

Mr. W. C. McConkey, Director  
May 24, 1977  
Page Three

with the anticipated growth and the repayment capacity of the Railbelt utility companies. No dependence should be placed now on speculative special loads such as aluminum reduction facilities or gas pipeline compressors. If they do occur, second and third stage projects can be advanced.

State-financed projects are subject to authorization by the Federal Power Commission and not by the U. S. Congress as is the case for Federally-financed projects. The FPC procedures, being quasi-judicial and non-political, should be more favorable to a less populous State such as Alaska. However, the projects should be of modest size, of proven designs and with minimum environmental impact. Smaller projects will have shorter lead time as well as shorter construction and reservoir filling times, which will permit earlier replacement of energy generated by fossil fuels.

The thrust of our Proposal is for projects that can be financed by the State of Alaska which we understand is a present consideration of the State. Nevertheless, a development suitable for State financing should not preclude Federal financing should changes in State and Federal policies occur. On the contrary, such a development would be more acceptable for either type of financing, rather than very large dams with greater environmental impact and costs.

#### Development Program

The proposed study is a first essential phase of a State-financed program of development. On Exhibit A, attached to this letter, we show our concept of the various engineering, legal, and construction phases required to place the initial and subsequent project in operation.

At the end of each phase or sub-phase there is a decision point at which the State can consider the merits of proceeding to the subsequent phase, or of continuing the overlapping phases then in progress.

For most of the phases the time requirements can be fairly well determined from experience with similar projects. The least certain phase is the FPC licensing procedure. The timing of this phase will depend upon the need for and extent of FPC hearings. If environmental impact is minimized, and the projects are of moderate size, the time should be reasonably short. In the absence of objections to the projects, the resulting reduction in use of fossil fuels should make an early FPC license desirable from both the State and national viewpoints. On Exhibit A, we show our best estimate of this phase.

No commitment to construct (Phase IV) is required until:

1. An FPC license is granted
2. Construction and major equipment bids are received
3. Power sales contracts are in escrow
4. Financing is assured.

If the program shown on Exhibit A is followed, and no exceptional delays occur before the FPC, a modest size initial project could be in operation by the end of 1985.

By that time the Railbelt peak power demand (without special loads) should be over 1000 megawatts, almost entirely served from fossil-fueled plants. An initial hydroelectric project on the order of 400 megawatts would have its energy immediately useable and its capacity absorbed in less than four years.

#### Type of Development

The prior studies have considered hydroelectric development on the Upper Susitna River from Denali to Devil Canyon. The FPC inventory of resources in Alaska shows potential run-of-river projects downstream of Devil Canyon. These latter need upstream storage for their justification and are unlikely to be part of an initial project.

Our study is directed to the Denali-Devil Canyon section of the river. A number of specific sites have been identified previously:

Denali

Vee

Watana

Devil Canyon

Devil Canyon (high dam)

Different types and heights of dam and installed capacities have been studied and proposed for each of these sites.

Rockfill dams to an unprecedented 810-foot height have been considered at Devil Canyon and Watana. A well preceded 635-foot high concrete arch dam at Devil Canyon appears in some plans.

The high rockfill dams proposed were intended to provide large reservoir storage permitting almost complete regulation of the river. These developments anticipated large power plants with installed capacities that could substantially replace all thermal-electric generation. We do not believe that this approach is viable under State financing. The initial investments in the hydroelectric project would be too great and the investment in existing thermal-electric plants would not be fully depreciated by the Railbelt utilities.

Alaska, with 33,000 megawatts of potential hydroelectric power, should, within the next twenty years, convert to a fully hydroelectric supply, similar to the Columbia River Basin development in previous decades. The plan for ultimate development of the Upper Susitna River should include greater amounts of storage in future stages, but not necessarily in the initial stage.

In our view, the type of development of the Upper Susitna River best suited for State financing requires;

1. Economic development of the maximum potential of the river within a future Railbelt power system.
2. Individual projects of reasonable size within the limits of an acceptable environmental impact.

3. An initial project of a size commensurate with the power needs and repayment capacity of the power purchasers in the mid-1980's, and which can be placed in operation in minimum time.

#### Scope of Study and Work Program

The scope of study and corresponding work program as presented in this proposal are intended to provide the State of Alaska with sufficient information by the end of 1977 for a decision to begin early in 1978 with a definite project report on the initial stage of development (Phase IIA).

The timing of these phases is important for use of the summer seasons. Field reconnaissance required for Phase I can still be done during the 1977 summer. If Phase IIA starts early in 1978, the required drilling and other field exploration can be mobilized for the 1978 summer. A significant delay in the start of either phase will cost at least one summer season.

Phases I and IIA can be combined, if the State should so desire, with a less formal interim report to be submitted at the end of 1977 when the initial project has been identified. However, the attached Proposal for Phase I only is intended to minimize the initial commitment of funds and to provide a more substantial basis by January 1978 for the budgeting of the subsequent phases.

The scope of work shown includes a Master Plan for ultimate development of the Susitna River and selection of the most favorable initial project. It also provides for a preliminary comparison of the initial Susitna Project with other potential sources of power available to the Railbelt area. This latter comparison could be omitted from Phase I, if the State so wishes. In any case, a thorough comparison with other sources of energy will be essential in Phases IIA and IIB.

#### Organization for Study

To carry out the studies, we propose to use our senior and most experienced people for the key aspects that require creative professional services.

We will also assign experienced men as overall Project Director, Chicago Project Manager, and Alaska Resident Manager to coordinate the work both in Chicago and in Alaska. We will maintain constant liaison with the Alaska authorities.

A list of personnel to be assigned to the studies is contained in our Proposal, together with their responsibilities and personal experience.

#### Harza Engineering Company

By now you are familiar with our firm, its capabilities, and its experience. Some of this information is repeated with this Proposal.

We wish to emphasize Harza's independent character. The firm is wholly owned by full-time employees and has no affiliation with any constructors, manufacturers, financial institutions, or governmental agencies. This professional independence enables us to serve in our Client's sole interest without distracting influences.

#### Alaskan Associate

We have found it generally advantageous for the client if we are able to utilize the abilities of a local consulting firm in carrying out assignments. In this project we anticipate requiring the assistance of one or more Alaskan firms. Presently we have arranged with KPFF Consulting Engineers, Anchorage to make available to the project the services of Frankland Smith. KPFF and Harza have been acquainted for about 10 years and Frankland Smith is known personally by the officers of Harza. Mr. Smith was Project Manager for the City of Tacoma for hydroelectric projects on the Cowlitz River which were designed by Harza. We believe that his knowledge and ability will be of particular value in the project.

#### Conclusion

We believe that the study described in the attached Proposal is needed now and is appropriate to the orderly and successful development of the Susitna

Mr. W. C. McConkey, Director  
May 24, 1977  
Page Eight

River. To make use of the 1977 summer season, the study should be started soon.

For this type of appraisal of a non-Federally financed hydroelectric development, Harza Engineering Company is well qualified. To our knowledge, our experience in such projects is not matched by private firms or government agencies in the United States.

We will be pleased to discuss any element of our Proposal at your convenience.

Very truly yours,

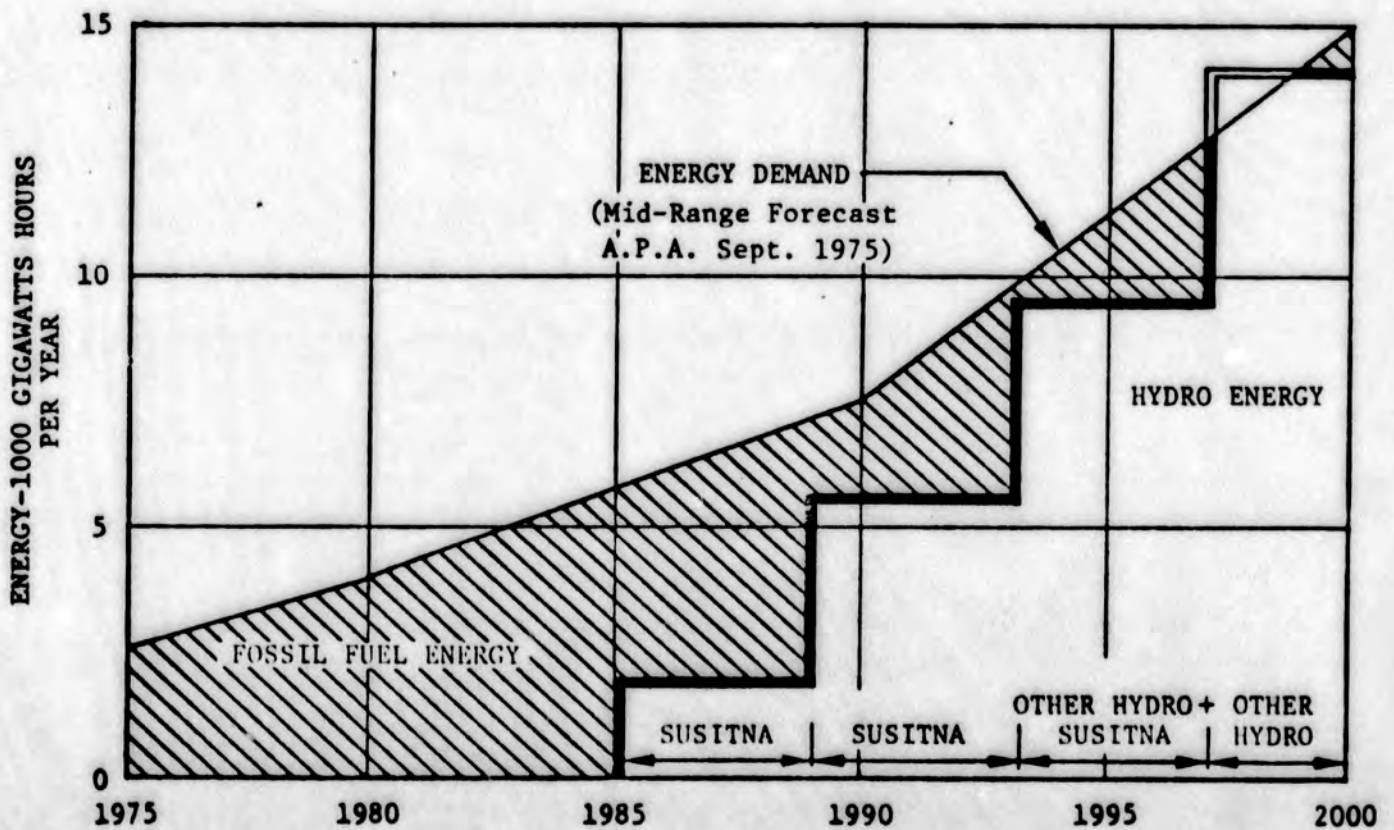
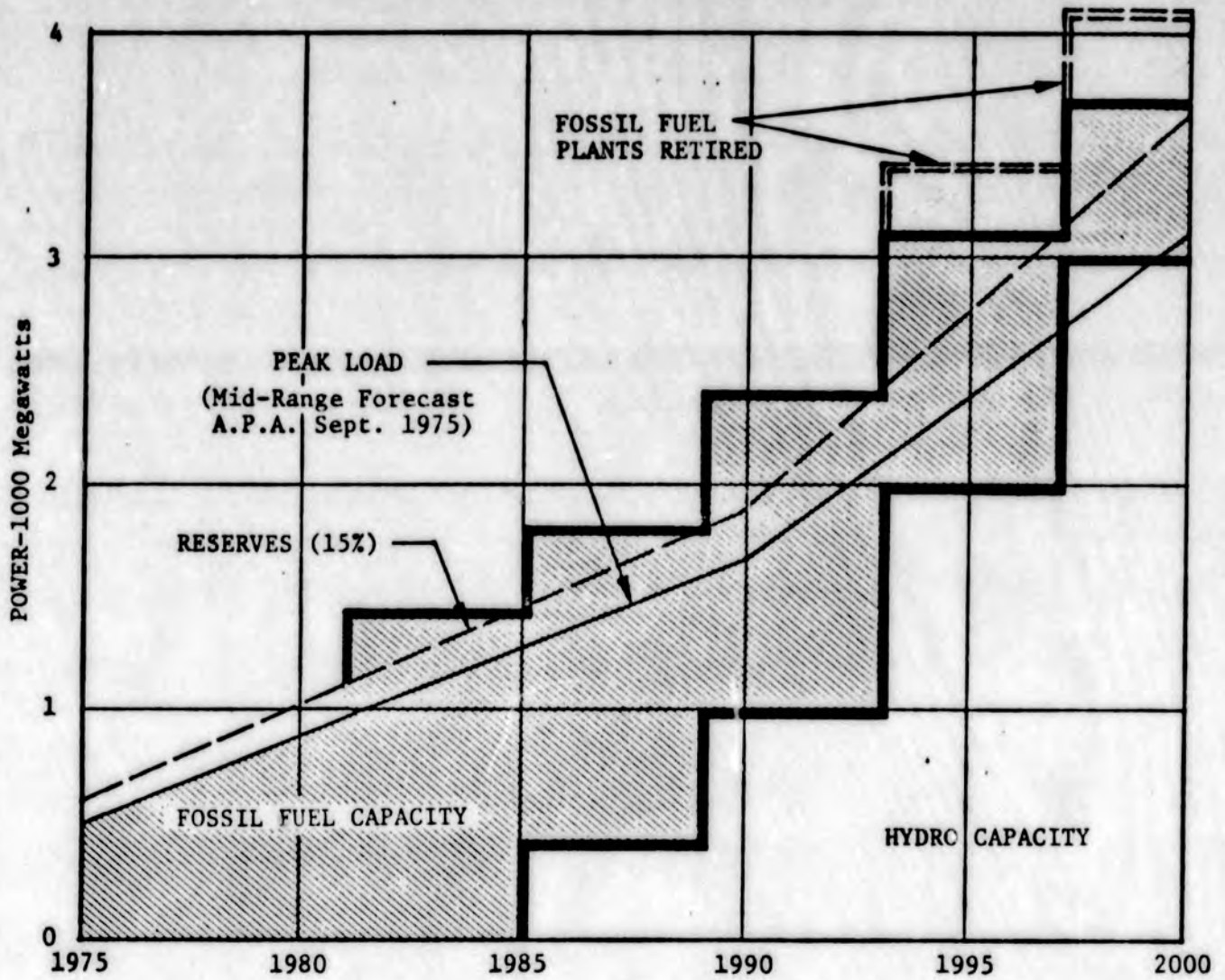
  
Richard D. Harza  
Vice President

Enclosures: Exhibit A  
Proposal

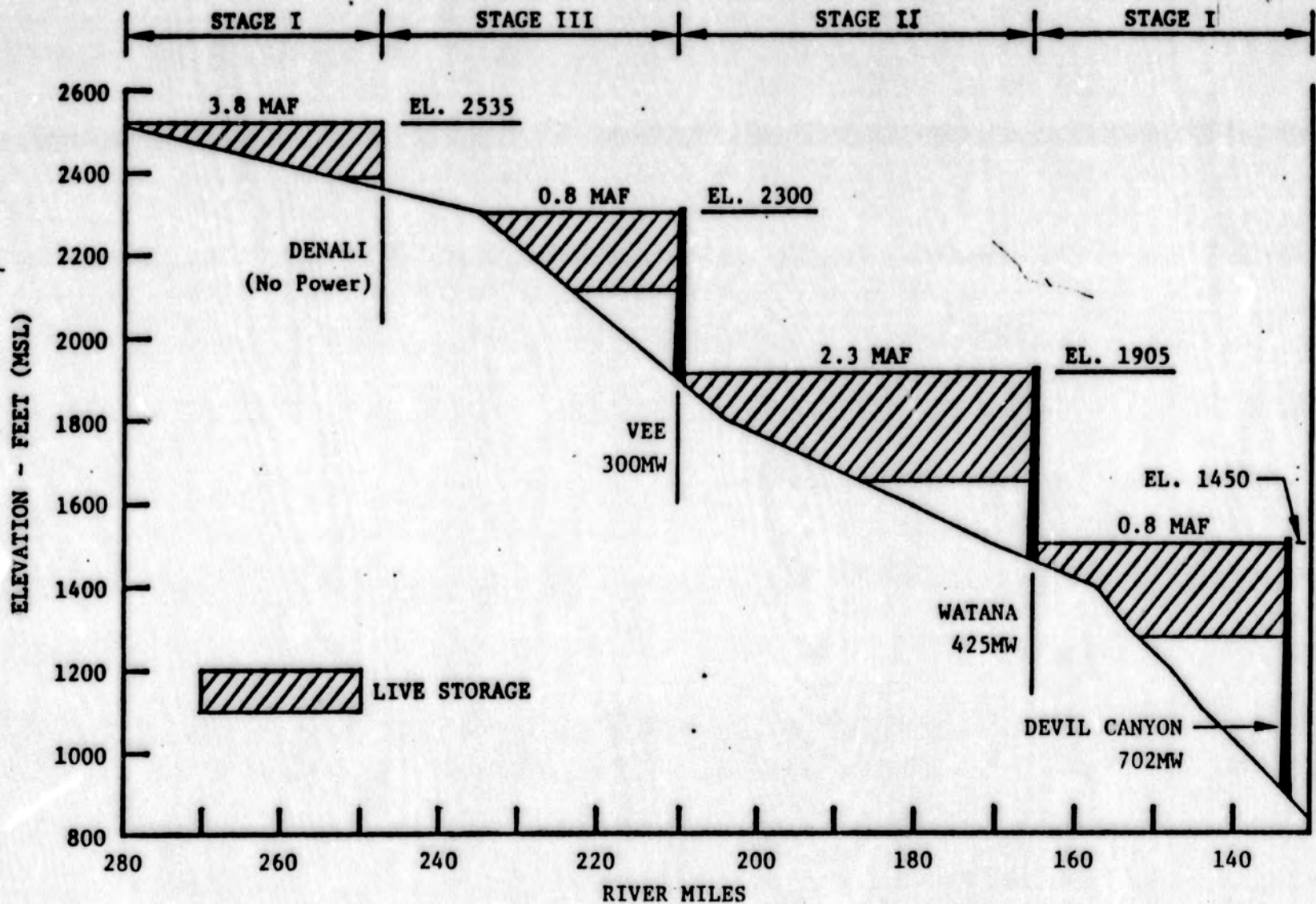
PHASE ACTIVITY	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
I RIVER MASTER PLAN	█													
INITIAL PROJECT		█												
IIA DEFINITE PROJECT REPORT		█												
IIB FPC LICENSING		█	█	█										
IIIA BIDDING DOCUMENTS			█											
IIIB BIDDING PERIOD			█	█										
IIIC POWER SALES CONTRACTS			█	█										
IIID FINANCING ARRANGEMENTS			█	█										
IVA CONSTRUCTION					█	█	█	█	█	█				
IVB RESERVOIR FILLING									█					
IVC GENERATION										█	█	█	█	█
SECOND PROJECT <sup>1/</sup>														
II REPORT AND LICENSING						█	█	█	█					
III BIDDING AND FINANCING							█	█	█					
IV CONSTRUCTION										█	█	█	█	█
e <sup>1/</sup> DECISION POINTS	→	←	→	←	→	←	→	←	→					

<sup>1/</sup> Second project can be advanced if needed sooner.

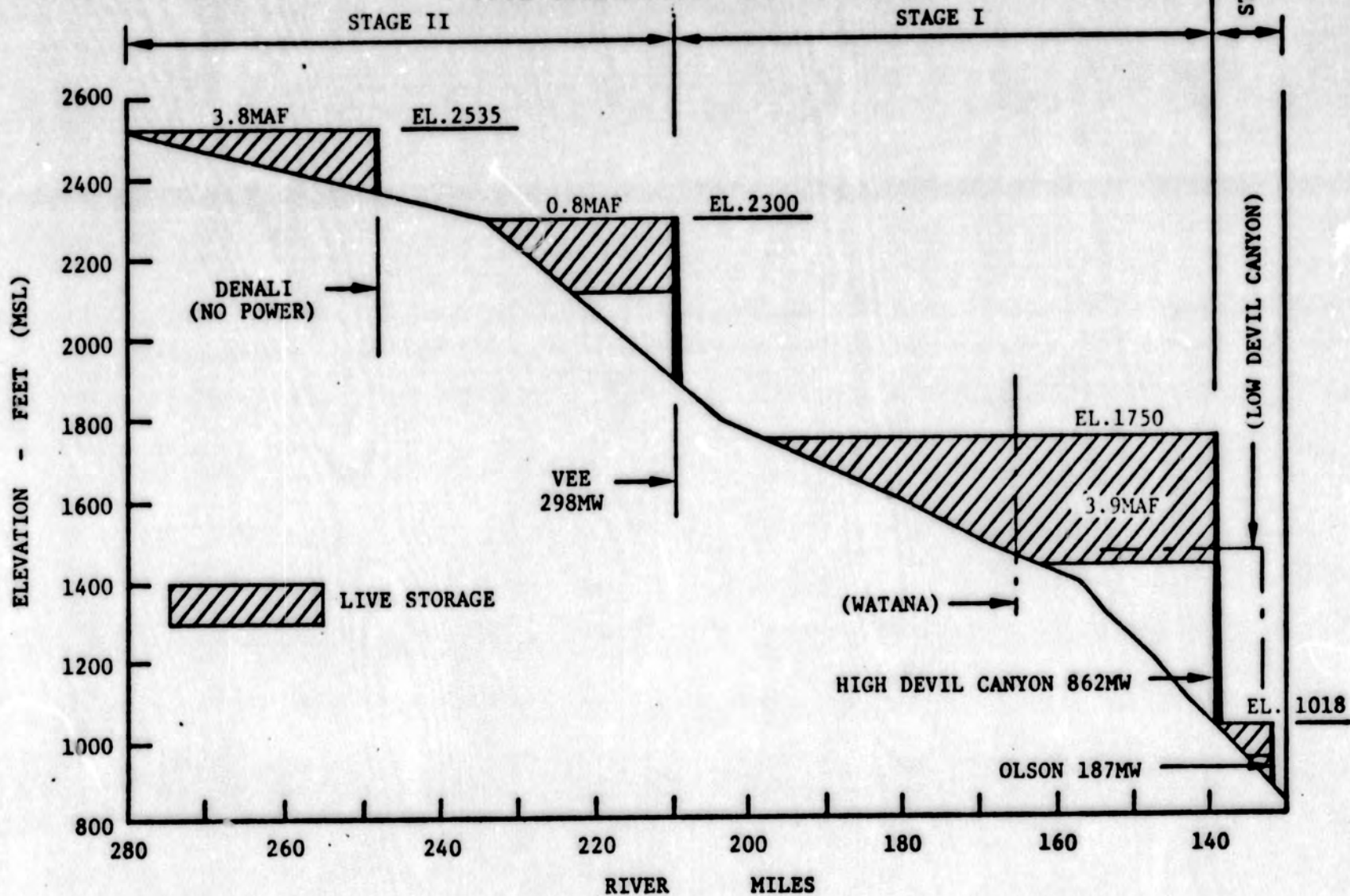
# SOUTH CENTRAL RAILBELT LOADS AND RESOURCES



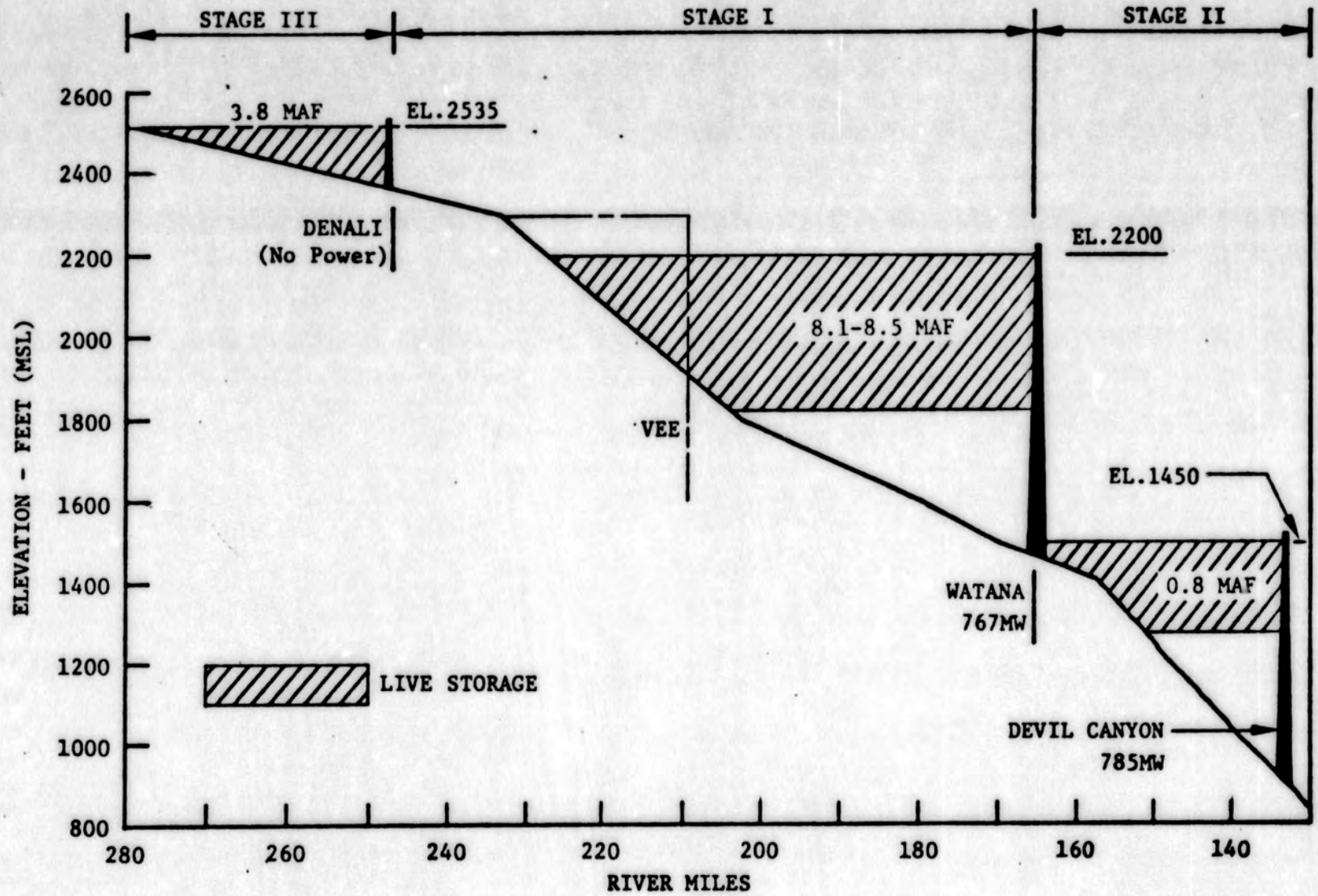
# UPPER SUSITNA RIVER USBR DEVELOPMENT



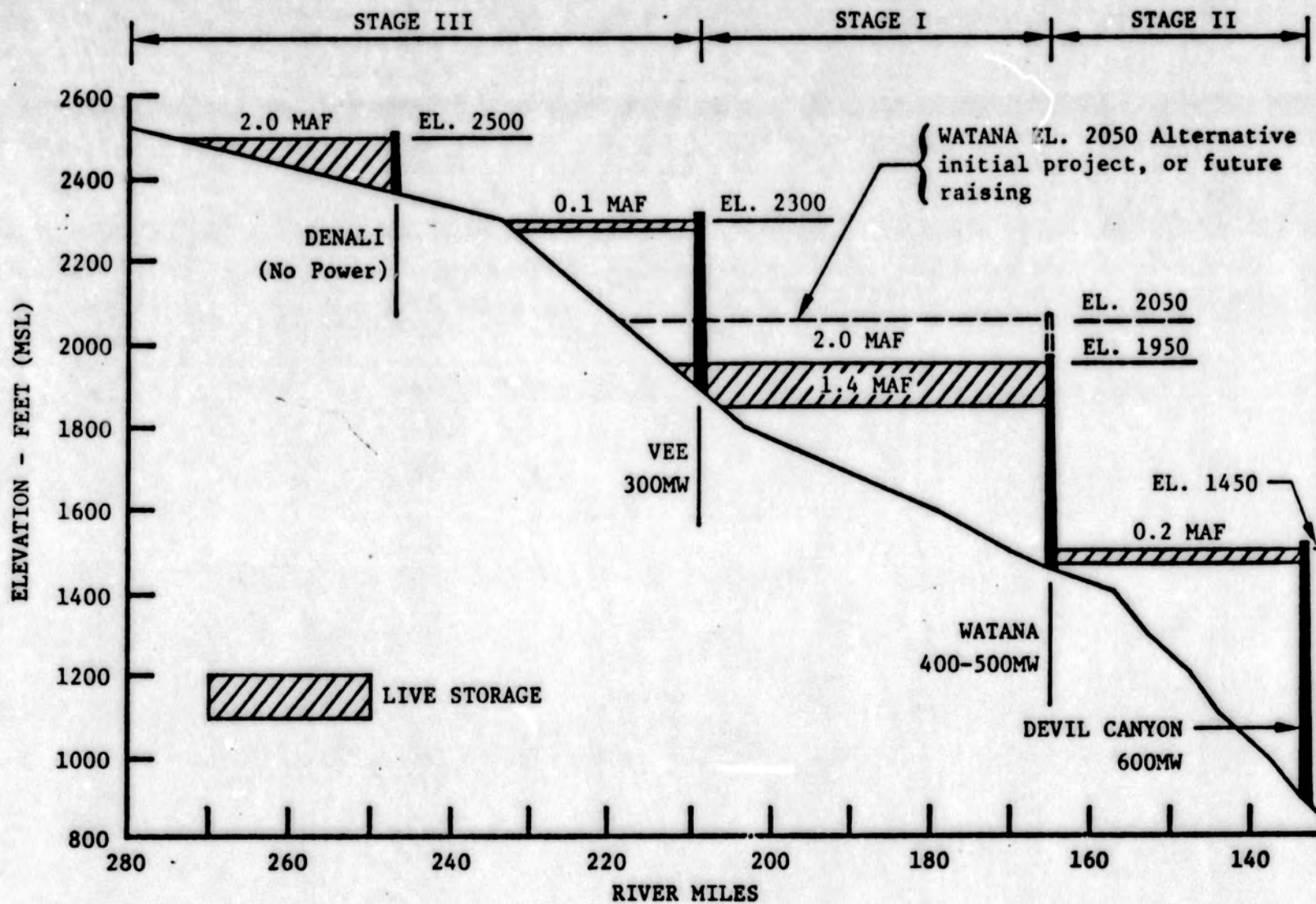
# UPPER SUSITNA RIVER KAISER DEVELOPMENT (AS MODIFIED BY CORPS)



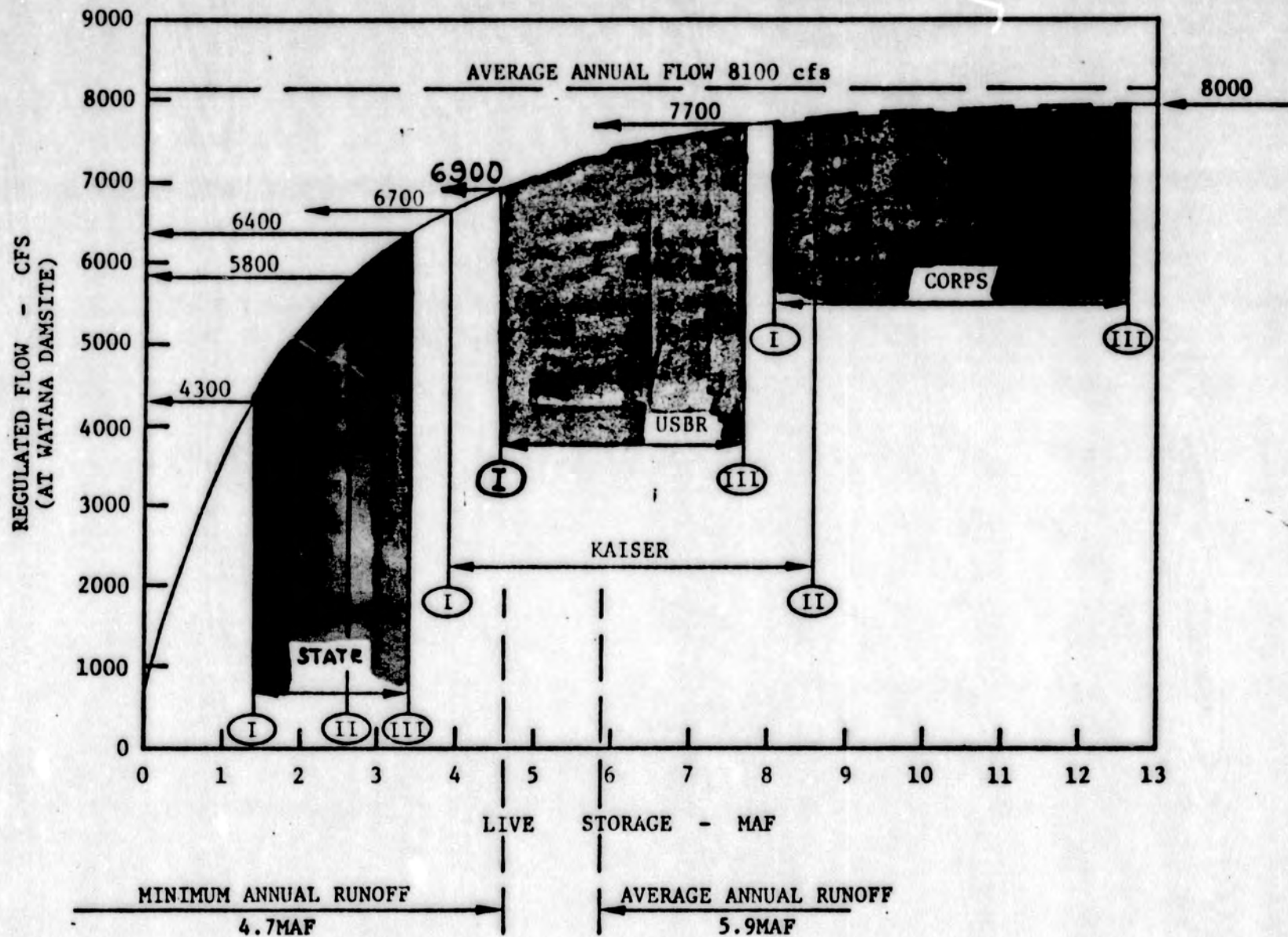
# UPPER SUSITNA RIVER CORPS DEVELOPMENT



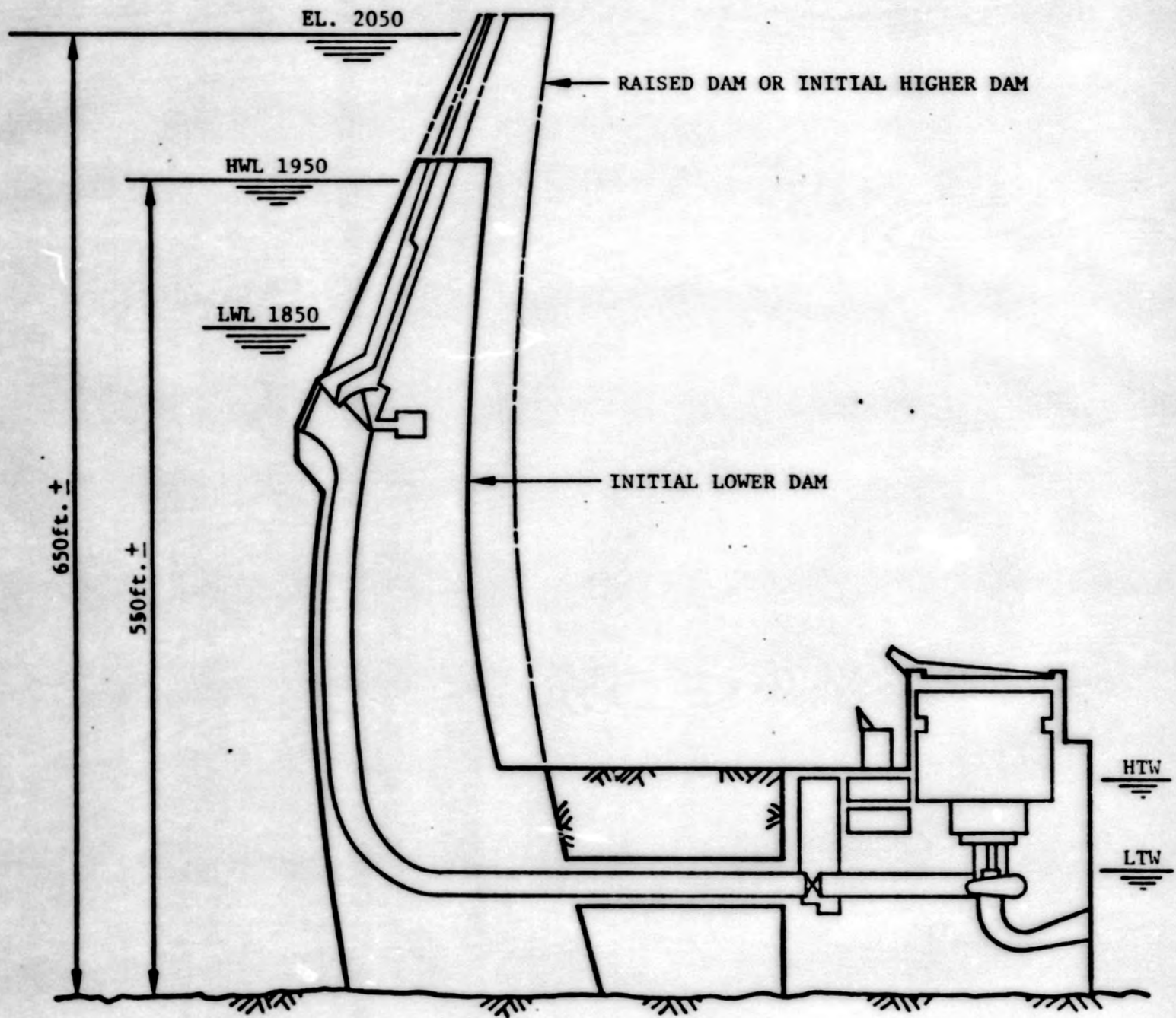
# UPPER SUSITNA RIVER STATE DEVELOPMENT (SUGGESTED)



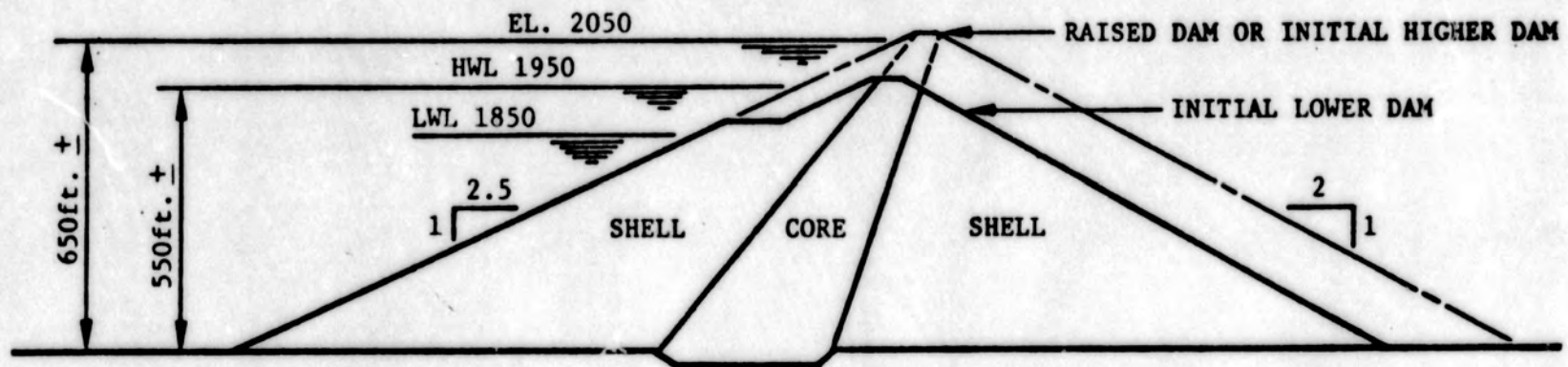
# UPPER SUSITNA RIVER COMPARISON OF DEVELOPMENTS LIVE STORAGE



# WATANA PROJECT STATE DEVELOPMENT CONCRETE ARCH DAM



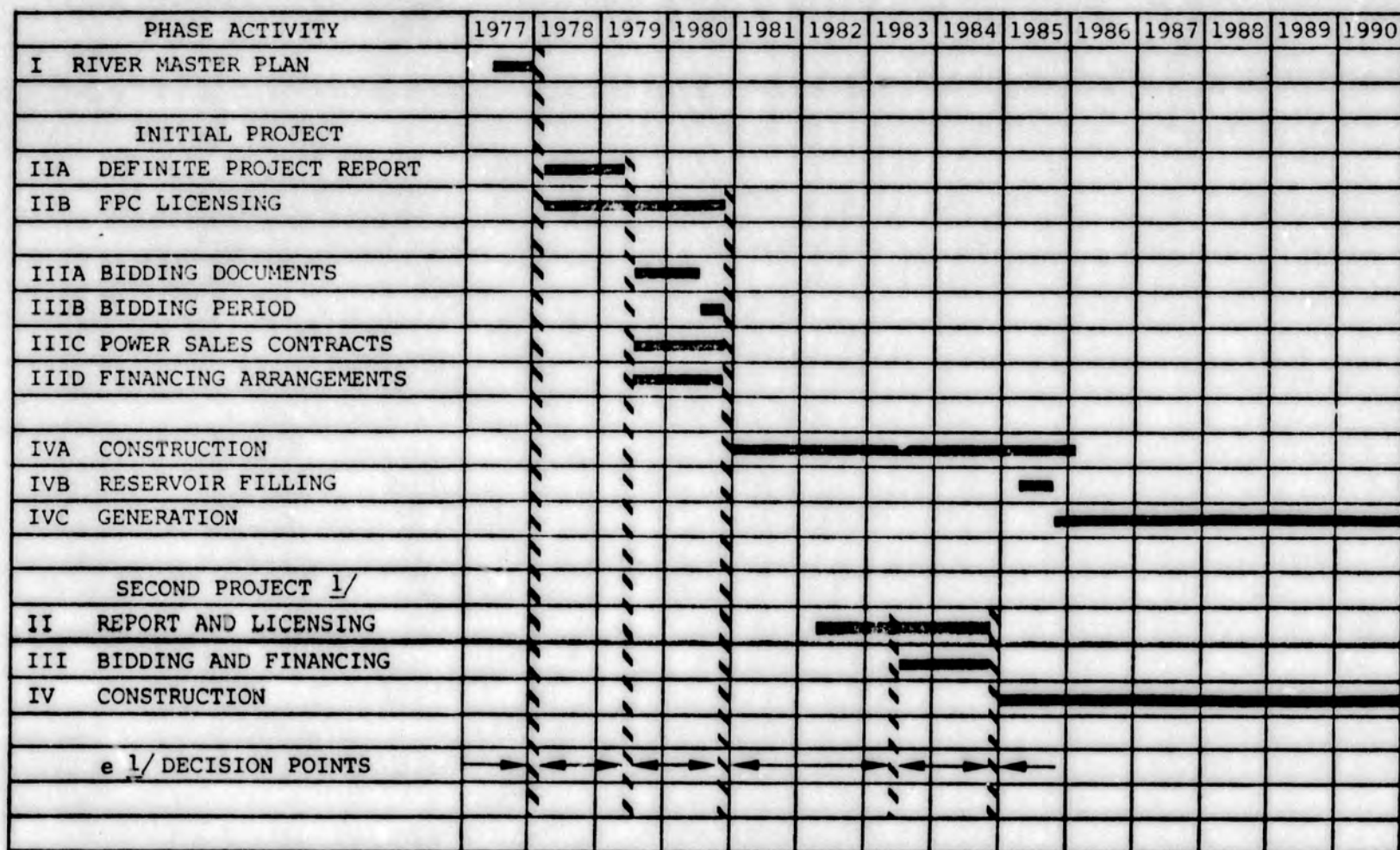
WATANA PROJECT  
STATE DEVELOPMENT  
ROCKFILL DAM



## COMPARISON OF DEVELOPMENTS

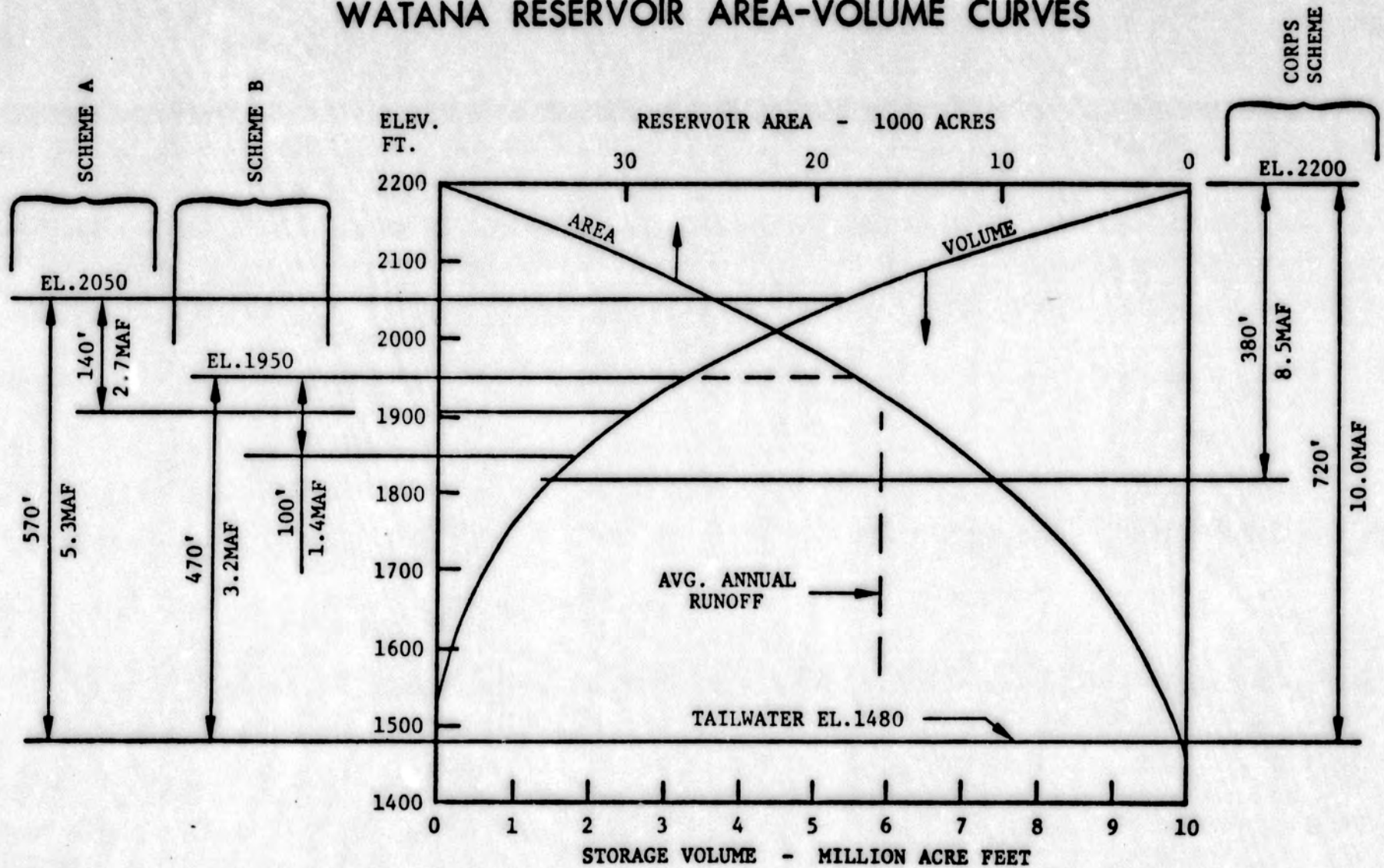
	STAGE I				ULTIMATE			
	USBR	KAISER	CORPS	STATE	USBR	KAISER	CORPS	STATE
POWER - MW	425	862	767	400	1,427	1,347	1,552	1,300
ENERGY - Gwh yr.	2,031	4,456	3,405	2,000	6,881	6,511	6,911	7,000
LIVE STORAGE - MAF	4.6	3.9	8.1	1.4	7.7	8.6	12.7	3.4
TOTAL STORAGE - MAF	5.3	4.7	10.0	3.2	8.9	9.6	15.3	7.6
RESERVOIR AREA (1000 Acres)	61	23	40	18	84	86	101	74
DAMS (Height in Feet)								
Denali	268	-	-	-	268	268	268	233
Vee	-	-	-	-	455	455	-	455
Watana	-	-	810	560	515	-	810	560
Devil Canyon	635	810	-	-	635	810	635	635
Olson	-	-	-	-	-	145	-	-
TOTAL	903	810	810	560	1,873	1,678	1,713	1,883

EXHIBIT A



<sup>1/</sup> Second project can be advanced if needed sooner.

# WATANA RESERVOIR AREA-VOLUME CURVES



# ALASKA POWER AUTHORITY

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

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

April 7, 1980

Mr. Mark Wittow  
Pouch V  
Juneau, Alaska 99811

Dear Mark:

I want to be sure that you knew that the first round of community meetings for the Susitna hydroelectric plan of study will be held next week. I have enclosed a copy of a flyer for the meetings. Please pass it around or post it to help advertise the meeting.

You are especially invited to join us at the meetings because of the work you are doing for the Power Alternatives Study Committee.

An agenda is attached. Of particular interest is the part describing the process by which alternatives to Susitna will be examined and analyzed, and the points at which the public is involved.

We are making every effort possible to give the public ample opportunity to make comments, especially in the early stages of the study when additions or changes to the plan of study are easier to accommodate.

I also want you to know that I am receiving copies of your work and will be using some of it as I prepare information for the general public throughout this year. I will be checking with Mark Wittow to make sure that I am referencing your work accurately.

Reserve copies of the plan of study are available at libraries in these areas: Anchorage--Z. J. Lussac, Alaska Resources Library, the University of Alaska Library, and Eagle River; Fairbanks--Noel Wien and Elmer E. Rasmussen at U of A; Kenai Peninsula--Seward, Homer, and Kenai; Mat-Su Borough--Palmer, Wasilla, Willow and Talkeetna. The Alaska Resources Library and Rasmuson Library also have one copy each that may be taken from the library.

I hope to see you at one of the meetings next week.

Sincerely,



Nancy Blum

Public Participation Program

Enclosures

# ALASKA POWER AUTHORITY

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

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

April 25, 1980

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

Dear Representative Malone:

The Power Authority's Susitna Hydroelectric Project Plan of Study (POS), prepared by Acres American Incorporated, has now had the benefit of substantial review. Comments have been received during a series of four public meetings held throughout the Railbelt during the week of April 14, 1980; they have been received from Arlon R. Tussing & Associates in the form of a draft report for House Power Alternatives Committee; and others have been received directly from agencies and individuals who have studied the POS.

The Tussing Report, along with many of the other comments, address the selection of the preferred power generation alternatives in the face of uncertainty and risk. The original plan of study acknowledged this high level of uncertainty and the resultant difficulties in recommending a single plan. At the same time, the POS was also sensitive to the somewhat conflicting goal of economizing on study cost. The weighing of these and other factors resulted in an approach whereby all alternatives would be studied for one year after which a single plan would be recommended for additional study. This plan, if it included the Susitna Project, would then be the subject of intensified detailed feasibility investigations. At the completion of the feasibility studies, the earlier decision would be reassessed in light of the more detailed information gathered during the second year. If the earlier decision was confirmed, then the Federal Energy Regulatory Commission license application would be prepared and submitted.

A more cautious and more costly approach has been suggested by Mr. Tussing. He suggests detailed assessments of several of the more promising alternatives before the recommended plan is selected. Thus, detailed marketing, financing, cost, scheduling and risk assessments would be conducted on a number of alternatives rather than on the one alternative plan that emerged from the first year alternatives study.

A plan of study revision in keeping with Tussing's suggestions has been prepared by Acres American at the request of the Power Authority. The Go/No Go decision points in the POS relate to continuation of study efforts and not construction of any project. The revised plan now has two such decision points relating specifically to assessment of alternatives, one in early 1981 much as originally proposed and a second in the Spring of 1982. The first decision was and still is intended to provide some assurance that continuation

The Honorable Hugh Malone  
April 25, 1980  
Page Two

of Susitna Project studies are, or are not, likely to be worthwhile. In addition, it would now serve to identify several promising power generation plans. The second decision would provide the more detailed comparison of the several more promising alternative plans such that a decision could be made on whether to proceed with licensing the project. In the event that a decision in favor of Susitna licensing was forthcoming, the revised approach would not impact license application submittal timing. In fact, it would likely strengthen the defensibility of the license application and thereby possibly accelerate eventual licensing. The additional cost associated with this revised approach is \$1,365,000. A summary of changes to the POS reflecting the revised approach is attached.

While the Tussing Report contains a number of valuable suggestions, there are also a number of inaccuracies that should be noted. First of all, there is an apparent misconception about the purpose of the first decision. It is not to decide "whether or not the state should develop the hydropower potential of the Susitna River" (Tussing, page 12). Instead, it is to decide whether or not the feasibility studies of the project should be continued. Thus, the statement that "the decision regarding Susitna's viability will not be based on either its economic or financial feasibility" (Tussing, page 12) is grossly in error.

With regard to load forecasting, Tussing claims that the POS ignores load management techniques (page 17). In fact, the POS specifically calls for the consideration of such techniques in Subtask 1.03.

Despite such inaccuracies, the suggestions provided by Mr. Tussing and others to more completely and systematically deal with uncertainty and risk in choosing among different power generation strategies is worthy of your consideration for additional funding.

Sincerely,



Eric P. Yould  
Executive Director

Attachment:  
as noted

## ATTACHMENT 1

SUMMARY OF CHANGES RECOMMENDED TO INCREASE LEVEL OF EFFORT  
FOR ALTERNATIVE POWER STUDIES (\$ x 1000)

Subtask	Original POS Value	Changes Associated With <sup>(4)</sup> Recommendation Number								Other Recommended Changes	New Value	Remarks
		1	2	3	4	5	6	8				
ISER Work	\$ 60 <sup>(1)</sup>								+100		\$160	Provides funds for major updates, especially after census data is in
1.01 - Review ISER	35.2								+ 50		85.2	Permits continuing interaction with ISER work including the formulation of a place for improving the data base for future energy and load forecasting
1.02 - Forecasting Peak Load Demand	47.7	+100									147.7	Provides separate peak load and load duration for each load management strategy at each demand level
1.03 - Identify Alternatives	96.3	+100									296.3	Provides detailed analysis of load management strategy and considers interrelationship with conservation strategy. Develops energy conservation in more detail as an alternative.
				+100								Provides for refined site-specific data to assess energy resource availability, technical and commercial use availability, expected fuel dependency, preliminary safety, health and environmental concerns, costs per unit of electricity supplied, schedules and input to risk analyses.
1.04 - OGP Analyses and Expansion Sequence	30.0								+ 70		100.0	Significant increases due to: (1) More alternatives to be evaluated in-depth and screened through OGP Program (2) Decentralized scenario added (3) Imposition of three load management strategies on each demand level (4) Reiterate when necessary using additional OGP analyses and Delphi method when appropriate.
05 - Impact Assessments	138.0									+150.0	288.0	Balances more detail on study of other factors (cost, risk, site specificity, finance, etc.) Has to be expanded to additional scenarios (Decentralized scenario, three load management strategies).

## NOTE:

Tussing's Recommendation #7 is incorporated as an integral part of the Revised Study Approach.

ATTACHMENT 1 (Cont'd)

SUMMARY OF CHANGES RECOMMENDED TO INCREASE LEVEL OF EFFORT  
FOR ALTERNATIVE POWER STUDIES (\$ x 1000)

Subtask	Original POS Value	Changes Associated With <sup>(4)</sup> Recommendation Number							Other Recommended Changes	New Value	Remarks
		1	2	3	4	5	6	8			
7.06 - Report	12		+ 25				+ 50		87.0	\$50k for interim report and updates. \$25k to account for reporting on broader scope, more alternatives, etc.	
6.01 - 6.08 (Susitna alts)	354.6		+200						554.6	Develop more details on cost and schedule for all Susitna alternatives (not just "selected" scheme)	
11.01, .02 - Project Overview and Internal Reports	\$ 191.1 <sup>(2)</sup>							+ 50 <sup>(3)</sup>	\$241.1	Although Task 11 is still under discussion with APA, changes noted here are based on effect of Tussing recs on plan as currently in POS	
11.03 - Alternative Risk Analysis	17.5			+ 50 (3)					67.5	Major increase in number of expansion sequences to be considered requires corresponding increase in risk analysis	
11.04 - Susitna Risk Analysis	24.5		+ 50 (3)						74.5	Risk analysis would now be done on all Susitna alternatives (not just one)	
11.12 - Preliminary Marketing and Financial Studies	(New)				+ 75				75	Marketing and Financing studies were to be made only for Susitna and only if selected. More detail is now sought earlier per Mr. Tussing's comment	
1.07 - Power Study Panel	(New)					+ 75			75	Adds subjective probability factors permitting increase in information available at review points. Adds objectivity factor to eliminate potential bias	
* (0)											
TOTALS	1006.9	200	275	150	75	75	120	200	150	2251.9	

\* (0) Does not include \$120,000 for changes to the Public Participation Program needed to accommodate the revised approach.

(1) The ISER work is funded in part by APA (\$30) and in part by the Legislature (\$30)

(2) Although this is the POS value for subtasks 11.01 and 11.02, the work involved is only partially in support of power studies.

(3) These values may not require full additional funding by the Legislature if pending proposed Task 11 changes are accepted by APA.

(4) Numbers above each column are keyed to numbered recommendations on pp 22-23 of the Tussing report.



**SELBERG & WYCOFF**  
ARCHITECTS, URBAN DESIGNERS, & PLANNERS

post office box 1191  
wasilla, alaska 99687  
(907) 376-5046

April 15, 1980

Mr. Mark Wittow  
State of Alaska  
House Power Alternatives Committee  
Capitol Building  
Juneau, Alaska 99811

Dear Sir:

Please send me Rich Seifert's Solar  
Component Study. Also we would be interested  
in receiving any additional studies on solar  
energy in Alaska.

Yours truly

*Peggy Behnke*

Peggy Behnke  
Selberg & Wycoff, Architects

Sent  
4/28



# Alaska State Legislature

## House of Representatives

POWER ALTERNATIVES STUDY COMMITTEE

Pouch V  
State Capitol  
Juneau, Alaska 99811

Official Business

April 21, 1980

James Landman  
Acres American  
2207 Spenard Dr.  
Anchorage, Alaska 99503

Dear James:

Enclosed is a copy of a report written for our committee by Arlon Tussing and Assoc. The report analyzes the Acres Susitna Plan of Study, and makes a number of recommendations for changes in Task I (see Chapter II). I would appreciate receiving your comments on the report as soon as possible, especially as they pertain to your work.

Please let me know if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Mark Wittow".

Mark Wittow  
Study Coordinator

Enclosures

Pouch V  
Juneau, Alaska 99811

Rep. Terry Gardiner  
Speaker of the House  
Pouch V  
Juneau, Alaska 99811

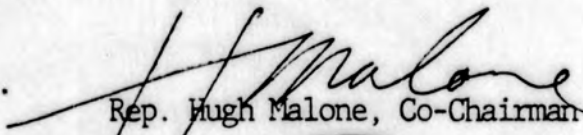
April 15, 1980


Dear Terry:

Chapter 76 of SLA 1979 mandated the completion of a study which discussed the assumptions of the Susitna Hydroelectric Project and the feasibility of various alternatives for power generation in the Railbelt such as coal, natural gas and small hydro. The appropriation was directed to the Legislative Research Division; a report was to be submitted by April 15, 1980.

As you know, the Legislative Research Division was dissolved shortly after Chapter 76 was enacted. The House Power Alternatives Study Committee was established by the Legislative Council in August 1979 to oversee the study. We offer the following report to satisfy the April 15 deadline set out in Chapter 76. A final report will be available by May 20, 1980.

Sincerely,

  
Rep. Hugh Malone, Co-Chairman

  
Rep. Brian Rogers, Co-Chairman

Attachments:

1. Power Market Demand Study (by ISER, draft)
2. Review of Demand Forecasting (Tuck, draft)
3. Comentary on ISER work (Energy Probe, draft)
4. End Uses of Energy in the Railbelt (Ak. Center for Policy Studies)
5. Potential for Energy Conservation in the Railbelt (Center)
6. Alternative Energy Potential (Fryer and Assoc.)
7. Susitna Geotechnical Evalution (Dynamic Research)
8. January 30, 1980 Status Report

9. Background and History - Susitna and Railbelt Power (Tussing and Assoc.)
10. Solar Energy Potential (Center)

To be completed:

1. Analysis of Management, Policy and Financial Issues for Railbelt Power Generation (Tussing and Assoc.)
2. Potential of Natural Gas for Power Generation (G. Erickson)
3. Potential of Coal for Power Generation (G. Erickson)
4. Policy and Management Issues for Energy Conservation and Alternative Energy (Center)



## SUSITNA HYDROELECTRIC PROJECT

March 5, 1980  
P5700.17.04  
T000.17A

House Power Alternatives Committee  
Pouch V  
Juneau, Alaska 99811

Attention: Mr. Mark Wittow

Dear Mark,

Alaska Federation For Community  
Self Reliance Draft Report  
on Energy Conservation

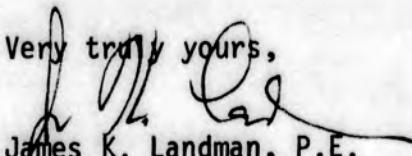
Thank you for the opportunity to comment upon the Alaska Federation For Community Self Reliance's (AFCSR) Draft Report on Energy Conservation. My remarks are enclosed as a separate document.

My basic concern about this report is its technical content. In many cases, numbers and statistics are used improperly; there are a few errors of fact and several inconsistencies throughout the text. References are named which could be accessed by those sufficiently interested, but it would assist most readers if more background material were included. The conservation options should be carefully and completely explained.

We here at Acres are pleased to see this type of work being conducted. It is our general conclusion that many of the results attributed to conservation may be a bit optimistic. However, the paper is headed in the right direction. More work on the subject of conservation and its potential benefits is greatly needed in the face of rapidly rising fuel costs and the rapid depletion of many of our most conveniently accessible fuel resources. We hope that your committee will see fit to continue funding more studies and more detailed studies on this vital topic.

I am enclosing three copies each of this cover letter and my comments for your use. Please pass on at least one set to AFCSR. If either you or they have any questions or comments, please do not hesitate to contact me.

Very truly yours,



James K. Landman, P.E.  
Coordinator, Power Systems Studies

JKL/ja

### ACRES AMERICAN INCORPORATED

Consulting Engineers  
2207 Spenard Road  
Anchorage, Alaska 99503

Telephone 907 276-4888      Telex 91-6423 ACRES BUF

Other Offices: Columbia, MD: Pittsburgh, PA: Raleigh, NC: Washington, DC: Buffalo, NY

House Power Alternatives Committee - 2

cc: Alaska Power Authority  
333 West 4th Street, Suite 31  
Anchorage, Alaska 99501

Attn: Mr. R. Mohn

Woodward-Clyde Consultants, Inc.  
Three Embarcadero Center  
Suite 700  
San Fransisco, CA 94111

Attn: Mr. C. W. Kirkwood



## SUSITNA HYDROELECTRIC PROJECT

March 5, 1980  
P5700.17.04  
T000.17A

House Power Alternatives Committee  
Pouch V  
Juneau, Alaska 99811

Attention: Mr. Mark Wittow

Dear Mark,

Alaska Federation For Community  
Self Reliance Draft Report  
on Energy Conservation

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My basic concern about this report is its technical content. In many cases, numbers and statistics are used improperly; there are a few errors of fact and several inconsistencies throughout the text. References are named which could be accessed by those sufficiently interested, but it would assist most readers if more background material were included. The conservation options should be carefully and completely explained.

We here at Acres are pleased to see this type of work being conducted. It is our general conclusion that many of the results attributed to conservation may be a bit optimistic. However, the paper is headed in the right direction. More work on the subject of conservation and its potential benefits is greatly needed in the face of rapidly rising fuel costs and the rapid depletion of many of our most conveniently accessible fuel resources. We hope that your committee will see fit to continue funding more studies and more detailed studies on this vital topic.

I am enclosing three copies each of this cover letter and my comments for your use. Please pass on at least one set to AFCSR. If either you or they have any questions or comments, please do not hesitate to contact me.

Very truly yours,

James K. Landman, P.E.  
Coordinator, Power Systems Studies

JKL/ja

### ACRES AMERICAN INCORPORATED

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2207 Spenard Road  
Anchorage, Alaska 99503

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Other Offices: Columbia, MD: Pittsburgh, PA: Raleigh, NC: Washington, DC: Buffalo, NY

House Power Alternatives Committee - 2

cc: Alaska Power Authority  
333 West 4th Street, Suite 31  
Anchorage, Alaska 99501

Attn: Mr. R. Mohn

Woodward-Clyde Consultants, Inc.  
Three Embarcadero Center  
Suite 700  
San Fransisco, CA 94111

Attn: Mr. C. W. Kirkwood

COMMENTS ON ALASKA FEDERATION FOR  
COMMUNITY SELF RELIANCE DOCUMENT  
CONCERNING ENERGY CONSERVATION

1. Outline - Sections VI and VII seem to be missing from my copy of this draft.
2. Page 1 - Sweden, England, and New England have been used as examples where "energy conservation programs have been instituted due to rising costs." Why is the only documentation (page 2) of the effectiveness of these programs given that of the British experience? More detailed information on each of these programs should be provided: their methods and their results.
3. Page 1 - With regards to the implications of the second paragraph, it should be noted that our past energy conservation practices (or lack thereof) were based almost solely on economics. Nothing has taken place to change this. The economics of energy sources have themselves changed, and changed quite rapidly lately, but the major force which will drive people to change their energy use patterns will continue to be cost.
4. Page 1 - The first four sentences of the third paragraph are quite liberal interpretations of the second law of thermodynamics. The second law is normally expressed in terms of devices such as turbines or piston engines which rely upon temperature differences for their operation.
5. Page 1 - The fifth sentence of the third paragraph implies that we are, or were, in a figurative way, killing mosquitoes with our energy cannons. This is an overstatement of the facts and nothing in the remainder of the report shows that such a practice has ever occurred. The energy-saving steps mentioned throughout this document show how many small steps can add up to significant savings of energy.
6. Page 2 - It should be made clear what Mr. Leach used as his basis for computing the U.K.'s GNP growth rate. If absolute pound sterling were used, the figures are deceptive due to the effect of inflation. If the figures are tied to the value of the pound of a given year, this should be so noted.
7. Page 2 - It would be statistically improper to use the single example of a three year sample of British data to discredit the long-held precept that energy use is tied to economic activity. Such an undertaking is well beyond the scope of this paper.
8. Page 2 - The second paragraph of this page needs some further explanation. Mr. Oliver's paper has not been made available, but it is doubtful that the claim of cost savings of a factor of six could stand close scrutiny. If these claims are accurate, the authors should attempt to explain why Mr. Oliver's proposals have not been implemented earlier. Are the English people not interested in saving money? Is there a governmental/industrial conspiracy to suppress the implementation of "soft" technologies?
9. Page 2 - The third paragraph should be revised to point out that it is economics that now makes it "more cost effective to adopt conservation technologies."

10. Page 2 - The "point" of the third paragraph may be a bit off the mark with regard to the timing of resource development. It may be successfully argued by some that we should have spent more time and effort in the past to develop our renewable resources such as solar, wind, hydro, tidal, geothermal, and biomass. It may be wiser to suggest a parallel development of both renewable resources and conservation technologies.
11. Page 3 - The "evidence" offered to demonstrate that "Alaskans have the skills and ingenuity to develop (conservation) technologies" is weak. Your evidence demonstrates more that a thousand people showed interest, or at least curiosity, in the energy conference.
12. Page 3 - You should break down your figures to show what the DOE grants were to be used for. Many times, these grants are for development of small hydro sites or other electric generation sources. How does this apply to the point being made about conservation?
13. Page 3 - No reason is given for lumping the residential and commercial sectors together. This may not be an appropriate method of analysis, but that cannot be determined, since no mention of commercial building data is given in the paragraphs following. For instance, is it true, as the table purports, that fifteen percent of energy losses of homes and businesses are through windows and doors? Many businesses have both large areas of glass and outside doors which are open frequently. The consumption patterns for each type of building should be better defined before lumping them together.
14. Page 3 - With reference to implications of the second sentence of the final paragraph, are homes presently being built with some consideration of long-term operating costs?
15. Page 4 - The description of insulation installed in "most houses in the U.S." needs some clarification. Is this to be taken to mean that most houses in Minnesota have no more insulation than most houses in Miami?
16. Page 4 - In what way is the trend of home insulation changing? Are just new houses affected, or are existing homes being retrofit on a large scale?
17. Page 4 - Are "most" people really considering how to improve the energy efficiency of the housing stock? What data is there to back this up?
18. Page 5 - The definition of a typical house may need some clarification. Most houses in Anchorage do not have basements and are built on slabs. Houses in Anchorage are built with 2x4 walls. Those homes built with 2x6 outside walls are usually custom jobs.
19. Page 6 - This table is virtually impossible to interpret. What does "BTU/H-F" mean? Could this be the Btu's required each hour to heat the house in Fairbanks? The fourth column's figures add up to 547, not 810. The fifth column tabulates oil savings in terms of negative numbers. If these numbers are indeed savings, they should be positive. The figures in the sixth column add up to 436, not 648. What does the

future oil cost shown in the seventh column represent? Why does fuel escalate at 10% annually for six years? Does its price stop increasing then? The figures in this column add up to 791, not 1174. The figures in the three columns concerned with building costs are confusing. The first column seems to be a figure describing the cost of each item listed in column 1, on a \$/ft<sup>2</sup> basis. From this, it is understood that the ceiling above the first floor, at \$9.30/ft<sup>2</sup> should cost (\$9.30/ft<sup>2</sup> x (1152 ft<sup>2</sup>) = \$10714, close to the figure given. It is presumed, but not explicitly stated, that there are a certain justifiable number of square feet of doors, windows, walls, etc., used to multiply the \$/ft<sup>2</sup> figures to achieve the surface total costs. Data to back up these square footage figures should be provided. These figures are incomplete without providing data on costs of houses following conventional building practices. It is not abundantly clear how the figures in the "mortgage" column are derived. Our calculations show that an annual interest rate of 9.91% was used over 30 periods for all of the mortgage costs except for the wall foundation below grade and the insulated door, where 9.93% and 10.01% were used. (1) It is not possible to evaluate payback times or potential savings without knowledge of baseline costs.

20. Page 7 - It may be helpful to owners of existing homes if an analysis were included showing savings and payback periods which could be reasonably expected for retrofit insulation projects.
21. Page 7 - Carrying the ideas of the third paragraph to the extreme, could a homeowner expect zero fuel costs if the thermostats were reduced 33 1/3 degrees? This seems doubtful. It may be a good idea to mention that the 3 percent per degree savings applies to only the "comfort zone", about 60°F to 70°F.
22. Page 7 - In foundation insulation, why is "Blue Styrafoam" specified? Does it have different thermal properties than the white variety?
23. Page 8 - The analysis of savings realized by improving furnace burner efficiency from 65% to 75% is not correct. At a constant heat value of the fuel oil ("K") the 65% efficient burner will produce:

$$(1652 \text{ gal}) \times (\text{K Btu/gal}) \times (0.65) = 1074 \text{ K Btu}$$

To achieve this same amount of heat from a burner operating at 75% efficiency, we find that:

$$(1074 \text{ K Btu}) / ((\text{K Btu/gal}) \times (0.75)) = 1432 \text{ gal}$$

This represents a savings of 200 gallons of oil, or \$176.00 at a cost of \$0.80/gal. Figures should be included showing what this type of furnace tuneup would cost, and how often it must be repeated. Where do the efficiency figures used come from?

<sup>1</sup> Interest rates computed using a cash flow program found in "HP-41C Standard Applications Handbook", Hewlett-Packard Co., 1979. Thirty (30) periods were used, with periodic payments and initial present values as noted in the table.

24. Page 8 - The explanation of the heat recuperator's operating principle needs clarification. Without using mechanical energy, it is doubtful that "50% to 70% of the heat in the vented air" leaving the house could be recovered.
25. Page 8 - If the recuperator can indeed recover 50% to 70% of the house's vented air, how can a house using such a device lose "80% less heat through ventilation than a normal house?" It stands to reason that it would save 50% to 70% of a normal house's ventilation loss.
26. Page 8 - One Page 7, the figure of 0.3 CPH is used as typical for an Alaskan house. Here the range of 0.3 to 0.4 is given. The leakage rates used should be consistent.
27. Page 8 - A leakage rate of 0.3 to 0.4 CPH does not represent a change of warm air every two hours. A leakage rate of 0.4 CPH represents a change every 2 1/2 hours; 0.3 CPH represents a change every 3 1/3 hours.
28. Page 9 - It should be pointed out that in many newer commercial buildings, the general lighting systems have been designed to be a significant part of the heating system. This type of design permits the use of smaller, less costly heating equipment. In instances such as this, it may not be prudent to reduce general lighting levels in cold weather.
29. Page 10 - Some discussion should be made on the subject of why there is such a variation of water heater efficiencies.
30. Page 11 - A statement was made on Page 7 reading "weather stripping doors and caulking windows in a leaky house saves more energy per dollar invested than any other technology." The graph "Add Up The Savings" shows a different situation. It is plainly evident that the most economical heat savings is realized from the furnace tune-up and thermostat set-back. This graph does not give enough data describing conditions found at the house before the work began. For example, was there no insulation at all in the ceiling and walls? If there was insulation, what was it's R rating? These are considerations which will affect the economics of the modifications suggested.
31. Page 12 - More realistic figures will result if present worth calculations are performed, allowing fuel costs to rise, as they most likely will.
32. Page 16 - The "Los Angeles Example" cited could, without additional information, overstate the potential of energy conservation. In conversation with a Rand Corporation economist, it was learned that the conservation program was enacted not by the utility, but by the city council. Having the force of law, the incentive to conserve electric energy may have been stronger than if a simple voluntary program had been in place. It is a common phenomenon for electrical system loads to fluctuate widely from season to season. If, for example, the conservation ordinance in Los Angeles began after a particularly hot month such as August, it may very well be that no extraordinary action would be needed by the citizens to realize the 17% decrease in demand cited. No mention is made if this load reduction continued after the program was dropped. How did the

utility deal with those customers who were already conscientious and had been efficient consumers even before the ordinance. Rand has promised to send a copy of their report to Acres' Anchorage office, but at the time of this writing it has not arrived.

33. Page 18 - There seems to be a loss of continuity between this paragraph and the closing section of Page 18.
34. Page 19 - Examples of cogeneration existing in Alaska should be provided.
35. Page 19 - Is the required population density of 4 to 5 residences per acre for economic district heating applications valid in Alaska?
36. Page 21 - Some discussion should be made describing the location of the potential heat sources relative to their potential users.
37. Page 23 - In addition to the obstacles to the total energy systems, the environmental problems associated with these systems should be discussed. In many urban areas, air quality standards may rule out the use of the small fuel burning installations common to total energy systems.
38. Page 23 - The efficiency of the fluidized bed burners is impressive at 80%, but no data is presented describing the efficiency of a conventional coal burner. The figure of 80% efficiency may be misleading, if losses for boiler and turbine equipment are ignored. If these are shown, some relevant comparison between the fluidized bed and conventional technologies could be made. If the fluidized bed fired boilers operate at lower temperatures than conventional boilers, how can the principle cited on page 20 concerning operating temperatures and efficiency, be reconciled?
39. Page 24 - Waste heat cannot be applied economically to any use if the source is not located near that use. (Refer to statements on page 22 regarding "Factors Effecting Waste Heat Utilization." (sic) Agricultural producers are typically located in remote areas away from heat sources. Specific examples of agricultural waste heat utilization applications should be provided.
40. Page 24 - Is a greenhouse large enough to grow commercial food crops economically feasible? Has one been built in Alaska? Give examples of such greenhouses.
41. Page 26 - Examples of those corporations in the U.S. which have "made significant strides in raising energy efficiency" should be given.
42. Page 27 - There is obviously a trade-off between increasing window size to admit more light, and reducing window size to conserve heat. A discussion of this problem should be included.
43. Page 27 - See comment number 28
44. Page 27 - Does the scheme to provide 90°F water at faucets and hotter water in kitchens require multiple water heaters? How does this affect building economics?
45. Page 29 - Lifeline rates generally apply only to residential customers, not "each" customer. In some cases, only elderly or economically disadvantaged customers are eligible for lifeline rates.

46. Page 29 - Changing energy use patterns to even out loads per se saves absolutely no energy. The savings realized by load leveling results from the reduction of the amount of energy which must be supplied by a utility's peaking units, which are traditionally fueled by the most expensive fuel used by the utility.
47. Page 29 - The fuel savings realized by a utility purchasing from a small producer can be a false savings if the big picture is not considered. In most cases, the smaller producer is also a fuel user, perhaps operating equipment not as efficient as that owned by the utility. In such cases, fuel consumption is increased rather than decreased.
48. Page 30 - What is the significance of this table?
49. Page 31 - Reconcile the figures given in the table on this page with information given on page 12 of the first part of the report. In that example, the home's heating load (which, according to data presented on page 4, represents 75% of a residential or commercial building's energy use) was cut in half, representing a 37.5% reduction in overall energy use. Figures on page 31 show that optimistically, only a 12% savings could be realized (the "total energy" concept not being considered for houses.)
50. Page 32 - Nothing in the report has shown how "industrial energy users can raise productivity of their use." Productivity is a function of manpower input and goods produced.
51. Page 32 - In many cases it is not acceptable to locate powerplants near population centers. Citizen concern with aesthetics, noise, air pollution, fog produced by cooling towers, and fuel storage and transport are making it increasingly difficult for utilities to site plants in areas which represent potential waste heat consumer areas.
52. Page 32 - Some discussion of what percentage of the 3.5 M Btu/min (about 60 MW) is actually near potential users should be included.
53. Page 33 - The statement that "without it (cars) urban dwellers can be left high and dry" is not correct. Many urban residents do not need, or even own, autos. Obvious examples include New York City, Washington, D.C., Chicago, and other parts of the country served by developed public transit systems. It is the suburban and rural residents who are so highly dependent upon personal transportation.
54. Page 33 - The contention that Alaskans "have no control over the fuel economy of autos available" is not correct. Alaskans have the ultimate control over the fuel economy of their cars: the choice offered by the free market. The problem here is that many people have not exercised the option available to them to purchase fuel efficient vehicles.
55. Page 33 - The first sentence of the sixth paragraph needs to be revised to be understandable.
56. Page 34 - The greater reliance on walking, skiing, and bicycling is applicable in any real way only to urban dwellers in good physical

condition. The very young, the elderly, and those living any appreciable distance from work or shopping cannot make good use of this alternative.

57. Page 34 - It is not possible to increase load factors of trucks leaving Alaska without developing industries and agricultural products to furnish the Outside with not otherwise available at less cost.
58. Page 36 - There seems to be little in this section which is actually related to conservation. It is presumed that future revisions of this document will attempt to draw some conclusions on actions which may be taken to more efficiently move food and goods to Fairbanks.

STATE  
of ALASKA

## MEMORANDUM

TO: Mark Wittow  
Administrative Aid  
House Power Alternative  
Study Committee

DATE:

March 10, 1980

FILE NO:

TELEPHONE NO:

Thru:

C. Deming Cowles *cdk*  
Deputy Commissioner  
Department of Environmental  
Conservation

SUBJECT:

Conservation Section  
of the Susitna Alternatives  
Study

From:

Dave Sturdevant *DCA*  
Management and Technical  
Assistance Section

I am writing a hasty response to the draft of the Conservation section prepared by the Alaska Federation for Community Self Reliance, dated February 16. Although the cover letter makes clear that the draft is very rough, I have a particular concern with the way the introduction is written. Two segments of the "Conservation Overview" are included (page 2 and page 15); my comments apply to largely to the former.

"Conservation," using the term broadly, has become the dark horse of energy resources, as evidenced by a wheelbarrow full of studies, including such notables as the CONNAES study and the Harvard report. President Carter has expressly recognized conservation as the cheapest, quickest and easiest energy source. However, many skeptics remain, and I believe that we have to be very careful how the subject is presented. Basically, I feel the introductory discussion of conservation must be a much more eloquent statement and somewhat redirected if it is to have the impact I would like to see.

The major need is to separate energy efficiency from behavioral conservation. The draft report makes a stab at doing this by stating that conservation need not mean sacrifice, and by terming the energy gained through efficiency improvements as "conservation energy." These ideas need to be more explicitly developed.

I feel the report needs to make very clear that behavioral conservation is up to the individual -- one can turn down the thermostat or ride a bicycle as much as one desires -- but that this aspect, which implies sacrifice, is not the subject of the report. The report deals instead with an entirely different aspect -- improving the efficiency of use in accomplishing a given task, without degrading the quality of result or product. We can achieve more efficient lighting, appliances, houses, transportation, and industrial processes without, in most cases,

March 10, 1980

altering the outcome. The objective is to focus on that set of measures which can be achieved with little or no sacrifice, thus eliminating the stigma which has too often been attached to "conservation."

My view is that an energy efficiency alternative must be developed and promoted as a whole if it is to be a significant contributor. And especially, it has to be recognized as simply a better way of doing business. I don't feel that the introduction as drafted shapes the subject effectively. It does contain a large number of valid, valuable thoughts which perhaps can be given more vitality.

I might also suggest including significant conclusions on conservation energy from some of the notable recent studies and reports.

I have not examined the sector analyses in detail. I hope you will find these comments useful.



# Alaska State Legislature

## House of Representatives

Hugh - 6, your information  
M

c/o Malone  
Pouch V  
State Capitol  
Juneau, Alaska 99811

### Official Business

Robert Cross  
Alaska Power Administration  
PO Box 50  
Juneau, Alaska 99802

Dear Mr. Cross:

Thank you for the report on "Hydroelectric Alternatives for the Alaska Railbelt." I have a few comments on the report, and its relationship to the evaluation of power alternatives for the Railbelt. I find that the study misses the goals set out in its introduction:

For the last several years, hydroelectric investigations for the Alaska Railbelt have focused on the Upper Susitna and Bradley Lake Hydroelectric projects. Many other potential projects, larger and smaller, have been identified which are accessible to the Railbelt, thus there are important questions to ask as to how these projects were selected and whether some other project or group of projects might offer a more sensible hydroelectric development plan for the Alaska Railbelt.

This report provides a review of the data and studies that brought about the selection of the two projects, and a current appraisal as to whether that selection remains appropriate. (page 1, emphasis added)

Your report does not review what a suitable mix of power projects for the Railbelt might be, nor does it consider the contribution of possible hydroelectric sites toward meeting electrical demand in the Railbelt. Instead, the report addresses a somewhat different question: what possible hydroelectric projects, or mix of projects, could completely replace the Susitna project, and, assuming simultaneous construction, at what price?

As you know, the benefits of building a variety of small projects instead of a large dam result from their ability to more closely match growth in demand, and from the decreased need for backup capacity. Yet the report does not consider the comparative costs of mixing power from various hydroelectric sites beginning operation at various times, or of mixing hydroelectric generation with thermal-fired plants.

The summary of the report states that "The purpose of the review (of alternatives) was to examine whether selection of the Upper Susitna Project remains appropriate (for the Railbelt)." (p.2) Without a discussion of the costs to consumers of excess capacity in a series

Page Two  
Robert Cross  
Hydroelectric Alternatives

of smaller projects versus one large project, how can any conclusions be reached?

The report could serve a useful purpose, if it provided a listing of the alternative sites with cost estimates. But the validity of the cost estimates are compromised by three assumptions used in the report: 1966 prices, a 3 1/8% interest rate and complete utilization of average annual energy. (p.10) Although the report states that all construction costs would inflate at comparable rates, the difference,, for example, of cost overruns on large versus midrange projects demands further analysis of this assumption. The assumed interest rate is obviously too low, and interest rates have a great effect on the feasibility of large projects when compared with less-capital intensive alternatives. The assumption of complete utilization of energy is also unrealistic -- the larger the power output of a given dam, the greater the amount of excess capacity at the time it comes on line.

The alternatives to the Susitna project, including small and midrange hydroelectric sites, deserve a thorough review. Smaller projects, coming on line in a graduated manner, could possibly provide as much power at a much lower cost to the consumer than a single, large project for a relatively small, isolated market area (ie, the Raibelt). The comparative of costs of the various possible options for scaling and staging the Sustina project also deserve scrutiny. I hope that this analysis is not the final review of the ability of alternative hydroelectric sites to contribute to meeting Raibelt power needs.

I also received your report on the costs of thermal upgrading and conversion to electric heat for Southeast Alaska. I found this report worthwhile, as it squarely faced the question of the costs of conservation as a "source" of energy. I hope you will continue to pursue the ideas in this report.

Please let me know if you have any questions about my comments. I would be happy to provide further detail or clarification if necessary.

Sincerely,



Mark Wittow  
Coordinator  
Power Alternatives Study Committee

cc: Alaska Power Authority  
Acres American (Anchorage)  
Division of Budget and Management

Mark

# ALASKA POWER AUTHORITY

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

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

March 12, 1980

The Honorable Brian Rogers and Hugh Malone  
House Power Alternative Committee  
Alaska State Legislature  
Pouch V  
Juneau, Alaska 99811

Dear Representatives Rogers and Malone:

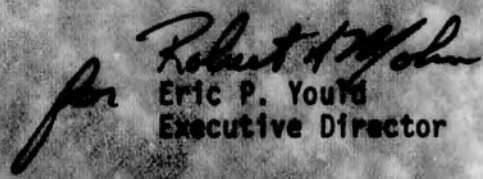
I am writing to alert you to potential problems in regard to the timing of the Susitna energy requirement forecasts being developed under contract to your committee, with partial Power Authority funding.

We have seen slippage in the ISER work despite the deadlines faced by both your committee and the Power Authority. Let me describe the relationship of the ISER work to other activities in our Susitna program and clarify the need for timeliness. It may be helpful to refer to page 5-24 of the Acres Plan of Study, Plate T1.1, as well as page 7-3/7-4, Plate A7.1. You will note the logical interrelationship between the ISER work and subtasks 1.01 through 1.06. Specifically, the Power Alternatives Study Report cannot be accomplished before the Selection of Viable Expansion Sequences which, in turn, cannot start before the Development of Peak Load Forecasts (Subtask 1.02). Of course, Subtask 1.02 relies almost completely upon the ISER energy forecast. Subtask 1.02 was scheduled to begin in week eight of the study period which was the week of March 3, 1980. Clearly there is a scheduling problem.

We have also been advised through Acres and Woodward-Clyde that the data collection effort (described in the ISER Detailed Work Plan under Task D.6) may be falling short of the level of effort that is going to be required for a satisfactory analysis. The meeting scheduled in Anchorage on March 20, 1980 will hopefully shed light on the extent of the problem.

Thank you for considering these matters.

Sincerely,

  
Eric P. Youid  
Executive Director

cc: ISER, Scott Goldsmith  
Acres, Jim Landman

# ALASKA POWER AUTHORITY

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

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

March 5, 1980

Mr. Mark Wittow  
House Power Alternatives  
Committee  
Pouch V  
Juneau, Alaska 99811

Dear Mark:


Thank you for sending us a copy of the AFCSR draft report on energy conservation and for giving us an opportunity to review it.

Rather than conducting concurrent reviews with our engineer, we are relying upon Acres to review the document and offer comments. I have seen a draft of Acres' letter to you and think that many of their suggestions will be very helpful in improving the AFCSR work. You can expect Acres' comments in the very near future.

Acres has reviewed the document in light of insuring an accurate, well documented and thorough product. Because of the nature and extent of the comments, one might perceive a certain negativism toward conservation in general or the AFCSR work in particular. I want to assure you that such is not the case; we want to encourage conservation at the same time that we keep our feet firmly planted on a foundation of fact.

Sincerely,

FOR THE EXECUTIVE DIRECTOR

  
Robert A. Mohn  
Director of Engineering

cc: Jim Landman, Acres

# ALASKA POWER AUTHORITY

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

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

March 12, 1980

The Honorable Brian Rogers  
Alaska State Legislature  
P. O. Box K  
College Branch  
Fairbanks, Alaska 99708

Dear Representative Rogers:

In February, Eric Yould, Executive Director of the Alaska Power Authority, sent you a copy of the plan of study for the Susitna Hydroelectric Project and invited you to attend community meetings at which you will receive more information and have the opportunity to influence the manner in which the work within the plan of study is to be accomplished.

The first round of community meetings will be held April 14, 15, 16, and 17, a few weeks later than originally scheduled. Hopefully, the change in schedule will give you more time to review the plan of study and prepare your questions and comments. The meetings will be held:

April 14:	Fairbanks	7:00 p.m.	Traveler's Inn Gold Room
April 15:	Talkeetna	7:00 p.m.	Talkeetna Elementary School
April 16:	Wasilla	7:00 p.m.	Wasilla Junior High School
April 17:	Anchorage	7:00 p.m.	Bartlett High School Yellow Cafeteria (near visitor parking lot) North Muldoon Road (enter Muldoon and Glenn Highway interchange)

We expect this first series of meetings to be informative and dynamic. ACRES, the consultant conducting the plan of study, will present a slide show outlining various aspects of the feasibility study. Information summarizing current knowledge of alternatives to the Susitna Hydroelectric Project will also be presented. We will explain the Public Participation Program and the "Action Lists", the primary method for receiving public comment throughout the 30 month period of the plan of study.

After you have been given information, you will have time to ask questions and make comments. Some discussion will take place in small groups where there will be opportunity to give ideas. A written record of the comments of each group will be prepared as part of the official record of the meeting. Since the meeting time does not allow time for testimony, those wishing to give testimony should prepare a written or tape record their remarks and submit them to the staff of the meeting. Action List forms will be available at the meeting.

filled out on Action List forms will be reviewed by ACRES and responded to in writing.

If you can't make it to the April meetings, please note that this first series of meetings will not be your only opportunity to make comments and receive information. I urge you to contact my office to see how you can participate. I can be reached at 276-0001.

I look forward to working with you over the next two and a half years.

Sincerely,

*Nancy Blunck*

Nancy Blunck  
Director  
Public Participation Program

# ALASKA POWER AUTHORITY

## SUSITNA HYDROELECTRIC PROJECT

### AGENDA Community Meetings April 14, 15, 16 and 17, 1980

WELCOME	- 5 Minutes	Power Authority
DESCRIBE PLAN OF STUDY	- 25 Minutes	Acres
DESCRIBE ENERGY SOURCES FOR THE RAILBELT	- 15 Minutes	Power Authority
QUESTIONS AND ANSWERS	- 20 Minutes	Power Authority and Acres
TABLE TOP DISCUSSION BY CITIZENS	- 20 Minutes	Power Authority
DESCRIBE PUBLIC PARTICIPATION PROGRAM	- 15 Minutes	Power Authority
DESCRIBE ACTION LISTS	- 10 Minutes	Power Authority
SHORT REPORT ON TABLE TOP DISCUSSION RESULTS	- 20 Minutes	Power Authority and Acres
PERMITS	- 5 Minutes	Acres and CIRI/H&N
CLOSING	- 5 Minutes	Power Authority

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After the meeting officially ends, persons are invited to:

1. Submit written testimony.
  2. Record verbal testimony.
  3. Fill out action forms and turn in that night.
  4. Ask questions of Power Authority staff, Acres, or their sub-contractors.
- 

### COMMUNITY MEETING -- DATES, TIMES, AND PLACES

April 14:	Fairbanks	7:00 p.m.	Traveler's Inn Gold Room
April 15:	Talkeetna	7:00 p.m.	Talkeetna Elementary School
April 16:	Wasilla	7:00 p.m.	Wasilla Junior High School
April 17:	Anchorage	7:00 p.m.	Bartlett High School Yellow Cafeteria (near visitor parking lot); North Muldoon Road (enter from the Muldoon and Glenn Highway interchange)

Institute of Water Resources



UNIVERSITY OF ALASKA  
FAIRBANKS, ALASKA 99701

March 3, 1980

BRIAN - MARK  
FOR YOUR PERusal -  
THANKS FOR THE OPPORTUNITY  
SEE ESPECIALLY p 70-71  
AND CONCLUSIONS.

-  
Rich

Mark Fryer, P.E.  
1709 South Bragaw, Suite F  
Anchorage, Alaska 99504

Dear Mark:

Enclosed you will find the report on the Solar Component Analysis of the Alternative Energy Analysis which was contracted by you to our Institute. The report was developed by Richard Seifert, and is submitted in fulfillment of our obligations to you and the Center for Policy Studies.

The report is a quantitative analysis of the (maximum) possible and probable contributions of solar energy to the total energy use in Alaska's railbelt. Active solar, passive solar, and photovoltaic applications are considered, and an estimate of the useful energy from active and passive solar applications is made. Photovoltaics are not analyzed because there is so little information available on their performance in Alaska. However, some of the most significant impacts on electrical needs and costs could come from predicted cost declines in photovoltaic cells. The U.S. Department of Energy predicts the cost of photovoltaic cells to be 50-70¢ per peak watt by 1986. The lowest estimates of capital costs of the Susitna dam systems translate into 93¢ per peak watt. This is an oversimplified comparison, but it identifies an important area of the solar alternatives to monitor and research. Other areas of economic concern and research recommendations are made in the report's conclusions.

It was a pleasure to do this work, and much remains to be done. Your comments, suggestions and review are welcomed.

Sincerely,

Robert F. Carlson  
Director

dd  
Encl.

**BRADFORD H. TUCK, PH.D.**

ECONOMIC CONSULTANT

1822 CINDYLEE LANE  
ANCHORAGE, ALASKA 99507

(907) 344-9293

March 14, 1980

Mr. Mark Wittow  
Power Alternatives Study Committee  
House of Representatives  
Pouch V  
Juneau, Alaska 99811

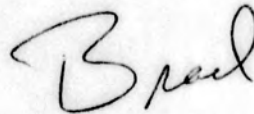
Dear Mark:

Enclosed is Part III. This completes the work I can do until I get the ISER draft.

Also, after you have Xeroxed from the original would you please return it to me (also Parts I and II). To the extent that this draft turns out to be satisfactory, I'd rather not have to retype it.

Thanks.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Brad", is written in dark ink.

Bradford H. Tuck

Enclosure.

**BRADFORD H. TUCK, PH.D.**

ECONOMIC CONSULTANT

1822 CINDYLEE LANE  
ANCHORAGE, ALASKA 99507

(907) 344-9293

March 4, 1980

Mr. Mark Wittow  
Study Coordinator  
House Power Alternatives Study Committee  
Alaska State Legislature  
Pouch V  
Juneau, Alaska 99811

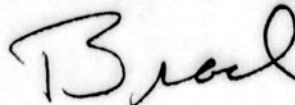
Dear Mark:

Enclosed are portions of the draft of my study. The review of existing power demand forecasts is nearly complete and I should be sending it to you within a few days.

Am I supposed to circulate the draft, or does your office take care of that?

Part II has obviously been written to appeal to a broader group of readers than those involved in the study (i.e., it's non-technical). Should the remainder be aimed at and written for the same general audience?

Sincerely yours,



Bradford H. Tuck

Enclosure.

Mark

By: C.L. "Lee" Wareham  
Mike Ribar  
Phil Younker  
John Kohler  
Bruce Wammack  
Wally Droz  
Bill Stringer  
Introduced: 2/14/80  
Adopted: 2/14/80

RESOLUTION NO. 80-11

A RESOLUTION REGARDING IMMEDIATE CONSTRUCTION BY  
THE STATE OF ALASKA OF THE DEVILS CANYON-  
UPPER SUSITNA HYDROPOWER PROJECT

WHEREAS, the high cost of electrical energy in interior Alaska is a heavy burden on our citizens; and

WHEREAS, all evidence points to continued escalation of energy costs unless bold and decisive remedial steps are taken immediately; and

WHEREAS, a viable solution to our electrical energy needs through the end of this century and beyond exists in the form of the Upper Susitna-Devils Canyon Hydro Project and transmission system; and

WHEREAS, the Devils Canyon Hydro Project is subject to excessive uncertainty and delay if left in the hands of the Federal Government; and

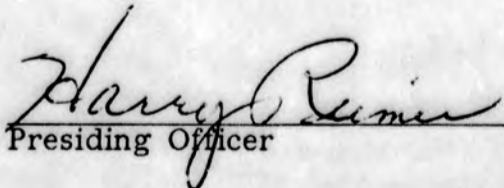
WHEREAS, the State of Alaska possesses the knowledge, resources and right to complete this vital project on its own; and

WHEREAS, over 75% of the residents of the State of Alaska will benefit directly from the Susitna Project and all other residents indirectly; and

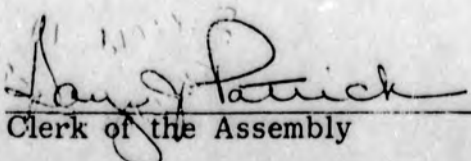
WHEREAS, immediate and supportive action by the Legislature of the State of Alaska and the office of Governor Jay Hammond is vital to the success of this project:

NOW, THEREFORE, BE IT RESOLVED jointly by the Fairbanks North Star Borough Assembly and the City Council of Fairbanks, Alaska, that Governor Jay Hammond and the Alaska State Legislature are urged to take all necessary steps to assure early commencement and expeditious completion, under State auspices, of the Devils Canyon Hydro Project.

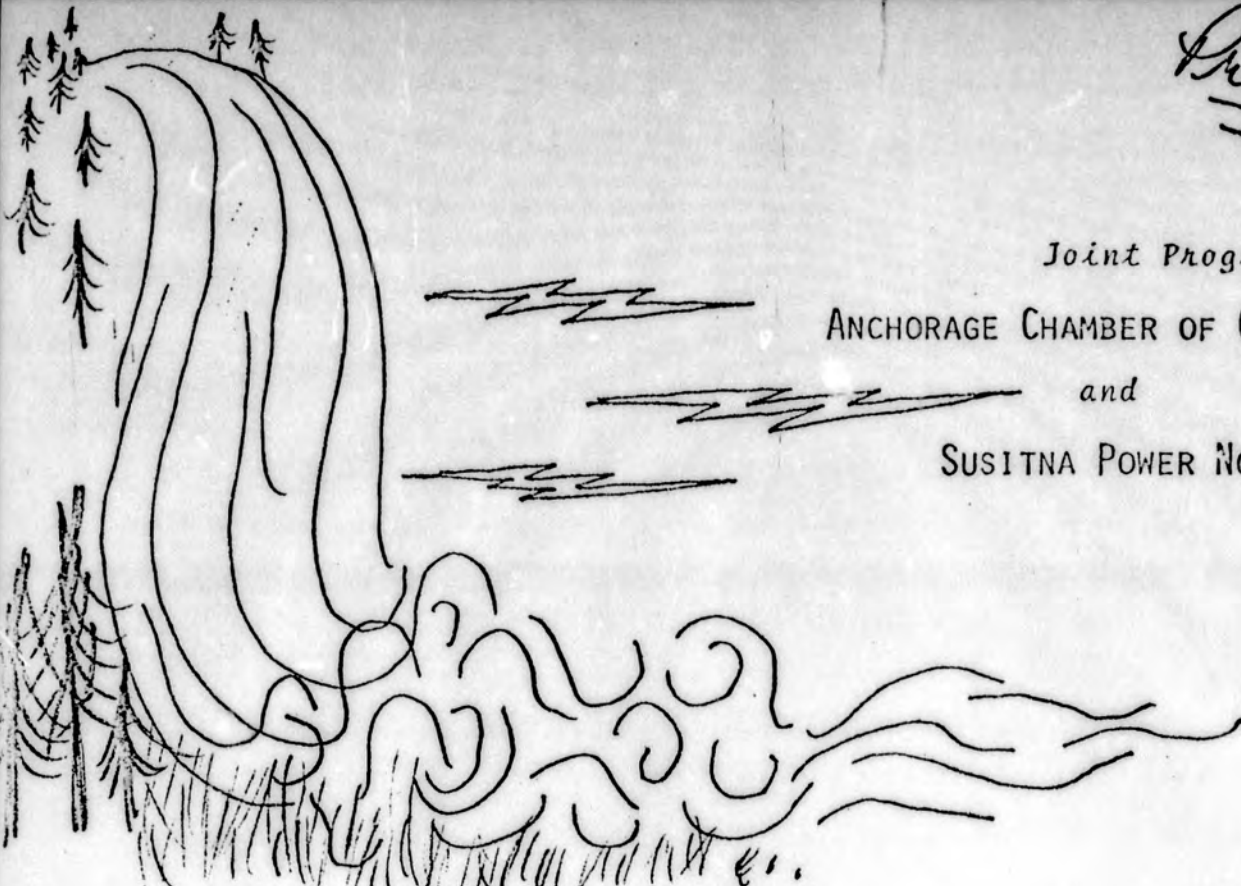
PASSED AND APPROVED THIS 14th DAY OF FEBRUARY, 1980.

  
Presiding Officer

ATTEST:

  
Clerk of the Assembly

Press Release



Joint Program  
ANCHORAGE CHAMBER OF COMMERCE  
and  
SUSITNA POWER NOW

SUSITNA POWER  
"WHO NEEDS IT?"

Hear for yourself at:

ANCHORAGE CHAMBER OF COMMERCE MEETING

12:00 NOON

MONDAY, MARCH 17TH (ST. PATRICK'S DAY)

CAPTAIN COOK HOTEL - LUNCH \$8.00 - COFFEE \$2.00

SPEAKERS:

- ... LEE WAREHAM - CO-CHAIRMAN, SUSITNA POWER NOW, INC.
- ... ERIC YOULD - EXEC. DIRECTOR, ALASKA POWER AUTHORITY
- ... JOHN SPENCER - MUNICIPAL UTILITIES
- ... ERIC WOHLFORTH - BOND COUNCIL
- ... SENATOR JAY KERTULLA
- ... BOB PENNEY - CO-CHAIRMAN, SUSITNA POWER NOW, INC.

THIS PROJECT WILL BE ONE OF THE MOST ...

WIDELY-DISCUSSED AND NEWSWORTHY  
PROJECTS IN ALASKA FOR YEARS TO COME!!!

BE THERE!!!





# Alaska State Legislature

## House of Representatives

c/o Malone  
Pouch V  
State Capitol  
Juneau, Alaska 99811

### Official Business

Robert Cross  
Alaska Power Administration  
PO Box 50  
Juneau, Alaska 99802

Dear Mr. Cross:

Thank you for the report on "Hydroelectric Alternatives for the Alaska Railbelt." I have a few comments on the report, and its relationship to the evaluation of power alternatives for the Railbelt. I find that the study misses the goals set out in its introduction:

For the last several years, hydroelectric investigations for the Alaska Railbelt have focused on the Upper Susitna and Bradley Lake Hydroelectric projects. Many other potential projects, larger and smaller, have been identified which are accessible to the Railbelt, thus there are important questions to ask as to how these projects were selected and whether some other project or group of projects might offer a more sensible hydroelectric development plan for the Alaska Railbelt.

This report provides a review of the data and studies that brought about the selection of the two projects, and a current appraisal as to whether that selection remains appropriate.  
(page 1, emphasis added)

Your report does not review what a suitable mix of power projects for the Railbelt might be, nor does it consider the contribution of possible hydroelectric sites toward meeting electrical demand in the Railbelt. Instead, the report addresses a somewhat different question: what possible hydroelectric projects, or mix of projects, could completely replace the Susitna project, and, assuming simultaneous construction, at what price?

As you know, the benefits of building a variety of small projects instead of a large dam result from their ability to more closely match growth in demand, and from the decreased need for backup capacity.. Yet the report does not consider the comparative costs of mixing power from various hydroelectric sites beginning operation at various times, or of mixing hydroelectric generation with thermal-fired plants.

The summary of the report states that "The purpose of the review (of alternatives) was to examine whether selection of the Upper Susitna Project remains appropriate (for the Railbelt)." (p.2) Without a discussion of the costs to consumers of excess capacity in a series

Page Two  
Robert Cross  
Hydroelectric Alternatives

of smaller projects versus one large project, how can any conclusions be reached?

The report could serve a useful purpose, if it provided a listing of the alternative sites with cost estimates. But the validity of the cost estimates are compromised by three assumptions used in the report: 1966 prices, a 3 1/8% interest rate and complete utilization of average annual energy. (p.10) Although the report states that all construction costs would inflate at comparable rates, the difference,, for example, of cost overruns on large versus midrange projects demands further analysis of this assumption. The assumed interest rate is obviously too low, and interest rates have a great effect on the feasibility of large projects when compared with less-capital intensive alternatives. The assumption of complete utilization of energy is also unrealistic -- the larger the power output of a given dam, the greater the amount of excess capacity at the time it comes on line.

The alternatives to the Susitna project, including small and midrange hydroelectric sites, deserve a thorough review. Smaller projects, coming on line in a graduated manner, could possibly provide as much power at a much lower cost to the consumer than a single, large project for a relatively small, isolated market area (ie, the Raibelt). The comparative of costs of the various possible options for scaling and staging the Sustina project also deserve scrutiny. I hope that this analysis is not the final review of the ability of alternative hydroelectric sites to contribute to meeting Raibelt power needs.

I also received your report on the costs of thermal upgrading and conversion to electric heat for Southeast Alaska. I found this report worthwhile, as it squarely faced the question of the costs of conservation as a "source" of energy. I hope you will continue to pursue the ideas in this report.

Please let me know if you have any questions about my comments. I would be happy to provide further detail or clarification if necessary.

Sincerely,



Mark Wittow  
Coordinator  
Power Alternatives Study Committee

cc: Alaska Power Authority  
Acres American (Anchorage)  
Division of Budget and Management



**ROBERT A. MOHN**

*Director of Engineering*

**Alaska Power Authority**

**333 W. 4th Ave., Suite 31  
Anchorage, Alaska 99501  
Phone (907) 277-7641**

# ALASKA POWER AUTHORITY

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

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

March 3, 1980

Representative Hugh Malone  
Representative Brian Rogers  
House Power Alternative Study Committee  
House of Representatives  
Pouch V  
Juneau, Alaska 99811

Dear Representatives Malone and Rogers:

Thank you for your letter dated February 27, 1980 that addressed the relationship between the Committee's energy conservation study efforts and those of Acres American as part of the Susitna studies.

Responses 2.1 T.1.2 and 2.2 T1.7 appear accurate to us; that is, your studies "will be closely monitored, and findings will be considered or incorporated in the Susitna alternatives studies." While we are not necessarily depending on your Committee's work, we are hoping to take advantage of it to later reduce the scope of our work if review of your studies show our efforts to be redundant. If you do not wish your reports to be used in this way, please so advise us.

I would agree that the extensive POS coverage given to the Committee's work might create the impression that it is being offered as a substitute for the Power Authority's own program. Acres' conservation study efforts should have been given more attention, and the special-purpose nature of your work clarified. Also, we note that pages 5-4 and 5-5 of the Acres plan no longer accurately reflect your program.

We will make a special effort to clarify the entire matter at the first series of public meetings and in any future reprintings of the Plan of Study document.

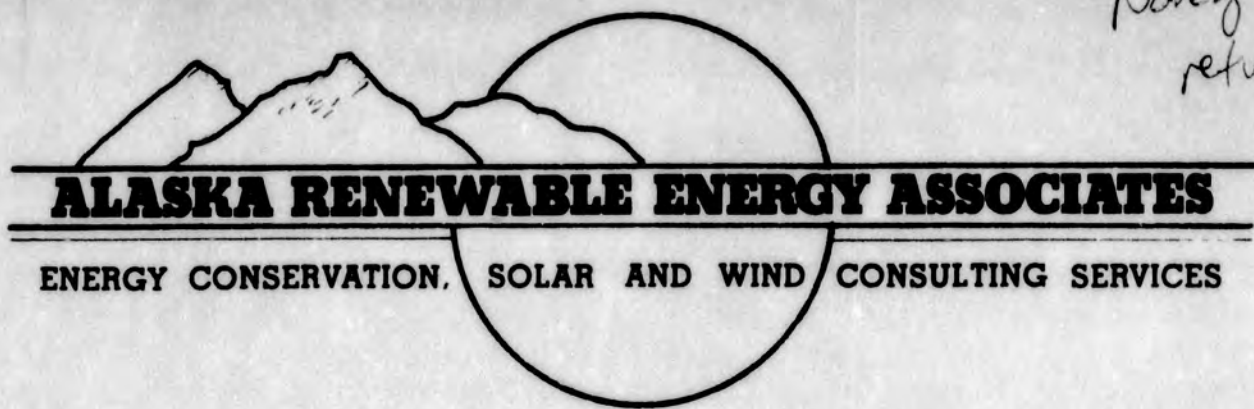
Again, thank you for your comments.

Sincerely,



Eric P. Yeld  
Executive Director

Nancy -  
ref - to  
me



# ALASKA RENEWABLE ENERGY ASSOCIATES

ENERGY CONSERVATION, SOLAR AND WIND CONSULTING SERVICES

## WHO WE ARE

We are professional energy consultants who can help you decide how to reduce the energy costs of your building, be it an older home, a new office, or a blue-print design. By utilizing state-of-the-art computer technologies (developed by us for the U.S. Departments of Energy and Housing and Urban Development), we can estimate the energy use of any building in any climate, as we have done for over 700 buildings across the country. Careful analysis of these computer studies allows us to develop alternative building design strategies that will significantly reduce energy use and/or increase a building's use of renewable energy resources. The same techniques are also used to produce sensible energy plans for communities and entire regions.

## WHAT WE DO CAN HELP YOU SAVE ENERGY AND MONEY

We can help you design a home or commercial building that can cut your yearly heating bill at least 50%. We can help you utilize state-of-the-art alternative energy systems - sun, wind, small hydro-electric, wood and waste materials.

## WE SPECIALIZE IN

**Building Design** - computer analysis of plans for energy conservation and solar applications • design consulting • siting and energy land planning • natural lighting and cooling • designer/Architect services (in house).

**Retrofit/Remodel** - on-site building audits and thermal performance monitoring • analysis of solar/wind • computer analysis of solar building performance including:  
- heat loss calculations  
- residential, commercial, multiple family housing  
- analysis of all types of solar construction such as greenhouses, underground homes, and double envelope.

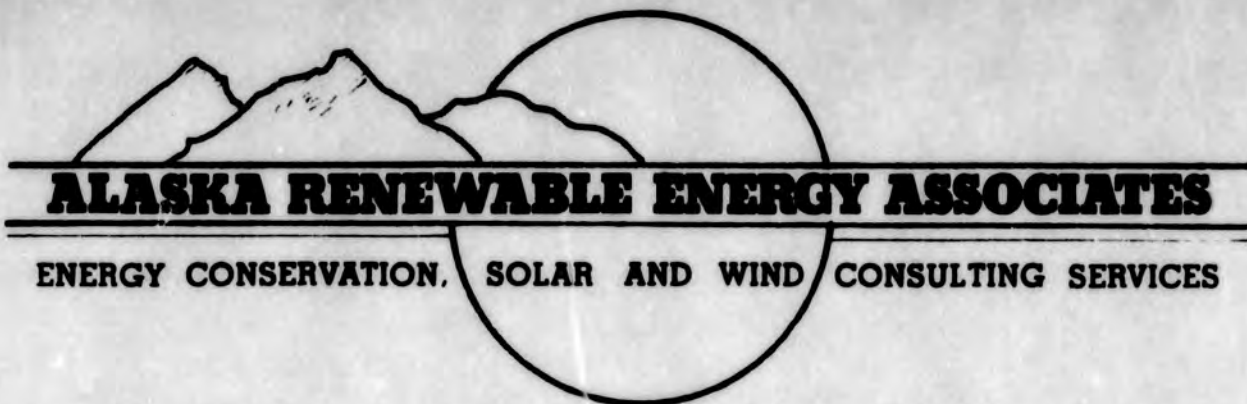
**Research and Policy Development** - renewable energy feasibility studies • energy economics, individual, local and regional • energy conservation/solar building codes • legislation development and preparation • grant proposal preparation • energy components of Environment Impact Statements • community energy plans.

**Education** - seminar and courses on solar design and energy conservation for colleges and government administrators. • media presentations • curriculum development • "Hands on" workshops - solar greenhouses, solar collectors, solar hot water heaters.

**For more information, call or write:  
ALASKA RENEWABLE ENERGY ASSOCIATES**

308 G STREET • ANCHORAGE, ALASKA • 99501 • (907) 279-5904

40 Mcken  
327 Engle



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# **ALASKA RENEWABLE ENERGY ASSOCIATES**

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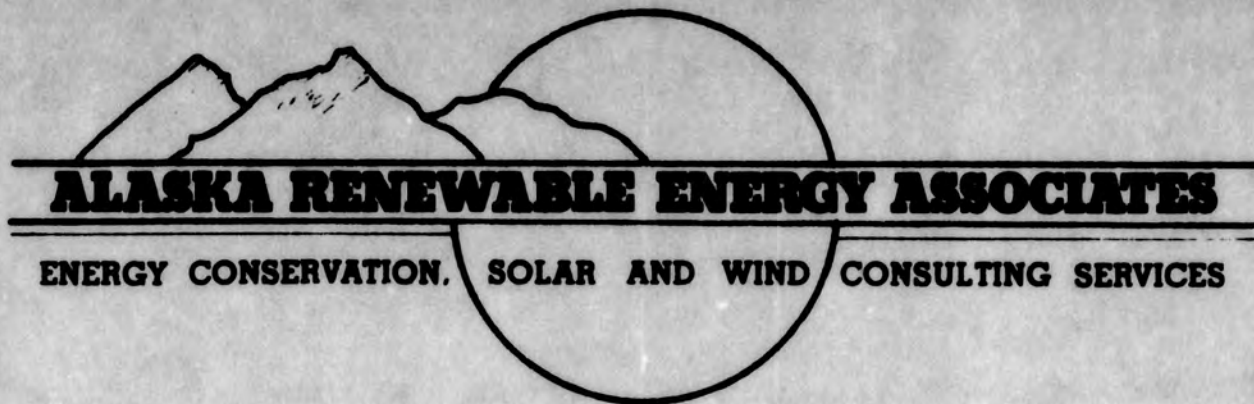
**ENERGY CONSERVATION, SOLAR AND WIND CONSULTING SERVICES**

Energy conservation is now a major concern in the United States. In Alaska, the need for efficient and conserving use of energy is more acute than in any other state: current energy prices are so high, especially in the Bush, that building designs that can save forty to sixty percent of the energy consumed by standard buildings will now pay for themselves in three to seven years, with some techniques paying off in as little as two years. The use of renewable energy sources (solar, wind, hydro, etc.), where applicable, can reduce the dollars spent on energy by an additional twenty to twenty-five percent. Equally short payback periods are possible, depending on the local climate and energy costs.

Alaska Renewable Energy Associates was established in May, 1979, in response to the need of Alaskans to reduce the amount of money they spend on energy. (Our parent firm, Earth Integral of Davis, California, has consulted on the design of more than 800 solar buildings in the lower 48 and has authored numerous major policy studies for the state and federal governments.) In the Far North, the cost of energy, the severity of the climate, and the length of the heating season combine to make the economics of renewable energy (solar, wind, etc.) and energy conservation far more attractive than anywhere in the continental USA. Our state-of-the-art computer programs are used to give an understandable economic assessment of renewable energy and conservation strategies anywhere in Alaska.

Our firm does three main kinds of work. First, and most common, is consulting directly with architects and engineers on specific building projects. We help analyze the site, develop basic design strategies, and then, by using our computer, we offer choices between several building packages. Each package includes predicted yearly dollar savings and payback period. We use the same techniques on existing buildings in retrofit/rehabilitation projects.

A second thrust of our work is to offer work shops and seminars for both professionals and do-it-yourself individuals. Our standard series includes six-



January 21, 1980

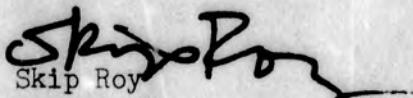
To the Legislators and Government Officials of Alaska:

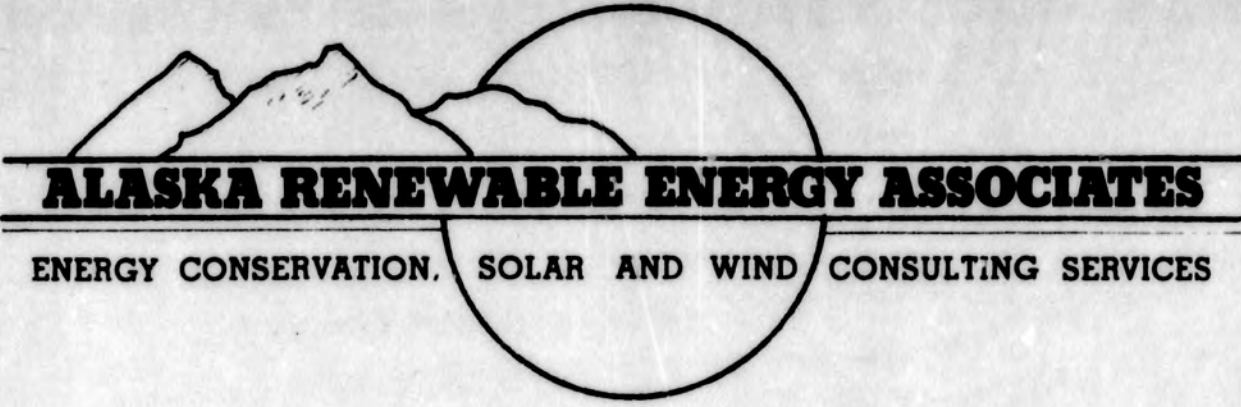
Alaska --and the rest of the United States-- must move toward a renewable energy future. Elected public representatives are in a position to create the policies needed to accomplish this task. Unfortunately, a lack of knowledge often prevents decision-makers from considering renewable resources as solutions to energy problems.

We would like to help legislators and government officials increase their knowledge about energy conservation and renewable energy resources. The seminar/workshop series mentioned in the preceding pages could be of real help to the concerned official. In addition, we can design state-supported research and development policies aimed at providing an understanding of Alaska's various climates and how to best use those climates in energy production and consumption.

Please contact us if we can be of help to you in your work.

Sincerely,

  
Skip Roy  
Principal



---

# ALASKA RENEWABLE ENERGY ASSOCIATES

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ENERGY CONSERVATION. SOLAR AND WIND CONSULTING SERVICES

ALASKA RENEWABLE ENERGY ASSOCIATES

SEMINARS AND HANDS-ON WORKSHOPS

SEMINAR: Solar in Alaska for Builders, Architects and Engineers

- I. 1. Sun Path
2. The Alaskan Climate: The Data Base
3. Passive vs. Active
4. Economics: When is it Worth it?
- II. 5. Basic Strategies
  - A. Underground
  - B. Superinsulation
  - C. Trombe Walls and Other Mass
  - D. South Glass, Reflective Designs
  - E. Making up the Difference: Active or Other
- III. 6. Envelope Heat Loss Calculations
  7. Solar Gain Calculations
  8. Thermal Mass
  9. Calculator Programs, Office Computers
  10. Consultation on Specific Projects

SEMINAR: Renewable Energy for Alaska - 1980

- I. 1. Energy Economics
2. Utilizing and Mitigating the Local Climate
3. Buildings and Energy Use
4. A Brief Look at Conservation
- II. 5. Solar Feasibility in Your Area
  6. Solar Basics
  7. The Building Site
  8. Passive Solar
  9. Active Solar
  10. Heating Water, Drying Crops
  11. Economics
- III. 12. Electricity Basics
  13. Wind Power Feasibility
  14. Wind Power Hardware
  15. Ties to the Grid
  16. Economics
  17. Photovoltaics
- IV. 18. Small Hydro-electric Systems
  19. Wood Heat
  20. Individual Discussion with Students; Analyzing Situations

SEMINAR: Energy Conservation Calculations & Techniques for the Home-Owner

- I. 1. Energy Economics and Climate  
2. Heat Flow in a Building  
3. Detailed Heat Loss Calculations
- II. 4. Heat Loss Calculations for Student's Own Home
- III. 5. Electricity in the Home  
6. Electricity Conservation Techniques  
7. Techniques for Reducing Building Heat Loss
- IV. 8. Selecting Techniques for Students' Homes  
9. Calculating Cost and Payback  
10. A Quick Look at Renewable Energy

SEMINAR: Energy Considerations for Communities and Housing Authorities

- I. 1. Energy in the Community  
2. Energy in Buildings  
3. Electric Generation
- II. 4. Reducing Community Energy Use - Now  
5. Energy Planning for the Future - Renewable
- III. 6. Workshop on Individual Communities

WORKSHOP: How to Construct Simple Solar Devices

- I. 1. Solar Basics  
2. Solar Gain Calculations  
3. Climate  
4. Heating Space, Heating Water, Cooking, Distillation
- II. 5. Heating Space  
A. Passive Wall Collector (build)  
B. Greenhouse (discussion/plans)  
C. South Glass plus Shutters (discussion)  
D. Hot Air Collector (plans/aluminum can)  
6. Cooking, etc.  
A. Simple Reflector Oven (plans)  
B. Concentrating Collector with Transfer (plans)
- III. 7. Heating Water  
A. Sun Coil (plans)  
B. Sun Tray (plans)  
C. Oil Drum (build)  
D. Breadbox (plans)  
8. Stills (plans)
- IV. 9. Building the Breadbox (hands-on)

WORKSHOP: How to Size and Build Flat Plate Collectors

- I. 1. Sun Path/Solar Basics  
2. The System  
A. Collector  
B. Transfer  
C. Storage  
3. Heating Domestic Water  
4. Space Heating

(continued)

- II. 5.Sizing
  - A.Rules of Thumb
  - B.Calculations
  - C.F-Chart Computer Program
- 6.Off-the-Shelf: What's Available
- 7.Economics
- III.8.Constructing a Flat Plate Collector (hands-on)

WORKSHOP: Solar Greenhouse Design, Construction, and Operation

- I. 1.Understanding Climate and Buildings
- 2.Solar Basics
- 3.Plants, Heat and Light
- 4.Kinds of Solar Greenhouses
- II. 5.Design for Free-standing Greenhouses
- 6.Design for Attached Greenhouses
- 7.Calculating Heat Loss, Heat Gain
- 8.Greenhouse Operation
- III.9.Constructing a Simple Greenhouse

WORKSHOP: How to Design Your Own Passive Solar House

- Pre-assignment: Develop a Floor Plan
- I. 1.What is Passive Solar
- 2.Solar Basics
- 3.Climate and Micro-climate:The Site
- 4.Basic Passive Strategies
- II. 5.Construct a Basic Site Map (at home)
- 6.Elevations from the Floor Plan
- 7.Introduction to Heat Loss Calculations
- 8. Introduction to Solar Gain & Thermal Storage Calculations
- III.9.Redesign and Comparison
- 10.Three Design-Day Calculations, detailed
- 11.Sizing the Back-up Heater
- IV. 12.Individual Design Critique

## ALASKA'S FIRST PASSIVE SOLAR HOUSE

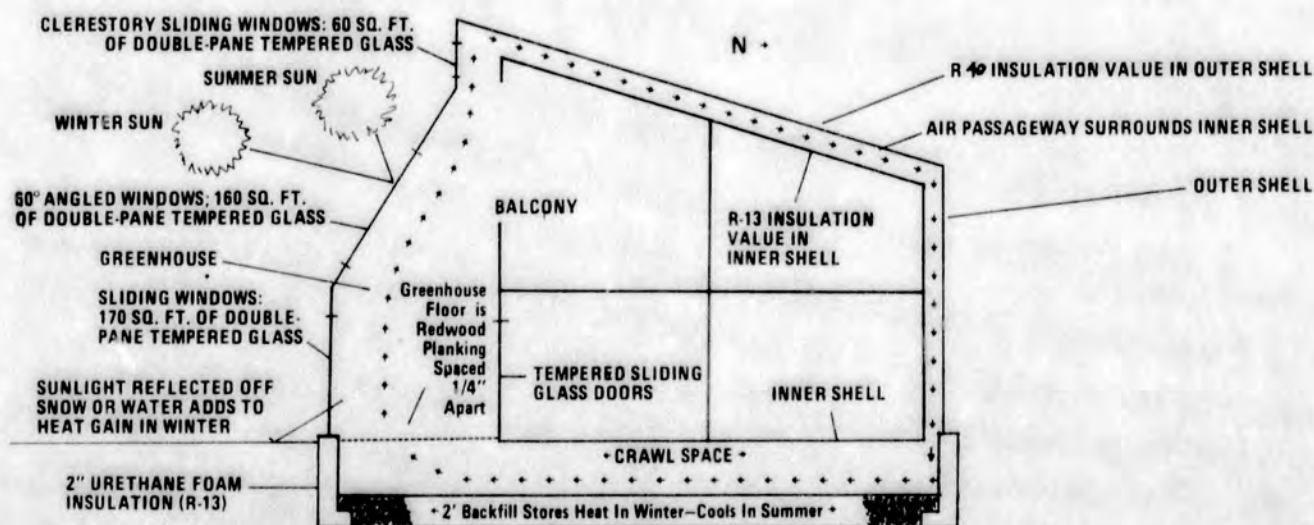
by James Barkshire and Skip Roy

The first passive solar house to be built in the State of Alaska was completed in January, 1980, in Homer. The house is "passive" in that there are no moving parts: heat collected in the attached solar greenhouse is transferred to the rest of the house by natural air convection currents. The only mechanical features are the insulated shutters which are used to minimize heat loss through the glass at night and during cloudy periods.

The design of the Homer House was closely modeled after a passive solar house built at Lake Tahoe, California, by Tom Smith in 1978. (The Tahoe House has been featured in several national publications, including Mother Earth News, Better Homes and Gardens (March, 1979), Omni (Nov. 1979), and Popular Science (Dec. 1979)). Smith had contracted with Bruce Maeda and Charles (Skip) Roy of Davis Alternative Technology Associates (now Earth Integral) to perform detailed computer studies to design the solar heating system and insulation strategy. By reprogramming the computer with climate data from Homer, the solar consultants were able to adapt the design of the Smith house to the climate of Homer.

### A Model of Simplicity

The Homer House is a model of simplicity: it is super-insulated and has a full eighty percent of its glass on the south side. The key design feature is the "double envelope" construction: in addition to its structural outer shell, there is a second inner shell at the roof and the north wall. This dual-wall construction creates a twelve inch hollow space (plenum) around one entire axis, allowing the air heated in the greenhouse to circulate around the living space. (see diagram below)



### It Works Like This

As the sun hits the south glass wall, it warms the large greenhouse. By the natural principles of convection, this hot air rises to the top of the structure, where it begins to fall downward through the roof plenum as it cools slightly, pushed along by warm air behind it. The air continues to drop down the north wall and into the basement. From here, it circulates up through the wood slat deck of the greenhouse floor, still pushed along by warmer air behind it, and is ready to be heated up again in the greenhouse and continue its circuit through the plenum.

The result of this circulation is a constantly moving "envelope" of warm

ventional construction, heat is lost directly to the outdoors through the walls and roof. In the double envelope design, escaping heat must first pass through the inner shell (insulated to R-13), then through the heated space in the plenum, and finally through the outer shell (insulated to R-40). Due to the physics of heat transfer, the existence of the heated plenum greatly reduces heat loss: because warm air transfers its heat more quickly to cooler rather than warmer areas, the heated plenum dramatically decreases the speed of heat transfer from the living space to the outside. In addition to this slowing of heat loss, the double envelope circulation of warm air keeps temperatures remarkably constant throughout the house because entire walls are actually radiating heat.

#### The House is Cost Efficient

The Homer House construction costs were about \$6,000 higher than an equivalent-sized, conventionally heated house. Most of the extra cost went into added insulation and the second shell at the roof and north walls. (The east and west walls are conventional single-wall construction, insulated to approximately R-32.) Calculations have shown that the Homer House will save over \$1000 per year at 1977 energy prices. This is a payback period of only six years, with money in the bank thereafter. If the cost of electricity in Homer rises as it is likely to, the payback period will be shortened. (The house uses an electric heat back-up system.)

#### Construction and Design Features

Building materials and methods are standard in the Homer House. Light wood frame construction is used. There is virtually nothing in the design that could cause problems for the experienced builder. The outer walls are of 2X6, inner walls of 2X4. The floors are built with Trus-Joist 9 1/2 inches deep to insure rigidity and an even floor. The roof system was built out of job-constructed box beams, although a 14 inch wood I-beam was originally specified and could be used. The deeper beams are used to provide room for the air plenum at the roof.

The Homer House is a very simple and striking design. The attached greenhouse, with its expanse of glass and wood finishes, overlooks a spectacular view of Kachemak Bay. The home features a sunken livingroom, fully modern kitchen, and four bedrooms. Floor area is 3000 square feet, including the basement.

Lee Porter Butler, a California architect, developed the original double envelope concept for the Tahoe House. CNL Designs of Anchorage provided the technical design and drawing for the Homer House. Earth Integral of Davis, California, performed the solar consulting, and Blueberry Hill Designs of Homer did the actual construction of the Homer House.

For more information on either the Homer House or alternative energy use and energy conservation in Alaska, contact Skip Roy at his newly created sister firm to Earth Integral, Alaska Renewable Energy Associates, 308 G Street, Room 311, Anchorage, Alaska, 99501, 907-279-5904, or James Barkshire of CNL Designs at the same address.

#### About the Authors

James Barkshire is the owner of CNL Designs, specializing in custom solar and energy efficient home design for Alaska. He has been building and designing in the state for the past four years. He also teaches classes in design, building, and energy efficiency, through Anchorage Community College.

Skip Roy is an Energy Consultant, specializing in conservation, solar, and wind applications. He opened Alaska Renewable Energy Associates in May, 1979, as the Alaskan arm of the Davis firm, Earth Integral. Using state-of-the-art computer programs, they have consulted on more than 800 solar designs nationwide,



# Alaska State Legislature

## House of Representatives

POWER ALTERNATIVES STUDY COMMITTEE

c/o Rep. Malone  
Pouch V  
State Capitol  
Juneau, Alaska 99811

Official Business

February 7, 1980

Deborah Pick -- GASP  
Hold That Line  
Lowry Town Hall  
Lowry, Minnesota 56349

Dear Deborah:

Thank you for your note and publications list. I am enclosing a State of Alaska check for \$30.00, and a personal check for \$5.25, for the publications marked on the attached list. Included in the \$30. is \$5. for a year's subscriptions to the newsletter. You can use the extra \$1.75 for postage.

In your note you said that you had enclosed back issues of the newsletter. Unfortunately, you forgot to put them in the envelope. I would still like to receive those back issues, and would be happy to have our year's subscription extend backwards to the issues you think would be most valuable to us.

I am enclosing a report which describes our committee's activities. Although we did not specifically refer to the high voltage line that will be constructed as part of the project, the effects of the proposed EHV line (230-345kV) are of concern to many legislators. If you would like more information from us, let me know.

Thank you for responding promptly to my original inquiry.

Sincerely,

A handwritten signature in cursive script that reads "Mark Wittow".

Mark Wittow  
Study Coordinator

enclosures

Suggested year subscription to Hold That Line

PRICE LIST OF ITEMS AVAILABLE FROM GASP

\$5

BUMPERSTICKERS - 75¢

NO POWERLINE - white on deep blue

② DECENTRALIZE ENERGY - red on white

① FARMLAND FOR FOOD - picturing crossed out tower, red or blue on white

UNSAFE-UGLY - picturing cobweb of powerlines, blue on white, or red on white

BUTTONS

① IF YOU KILL OUR FARMS YOUR CITIES WILL DIE - picturing crossed-out tower, red on white - \$1

③ QUESTION AUTHORITY - white on blue - 50¢

① USE ALTERNATIVE ENERGY - red lettering on yellow, picture of hand reaching up to sun with mountains in background outlined in brown - 50¢

↑ personal check \$5.25

state of Alaska check ↓

RECORDS

POPE COUNTY BLUES - by Larry Long - \$1

(I) LITERATURE - ISSUES, BACKGROUND ON STRUGGLE

② THE POWERLINE WILL AFFECT YOU - a summary of issues on cost, need, health and history - 75¢

MAPP & THE CU PROJECT - the scoop on the Mid-Continental Area Power Pool and why it affects the need for this line and others - 50¢

① POWERGATE - covers the legal cover-ups in the history of the powerline - 50¢

② POWERLINE! - our newest piece, focuses on mismanagement/rate hikes as well as health and safety - 75¢

(II) LITERATURE - DOCUMENTS & PUBLICATIONS DONE BY OTHERS

① CONFRONTATION ON THE PRAIRIE - a reprint article from the Progressive, Dec. 1977, giving an overview of early history of the powerline controversy - 25¢

① NORTH AMERICAN COAL CAPER - a transcript of a speech given by the head of North American Coal Co. to EPA/DOE, clearly exposing the national behind energy exploitation

NOTES ON UPA OR CPA FROM THE REA FILES IN WASHINGTON D.C. - many interesting tidbits on either co-op from the folks who finance them - \$2 each

EXCERPTS FROM THE BARRY REPORT - an independent firm citing mismanagement - \$2

(III) LITERATURE - HEALTH & SAFETY

ELECTROMAGNETIC POLLUTION - by Becker & Marino, a summary of health hazards - 25¢

THE KILLER ELECTRIC - by Ponte, an overview of a number of pollutants the government is well aware of and endorses - 50¢

EFFECTS OF EHV LINES ON CATTLE REPRODUCTION - written by a farmer in Wisconsin the effects of a 345kV line on his cattle - 50¢

ELECTRICAL WIRING CONFIGURATIONS & CHILDHOOD CANCER - a study done in the Denver area - \$2

EFFECTS OF COAL PLANTS - we have 4 different publications on this issue, each of medium length, they are 50¢ a piece

EFFECTS OF EXTREMELY HIGH VOLTAGE TRANSMISSION - by Louise B. Young, submitted to the EPA - \$1

ENVIRONMENTAL PROBLEMS IN EXTRA HIGH VOLTAGE TRANSMISSION - also by Louise B. Young, an overview - 75¢

BECKER BEFORE THE N.Y. PSC - testimony on ill health effects of high voltage lines - \$2

ELECTROMAGNETIC FIELDS & LIFE - by A.S. Presman, a reprint of the lengthy introduction to his book of the same name - \$1.50

(IV) LITERATURE - INDUSTRY VERSIONS OF HEALTH EFFECTS

BIOLOGICAL EFFECTS OF STATIC & LOW-FREQUENCY ELECTROMAGNETIC FIELDS - by the Electric Power Research Institute - \$2

EPRI'S RESEARCH PROGRAM ON BIOLOGICAL EFFECTS OF ELECTRIC FIELDS - by Kronberg - 75¢

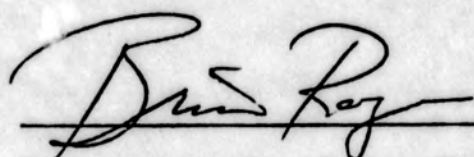
STUDY IN THE USSR OF MEDICAL EFFECTS OF ELECTRIC FIELDS ON ELECTRIC POWER SYSTEMS - a commentary by America's Power & Environmental Sciences Committee on russian studies regarding health - \$2

\$23.25 + 1 year subscription and <sup>back issues</sup> newsletter - see attached note.

\*\*\*\*\*Send all orders to Hold That Line - Box 5, Lowry, Mn 56349. Please add on 15% for packet orders & appropriate postage for those only requiring envelopes. Bulk rates are available upon request. Thank you!

To: Legislative Affairs  
From: Representative Rogers

I authorize the issuance of a warrant to "Hold That Line," for up to \$30., for the purposes of purchasing a subscription and other publications from that organization. Mark Wittow is authorized to handle the check.



Representative Brian Rogers



Date

Co-Chairman, House Power Alternatives Study Committee



UNIVERSITY OF ALASKA  
Institute of Social and Economic Research  
707 "A" St., Suite 206  
Anchorage, Alaska 99501  
Phone (907) 278-4621

February 5, 1980

FEB 8 REC'D

*Mark should  
attend for  
Hugh + J*

Representative Brian Rogers  
House Power Alternatives Study Committee  
Pouch V  
Juneau, Alaska 99811

Dear Representative Rogers:

As you are aware, the state is actively involved in studying the feasibility of electric power production for the railbelt from hydro-electric facilities on the Susitna River.

In conjunction with these studies, the Institute has been asked by the State Legislature and the Alaska Power Authority to develop projections of electricity demand for the railbelt through the year 2005. The Man-in-the-Arctic Program (MAP) econometric model will be used in this study to provide projections of the relevant economic variables for analysis of electricity demand.

As with any technique which attempts to look into the future of the Alaskan economy, we find it necessary to make estimates of the types and timing of large resource development projects which will be impacting the state economy as well as state government spending policies with respect to the growing oil revenue surplus. Assumptions concerning these factors will largely determine the pattern of economic growth for the state over the next twenty-five years.

You are invited to attend a meeting of economists familiar with potential Alaskan development projects and state spending policies at the Institute's Anchorage office on Friday, February 15, at 9:00 a.m. At the meeting, I will be presenting the economic and fiscal assumptions that have been developed by the Institute economists for projecting the Alaskan economy over the next twenty-five years. The purpose of the meeting is to produce a check on these assumptions based upon the knowledge and experience of the economists in attendance.

UNIVERSITY OF ALASKA

Representative Brian Rogers  
February 5, 1980  
Page Two

I think you will find this meeting interesting from a methodological point of view because the desired output of the meeting is a set of probability distributions for the critical scenario variables--resource development employment and state spending. I hope that it will be possible to integrate your estimates of the probability of future events with those of other economists through a technique known as probability encoding. Basically, we will try to form a consensus on the shape of the probability distribution for critical scenario variables using a simple Delphi technique.

I anticipate a very interesting session and urge you to attend. If you have any questions, please call me at 278-4621.

Sincerely,



Oliver Scott Goldsmith  
Assistant Professor  
of Economics

OSG/ds

P.S. Distribution list enclosed.

Mr. Ed Phillips  
Alaska Division of Minerals  
and Energy Management  
703 West Northern Lights Blvd.  
Anchorage, Alaska 99503

Mr. Brad Tuck  
School of Business and  
Public Administration  
University of Alaska  
3221 Providence Drive  
Anchorage, Alaska 99504

Mr. David Knudsen  
Alaska Department of Revenue  
Petroleum Revenue Division  
201 East 9th Avenue  
Anchorage, Alaska 99501

Mr. Robert Mohn  
Alaska Power Authority  
333 West Fourth Avenue  
Anchorage, Alaska 99501

Mr. David Reaume  
Alaska Department of Commerce  
and Economic Development  
Division of Economic Enterprise  
Pouch EE  
Juneau, Alaska 99811

Mr. Robert Richards  
Alaska Pacific Bank  
P. O. Box 420  
Anchorage, Alaska 99510

Ms. Clarissa Quinlan  
Department of Commerce and  
Economic Development  
Division of Energy & Power Development  
338 Denali Street  
Anchorage, Alaska 99501

Mr. Tom Singer  
Dept. of Policy Development & Planning  
Office of the Governor  
Pouch AD  
Juneau, Alaska 99811

Barbara Withers  
Municipality of Anchorage  
3000 Columbia  
Anchorage, Alaska 99504

Representative Brian Rogers  
House Power Alternatives Study Committee  
Pouch V  
Juneau, Alaska 99811

Representative Hugh Malone  
State of Alaska  
Pouch V  
Juneau, Alaska 99811

Mr. Gregg Erickson  
316 Coleman Drive  
Juneau, Alaska 99801

Lynn Pistoll  
Department of Labor  
P. O. Box 1149  
Juneau, Alaska 99811

Vincent Wright  
Department of Revenue  
Pouch SA  
Juneau, Alaska 99811

Mr. Clyde Topping  
Bureau of Land Management  
Outer Continental Shelf Office  
P. O. Box 1159  
Anchorage, Alaska 99510

P. J. Hill  
University of Alaska  
3221 Providence Drive  
Anchorage, Alaska 99504

Mr. Cal Dauel  
Department of Labor  
619 Warehouse Avenue, Suite 209  
Anchorage, Alaska 99501

Robert J. Cross  
Alaska Power Administration  
P. O. Box 50  
Juneau, Alaska 99802



# Alaska State Legislature

## House of Representatives

Representative Malone  
Pouch V  
State Capitol  
Juneau, Alaska 99811

Official Business

February 19, 1980

David Reume  
Principle Economist  
Dept. of Commerce and Economic Development  
Pouch EE -- Mailstop 0800  
Juneau, Alaska 99811

Dear David:

On Friday, February 15, I attended the ISER workshop on population and economic growth projections to the year 2000. You received a note from Scott Goldsmith extending an invitation and explaining the workshop; I have also attached Scott's outline of the agenda from the meeting.

After explaining various methods of forecasting and the workings of the MAP model, Scott asked the group of economists gathered at the meeting to assign a range of probabilities to forecasts for population growth, exogenous employment and state spending per capita. The base figures (1980) were 400,000 population, 7,000 exogenous employment, and \$1200 state expenditures per capita. I assume the 1200 figure is expressed in 1967 dollars, since that's the only way it makes sense.

Since you, perhaps more than anyone else outside ISER, have thought about these projections in detail, we would appreciate your responding in writing to Scott's request. A quick rough sketch of your reasoning would be useful to us as well as ISER.

Please let me know if you have further questions, or if we can assist you in any way. Thank you for your time.

Sincerely,

A handwritten signature in cursive script that reads "Mark Wittow".

Mark Wittow  
Study Coordinator  
House Power Alternatives Committee

cc: Scott Goldsmith, ISER

# ALASKA FEDERATION FOR COMMUNITY SELF RELIANCE

Post Office Box 73488 • Fairbanks, Alaska 99707 • (907) 456-7674

103 Arctic Bowl Building • 946 Cowles Street

FEB 7 1980  
REC'D

Brian Rogers & Mark Wittow  
House Power Alternatives Study  
Alaska State Legislature  
Pouch V  
Juneau, Alaska 99811

February 4, 1980

Gentlemen:

Here's an update on our work for the committee.

Scott Goldsmith called today to say that it will be another week at least before he has southern railbelt data in useful form. In the meantime Charlie Backus is refining our rough draft. Once ISER's data arrives he will set to work on overall railbelt end uses. The delay is an inconvenience to us, as it means that Charlie is on hold until the data necessary to complete the final report is here. No doubt Scott is doing the best he can. We would appreciate it if you can keep an eye on the situation and offer encouragement to Scott to complete the work.

Sam and I are gathering sources, compiling information and even writing some on the conservation section. You'll receive it around the middle of the month. If you have any thoughts about what you would like to see in this section now is a good time to tell us. If we don't hear from you soon we'll look forward to hearing your comments on the rough draft.

For your information -- Charlie, Sam and I have rented office space in the Professional Building downtown. The address is 529 6th Avenue. Correspondence should have Charlie's name visible on the envelope. Phone number is 456-3186.

A personal note - Brian, I appreciate your (and other House members) efforts and vote to place \$900 million in the Permanent Fund. A good move, I believe, for our future.

Sincerely,

*Mark*

Mark Baumgartner

cc: Mark



UNIVERSITY OF ALASKA  
FAIRBANKS, ALASKA 99701

INSTITUTE OF SOCIAL AND ECONOMIC RESEARCH

January 29, 1980

Mr. Brian Rogers  
Legislative Finance Committee  
6th Floor Gruening  
Campus

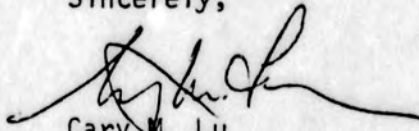
Reference: Contract between ISER and the House Power Alternatives  
Study Committee dated 11/2/79

Dear Mr. Rogers:

We are submitting this letter requesting your approval to issue a subcontract to Battelle, Pacific Northwest Laboratories, Richland, Washington in the amount of \$9,750.00 from the above referenced contract.

The subcontract was not anticipated and included in our original proposal, because we did not anticipate Dr. Mike Scott's departure from our Institute to join Battelle. Dr. Scott left the Institute before he had the chance to complete his assignment. The proposed subcontract would permit Dr. Scott to complete the assignment. Dr. Scott's specific assignment is to investigate the allocation of state-wide economic activity from MAP (Man in the Arctic) econometric model outputs.

Sincerely,

  
Cary M. Lu  
Executive Officer

OK  
Brian Rogers

CML/lc

cc: Grants & Contracts

February 1

Dear Mark,

Yours is the first letter we've received from Alaska. We've often wondered how the massive energy development in your state compares with the rest of the national scene we're in touch with, glad you dropped us a line.

I have enclosed a price list we make available which should aid you in figuring out what you want for your situation. Also, I have enclosed a few back issues of Hold That Line and placed you on our mailing list. Get in touch if we can be of any more assistance and when you decide what we have which can be of use to you.

Sincerely -

DEBRAH TICK - GASP

HOLD THAT LINE  
LOWRY TOWN HALL  
LOWRY, MN. 56349

Mark Wittow -  
c/o Rep. Malone



House Power Alternatives Study Committee

## Alaska State Legislature

POUCH V  
JUNEAU, ALASKA 99811  
OFFICIAL BUSINESS

Brad Tuck  
1822 Cindylee Lane  
Anchorage, Alaska 99507

Dear Brad:

We have no problem with your request to hand in your interim report three weeks later than you expected. I'll look for it during the week of February 11. ISER is also a bit behind schedule on their report.

I mailed you a copy of the Energy Probe preliminary assessment of the ISER demand forecast model. Let me know if you failed to receive it. Also be sure to contact me if you have any questions you wish to raise with the committee before you complete work on your draft report.

Sincerely,

A handwritten signature in cursive script that reads "Mark Wittow".

Mark Wittow  
Study Coordinator  
465-3711/3799

c/o Representative Malone  
Alaska Legislature  
Pouch V  
Juneau, Alaska 99811  
January 20, 1980

George Crocker  
c/o Hold that Line  
Lowry, Minnesota

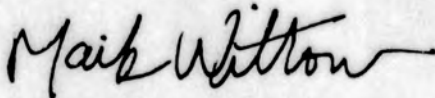
Dear Mr. Crocker:

I work with the Alaska Legislature as a research aide on energy issues. The state is currently contemplating construction of a huge hydroelectric project (on the Susitna River). Almost a thousand miles of high voltage transmission lines would be built as part of the project.

I read of your work and newsletter in Harvey Wasserman's article, "Revolt of the Bolt Weevils," in the August 9, 1979 issue of Rolling Stone. I would very much like to receive any past issues of your newsletter, Hold That Line, that are still available, as well as be placed on the mailing list. I would be happy to pay the necessary charges -- just send me a bill. I would also appreciate any information or references you could send me on the effects of high voltage lines on people and animals, or the names of people to contact for more information.

Thank you, and good luck in your work. I would be happy to provide any information on Alaskan energy issues that you might desire.

Sincerely,



Mark Wittow  
Power Alternatives Study Coordinator

MEMORANDUM

January 22, 1980

To: Bob Speed, Speaker's Office  
From: Mark Wittow *MW*

You have asked me to report on my work on energy issues this session. I am working with Representatives Rogers and Malone as coordinator of the Power Alternatives Study (funded as part of the Susitna Hydroelectric Project). Most of the legislation I am helping prepare has been inspired by the study.

A. Energy Conservation

I have put together a comprehensive energy conservation bill, under the sponsorship of Representative Miles and Rogers. The bill is intended to be a replacement for HB364, although both will be considered in the Resource Committee markup. The key features of the bill:

1. A residential and commercial audit program -- auditors will be trained and/or certified by the Division of Energy and Power Development; the program will be administered through the municipalities, with costs reimbursed by the state (excepting a \$25 fee paid by the auditee). The program is voluntary, but will help support the requirement described below in #4. *and #7*
2. A conservation loan program, administered through the Division of Business Loans, that would make loans of up to \$10,000 for home improvements leading to greater energy efficiency.
3. Policy guidelines and tax incentives to encourage the use of waste heat and cogeneration.
4. A requirement that all state-financed construction meet a minimum performance standard.
5. A requirement that all public buildings be designed to maximize energy efficiency, and that all existing (public) buildings be audited and corrective measures taken to improve their energy efficiency.
6. The elimination of the motor fuel tax for gasahol. *+life-cycle costing.*
7. A requirement that banks collect data on energy costs as part of their loan process.
8. A directive that state offices recycle renewable materials, such as paper, cans and glass, whenever possible.
9. A provision allowing second class boroughs to accept federal housing rehabilitation funds.
10. Changes in the wording of the state's long-term energy plan, placing more emphasis on conservation.

Additional provisions that will be considered as amendments during

Resources Committee markup include a grant program to pay part of the costs of conservation and alternative energy investments, as well as any of the alternative energy legislation that you have been working on that the chairman would like considered concurrently.

★ The sponsoring legislators have not yet seen these ideas expressed in statutory form. I would check with them before attributing any of the ideas to them, although they have expressed support for all of them in concept.

I am also preparing a bond package to cover the cost of retrofitting all public buildings in the state. The Dept. of Transportation and Public Facilities is working on my request for backup information.

#### B. The Alaska Energy Resource Development Institute

My work on this is summarized in the memo from Rogers to Gardiner dated 1-17-80, outlining the structure of AERDI. A bill draft is being prepared which follows the guidelines expressed in the memo, as modified by you and Speaker Gardiner in our 1-18-80 meeting.

#### C. The Power Alternatives Study

The study has three main goals:

1. To assess, using the most appropriate and advanced methods, the future power demand for the Railbelt region.
2. To assess the potential contribution of conservation and renewable energy towards meeting Railbelt energy needs.
3. To assess the availability and comparative costs of alternative methods of meeting the Railbelt power demand (i.e., natural gas, coal, small hydro, Susitna)

We are coordinating our work with that of the Alaska Power Authority to as great a degree as possible, as well as monitoring and analyzing the progress of their Phase I Study. The demand work, being performed by the Institute of Social and Economic Research, is being jointly funded by our study and the APA. Brad Tuck, a university economist, and Energy Probe of Canada, are assisting in the evaluation of the ISER demand analysis.

The study of the potential for conservation and renewable energy use is being performed by a variety of contractors in the Anchorage and Fairbanks area. This section of the study also includes an "end use" analysis of Railbelt energy consumption, which is vital to planning for power needs and has never been done in Alaska.

The assessment of comparative costs is being completed in part by Greg Erickson and Arlon Tussig, along with Mark Fryer and other subcontractors. Additional work in this area will need to be done later this year, after the APA Phase I Study has progressed to the point of providing estimated cost information.

January 19, 1980

To: Representative Brian Rogers *MW*  
From: Mark Wittow  
Re: Expected Energy Legislation, 1980 session

I have summarized below what probably will be the major energy issues confronting the legislature this session. As always, one never knows what will crop up, or drop beneath the floorboards.

1. Conservation

A bill is currently being drafted, under the sponsorship of you and Rep. Miles, that would establish a comprehensive state energy conservation policy and set up a variety of incentives for the more efficient use of energy. The bill's key features:

- a. A voluntary residential and commercial audit program, to be designed by the state DEPD and administered through the municipalities.
- b. A conservation loan program, for home improvements.
- c. Policy guidelines and tax incentives to encourage cogeneration of heat and electricity, and the use of waste heat.
- d. A requirement that all state-financed construction meet a minimum performance standard.
- e. A requirement that all public buildings be designed to maximize energy efficiency, and that all existing buildings be audited and corrective measures taken to improve their efficiency.
- f. The elimination of the motor fuel tax for gasahol.
- g. A variety of more technical provisions, such as allowing the FNSB to accept federal funds for housing rehabilitation, changes in the wording of the requirements for the state's long-term energy plan.

A number of other measures have been proposed by AkPIRG, and will be considered as amendments during committee markup:

- a. A requirement that lending institutions collect data on energy costs as part of their loan application process.
- b. Inclusion of solar-oriented provisions in local zoning codes.
- c. A grant program for conservation and solar investments.
- d. A statewide mandatory retrofit program for all homes and businesses, financed by the state.

The Miles/Rogers conservation bill should be introduced during the latter half of next week.

The administration is expected to introduce conservation legislation next week. Their program contains nothing of substance not in the House legislation, and is focused around "energy tax credits," whatever those turn out to be, conservation loans and state facility

retrofit.

A number of other conservation measures will be dealt with through the appropriation process. These include funding for the conservation loan and audit programs, the creation of an economist position at the APUC to study innovative rate design and possible additional funds for some of the federal conservation programs.

The House and the Administration seem to be in general agreement on the basic outline of a state conservation program, with the House in the lead on the issue at this point. The main points of the program also have the support of groups such as the municipal league, the utilities and private industry, although no one supports limitations on their freedom of action (meaning that the waste heat provisions will face opposition).

The program to retrofit state buildings appears as part of the Governor's supplemental budget, with 25 million dollars requested. An estimated 200 million dollars will be spent over the next six years, including 34 million in FY 81. I was told that the governor intended to use general fund money for the entire retrofit program -- but the memo entitled "Legislative Leadership Briefing Budget Overview" (1-14-80) shows a FY 80/81 bond package of 18.1 million for "Energy Conservation/Facilities Upgrade Bonds."

I have begun the process of preparing a bond package for the cost of retrofitting all public and municipal buildings in the state

## 2. Alaska Energy Resource Development Institute

A bill is now being drafted, under the sponsorship of you and Speaker of the House Gardiner, to create the Alaska Energy Resource Development Institute. AERDI would be an independent public corporation designed to promote the development of energy technologies. It would receive its initial funding from the state, and would seek project funding from federal, state and private sources. One of the Institute's main goals would be to broaden and increase employment opportunities for Alaskans. It would also be expected to encourage innovation and help individuals and business bring new ideas to the commercial stage.

The areas that AERDI is expected to pursue: enhanced petroleum recovery, increased efficiency in coal combustion, hydrogen use and storage technologies, applications of wind and small hydro power in Alaska, alternative liquid fuels, waste heat and cogeneration, fuel cells, heat pumps and other promising renewable energy technologies. AERDI is being established at a time when huge amounts of federal funds are available for energy research and development, to bring those funds to Alaska, and to use our own energy revenues for long-term economic and technological development.

## 3. Funding for Alternative Energy Projects

The governor has proposed that DEPD receive 350,000 dollars and DOTPF receive \$500,000 for community-level resource research, development

and demonstration projects. Almost a half million dollars will be available for small-scale power projects using local resources of under one megawatt. The governor has also proposed a funding increase for the northern technology program (\$150,000 total), although his intentions are clouded by the executive order moving the entire Council to the Dept. of Env. Conservation.

Whether or not AERDI is established, the House is expected to be extremely sympathetic towards funding worthwhile alternative energy research, development and demonstration projects. The University has proposed an Energy Research Institute; many of the projects included in their package would be worth funding. These include fuels research, wind energy, biomass reduction, local utilization of arctic coal and waste heat programs.

### 3. Rural Problems

A variety of proposals are up in the air in the House and Senate which deal with the problem of high energy costs in bush villages. These include electric lifeline rates, heating and diesel fuel subsidies, and alternative energy utilization. The administration has proposed bulk fuel purchase loans, at five million dollars, and a bulk fuel storage facility acquisition program, at 750,000 dollars. Additional appropriations to the various <sup>regional</sup> energy emergency funds have been proposed by the governor.

### 4. Susitna Hydroelectric Project

The Alaska Power Authority will soon distribute the revised Phase I plan of study proposal by Acres American for public comment. The governor has asked that 7.5 million dollars be appropriated for the Phase I studies in his supplemental request, although most of the 8.1 million from last year's appropriation is still available. The new supplemental request was made because "the power authority is ready to spend it," according to my administration sources. Representative Malone introduced a House bill to appropriate the same amount in the FY 81 budget, along with continued funding for the alternatives study (\$90,000) and money for geophysical mapping by the University (\$110,000).

The Power Alternatives Study is reviewing the potential of energy conservation, alternative energy sources and natural gas in meeting Railbelt energy needs. The Study also includes a comprehensive report by ISER on future energy demand in the Railbelt, and is being partially funded by the APA as part of the Susitna Phase I work. Study Committee consultants have helped develop the House conservation legislation. Energy Probe has detailed the need for more knowledge of Railbelt housing stock characteristics in their analysis of the ISER demand model.

### 5. Natural Gas

The focus has shifted from Northwest demands for the state to join in gas line financing to the need for examinations of options for use of our royalty gas. The Governor is making a lot of noise

about reviewing the possibility for petrochemical development, but little has been done. The use of the gas for power generation needs to be examined, and will be addressed in rough terms in the Power Alternatives Study report. More attention needs to be paid to mundane tasks such as figuring out the best offtake points, and to the lack of knowledge about all potential instate uses for the gas. I wish there was more to report in this paragraph, but proposals for action are lacking.

I have not covered proposals for the conditioning plant.

#### 6. Oil and Gas Leasing Policy and Five Year Plan

The Interim Committee's analysis of the Beaufort sale and the proposed five year lease schedule shows that the Dept. of Natural Resources has very little of the data they need to conduct lease sales in a manner that will protect the state's interest. They are farther behind for upcoming sales than they were at this time last year for the Beaufort sale. They have almost no seismic information for upcoming sale areas. Although they have requested increased funding for leasing preparations, I don't have details on what they plan to do with the money.

(You may want to comment on the use of profit share bidding at the Beaufort sale, and its value for bringing the state greater revenues from oil and gas, as well as spreading them out for more responsible management.)

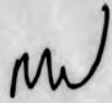
\*\*\*\*\*

I think I've covered everything, but I'll keep checking and let you know if anything new comes up. As far as presenting this information, I'd stress two points:

1. Your efforts in writing energy conservation legislation will help reduce the operating costs of state government, and may help prevent the later imposition of coercive measures in emergency situations.
2. Your work on the Susitna project is designed to make sure that the tremendous investment required to build the dam won't result in huge costs to electricity users, and that the more economical ways of meeting energy demand are fully explored. The Power Alternatives Study Committee is also the only official public group maintaining critical oversight of the project, to ensure that it is built soundly, safely and at a proper size for future demand. The APA is too close to the project to maintain the necessary perspective.

January 21, 1980

To: Representative Brian Rogers  
From: Mark Wittow



Addendum to 1-20-80 memo on energy issues

I have listed below a variety of issues relating to state energy policy that may be addressed this session. The primary issues were addressed in yesterday's note to you.

A. Natural Gas

1. Bonding Authority -- revise, abolish?
2. The necessity for an instate use study
3. Public examination of the resident hire issue, to exert the required pressure on NW for a good agreement.
4. The costs and benefits of trade to obtain gas liquids.

B. Oil and Gas Conservation Commission

1. Possible shakeup and/or expansion of the Commission
2. Continued funding for the Van Poolen reservoir study, which has gone way over budget and schedule.  
(It is still vital that the study be completed.)

C. Coal Royalties -- legislation will be submitted to raise the coal royalty to somewhere around 5%.

D. Oil Pollution Cleanup -- legislation on this subject, submitted by the Governor, will be taken up in the House Resources Committee next week.

E. Oil and Gas Unitization -- new legislation will be submitted by McKinnon/Chatterton, which will attempt to clear up the confusion (and resulting loopholes) between "exploratory" units and production units. DNR also has new unitization regulations, which will be impacted by the new legislation.

F. Alpetco -- no legislation action is expected, but research is being conducted to determine the validity of LaRocca's charges in last week's All-Alaska Weekly. (by the House Research Agency)

G. Alternative Energy Sources -- legislation is expected on financing of small hydro, and general state support for small hydro, geothermal, and solar systems.

H. ETC. -- The impact of the PacLNG proposal on Cook Inlet gas prices may be considered.  
Due to the increased Sadlerochit production, a small state royalty oil sale will be held soon, with approval by the legislature required.

The major issues of conservation, rural energy problems, AERDI, Susitna, alternative energy projects and the five-year lease schedule were covered in the original memo.

**BRADFORD H. TUCK, PH.D.**

ECONOMIC CONSULTANT

1822 CINDYLEE LANE  
ANCHORAGE, ALASKA 99507

(907) 344-9293

January 23, 1980

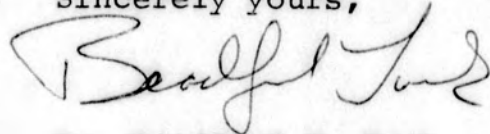
Representative Brian Rogers  
Pouch V  
Juneau, Alaska 99811

Dear Brian:

I am writing to ask that the January 21 deadline for an interim report in my contract on the Susitna Power Alternatives Study be extended for three weeks.

I apologize for this delay, but it has been unavoidable.

Sincerely yours,



Dr. Bradford H. Tuck

Mark - ok by me BR



UNIVERSITY OF ALASKA  
Institute of Social and Economic Research  
707 "A" St., Suite 206  
Anchorage, Alaska 99501  
Phone (907) 278-4621

February 5, 1980

Representative Hugh Malone  
State of Alaska  
Pouch V  
Juneau, Alaska 99811

Dear Representative Malone:

As you are aware, the state is actively involved in studying the feasibility of electric power production for the railbelt from hydroelectric facilities on the Susitna River.

In conjunction with these studies, the Institute has been asked by the State Legislature and the Alaska Power Authority to develop projections of electricity demand for the railbelt through the year 2005. The Man-in-the-Arctic Program (MAP) econometric model will be used in this study to provide projections of the relevant economic variables for analysis of electricity demand.

As with any technique which attempts to look into the future of the Alaskan economy, we find it necessary to make estimates of the types and timing of large resource development projects which will be impacting the state economy as well as state government spending policies with respect to the growing oil revenue surplus. Assumptions concerning these factors will largely determine the pattern of economic growth for the state over the next twenty-five years.

You are invited to attend a meeting of economists familiar with potential Alaskan development projects and state spending policies at the Institute's Anchorage office on Friday, February 15, at 9:00 a.m. At the meeting, I will be presenting the economic and fiscal assumptions that have been developed by the Institute economists for projecting the Alaskan economy over the next twenty-five years. The purpose of the meeting is to produce a check on these assumptions based upon the knowledge and experience of the economists in attendance.

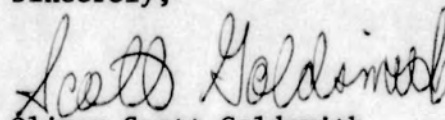
UNIVERSITY OF ALASKA

Representative Hugh Malone  
February 5, 1980  
Page Two

I think you will find this meeting interesting from a methodological point of view because the desired output of the meeting is a set of probability distributions for the critical scenario variables--resource development employment and state spending. I hope that it will be possible to integrate your estimates of the probability of future events with those of other economists through a technique known as probability encoding. Basically, we will try to form a consensus on the shape of the probability distribution for critical scenario variables using a simple Delphi technique.

I anticipate a very interesting session and urge you to attend. If you have any questions, please call me at 278-4621.

Sincerely,



Oliver Scott Goldsmith  
Assistant Professor  
of Economics

OSG/ds

# ALASKA POWER AUTHORITY

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

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

February 19, 1980

Scott Goldsmith  
Institute of Social and Economic Research  
707 "A" Street, Suite 206  
Anchorage, Alaska 99501

Dear Scott:


I enjoyed being involved in last Friday's attempt to solicit subjective views on the state's economic future as part of the Susitna energy demand forecast. I am writing to reiterate some comments I made during the exercise.

First of all, the Power Authority continues to want a subjective probability distribution for the forecasts as called for in Subtask F.2 of your Detailed Work Plan. The planners need that sort of guidance. By definition, a subjective assessment of probability is completely dependent upon the individual outlook of the person making the assessment. ISER could probably make such an assessment on its own, but it is readily understandable why you would prefer to solicit views from a group of knowledgeable people. In so doing, however, the makeup of the group becomes all-important.

If the collective views of a group are going to influence your study, it becomes imperative to first of all document, and second of all control, the makeup of the group. I presume that a broad and balanced representation would be the goal. Noting that the group of participants on Friday differed from the invited group, it is likely that the desired breadth and balance was not realized.

Thank you for considering these comments.

Sincerely,

  
Robert A. Mohn  
Director of Engineering

Copies to: Mark Wittow, Office of  
Representative Malone  
Acres American Incorporated

February 26, 1980

To: Russ Meekins, Chairman, House Finance Committee  
From: Hugh Malone

Re: Supplemental appropriation for the Susitna Hydroelectric Project  
Phase I Study.

I am against providing this money to the Alaska Power Authority during fiscal year 80. As you know, I sponsored HB 570, which appropriates the same amount (7.5 million) to the Authority in fiscal year 81. I have discussed the matter with Mr. Yould of the A.P.A., and have reviewed the timetable for the Phase I Study. I can find no reason for the authority to receive this money now, instead of during FY 81. The eight million dollars appropriated in last year's SB 63 still remains largely unspent.

Before appropriating any money to the Authority for the Susitna project, the Finance Committee should review the timetable of the study plan. The appropriations need to be made in a manner that allows for proper legislative oversight.

I also stress the importance of continuing direct legislative oversight of the project by appropriating enough money (probably \$90,000) to the House Research Agency to continue the critical work begun by the House Power Alternatives Committee.

Please let me know if you wish to discuss this at greater length.



(HB 570 attached)



# Alaska State Legislature

## House of Representatives

February 27, 1980

Pouch V  
State Capitol  
Juneau, Alaska 99811

Official Business

Mr. Eric Yould  
Alaska Power Authority  
33 West 4th Avenue  
Anchorage, AK 99501

Dear Eric:

We have reviewed the proposed Plan of Study, dated February 1980, submitted by Acres American to the Alaska Power Authority. We are disturbed by parts of Section A4 where responses to the public comments of last fall are made. In parts T1.2 and 1.7, Acres described the work of our committee to answer statements about the need for study of conservation and power alternatives. Our efforts are designed to provide information to the legislature and public about the various alternatives for generating power in the Railbelt. They are not meant to be a substitute for work that Acres should be doing as part of their study plan.

We have cooperated with the Alaska Power Authority in sponsoring the work of the Institute for Social and Economic Research on power market demand projections. We will continue to share all our work with you, as well as make our individual contractors available for consultation, but in the sections on conservation and power alternatives, our work can only guide that of Acres, not replace it.

When appropriate, we would also be happy to provide an updated account of the committee's work to help you revise pages 5-4 and 5-5 of the Acres plan.

Please let us know if you have any questions.

Sincerely,

Handwritten signature of Hugh Malone in cursive.

Hugh Malone, Co-Chairman  
House Power Alternatives  
Study Committee

Handwritten signature of Brian Rogers in cursive.

Brian Rogers, Co-Chairman  
House Power Alternatives  
Study Committee

February 27, 1980

Mr. Eric Yould  
Alaska Power Authority  
33 West 4th Avenue  
Anchorage, AK 99501

Dear Eric:

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Please let us know if you have any questions.

Sincerely,

Hugh Malone, Co-Chairman  
House Power Alternatives  
Study Committee

Brian Rogers, Co-Chairman  
House Power Alternatives  
Study Committee

February 27, 1980

Mr. Eric Yould  
Alaska Power Authority  
33 West 4th Avenue  
Anchorage, AK 99501

Dear Eric:

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When appropriate, we would also be happy to provide an updated account of the committee's work to help you revise pages 5-4 and 5-5 of the Acres plan.

Please let us know if you have any questions.

Sincerely,

Hugh Malone, Co-Chairman  
House Power Alternatives  
Study Committee

Brian Rogers, Co-Chairman  
House Power Alternatives  
Study Committee

WHILE IN SESSION:  
POUCH V  
JUNEAU, ALASKA 99811  
(907) 485-4925

HOME:  
BOX K - COLLEGE  
FAIRBANKS, ALASKA 99708  
(907) 456-2037

**BRIAN ROGERS**

*Alaska State Legislature*

February 29, 1980

John Collette  
Alaska Federation for Community Self Reliance  
PO Box 73488  
Fairbanks, Alaska 99707

Dear John:

Representative Rogers has asked me to respond to your letter of February 10 on state energy conservation policy. I thank you for taking the time to spell out your thoughts for members of the legislature. The information you presented should aid them in the evaluation of the various conservation bills before the House and Senate.

As a supporter of the programs you suggest, I would like to offer some constructive criticism of your letter. To make an impact during the hectic pace of the legislative session, your message needs to be clear, direct and well-organized. Back-up material should be presented as such. I found your strongest points more or less buried at the bottom of pages 3 and 5.

On page 3, you make the point that a subsidy of immediate fuel costs fails to provide the kind of long-term return that expenditures for conservation would provide. This is a vital point, and worthy of a strong, direct statement. A number of proposals are under consideration by the House and Senate Resource Committees that provide subsidies for energy consumption. I am sure that members of those committees, and the Fairbanks delegation, would be interested in the Federation's views on these types of proposals. But they may never understand your position unless they do more than skim your lengthy letter.

On page 5, you describe five state programs that would aid efforts in the area of energy conservation. Almost all of your suggestions are incorporated in House Bill 851 (attached). Since these suggestions are something your legislators will have the opportunity of addressing, they also deserve clear and direct description.

I make these suggestions only to aid you in your efforts to make your opinions and ideas known to the legislature. Again, your work in sending suggestions out is very much appreciated. One last point -- you should mention the specific bill titles and numbers of the proposals that you support or dislike.

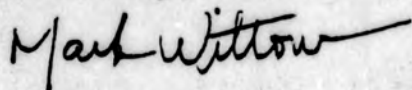
I also received your letter describing your energy audit operations, and thank you for your response to my questions. When committee deliberations on audit and conservation programs begins, I will be sure to contact you to enable you to present your views to the legislature. I will try to call you during

Collette February 29, 1980 Page Two

the next few weeks to discuss your letter. I agree with your feeling that audits are worthless without proper retrofit work to carry through the suggestions. I would be interested in talking with you about what state government can do as part of this effort. You mention low interest loans, for example. Is the interest rate, or the availability, of loans the key? I realize that the rate changes the payback period for investment, and therefore changes the amount of work that is economic to do. Should the state train and certify auditors? "House doctors?" What is better done at local or private levels? What are the noncoercive ways of encouraging retrofitting?

I look forward to talking to you. Thank you again for your letters.

Sincerely,



Mark Wittow  
Study Coordinator  
House Power Alternatives Study Committee

Attachment



# Alaska State Legislature

## House of Representatives

c/o Malone  
Pouch V  
State Capitol  
Juneau, Alaska 99811

Official Business

March 8, 1980

Kevin Harun  
Fairbanks North Star Borough Assembly  
Fairbanks, Alaska 99701

Dear Kevin:

Brian Rogers just handed me a copy of your testimony on The Susitna Hydroelectric project. You have clearly expressed the problems with the Sustina project, and the positive measures that need to be dealt with in its place. With your permission, I would like to be able to quote from your message to the Senate Resources Committee in future reports of the House Power Alternatives Study Committee, and distribute it to people that would be interested in your statement. Since you submitted this as public testimony, I assume you would have no objection -- let me know if you feel otherwise.

I would be happy to keep you informed of the progress of the power alternatives study, and energy-related legislation if you wish. Just drop a note to either Brain or myself with your questions.

Thanks again for your testimony -- I hope it has some effect on the legislative deliberations on Susitna and general energy policy.

Sincerely,

A handwritten signature in cursive script that reads "Mark Wittow".

Mark Wittow  
Coordinator, Power Alternatives Study Committee  
465-3711/3799

LA21 1648 12.21 JAD1 0046 12.21 01/25/80

TO: REP HUGH MALONE, AND REP BRIAN ROGERS

FM: LARRY KATKIN, DYNAMIC RESEARCH, SR 10612, FBX AK 99701 PHONE-479-8107

RE: HB 570

IN HB 570 CAN YOU INCLUDE FUNDING FOR THE FEASIBILITY OF THE PRODUCTION OF HYDROGEN GAS FROM SURPLUS ELECTRICITY GENERATED BY THE SUTINA HYDRO-ELECTRIC PROJECT? OUR FIRM IS PRESENTLY DOING STUDIES IN THIS AREA AND WOULD BE WILLING TO PERFORM THIS STUDY EITHER FOR THE HOUSE POWER ALTERNATIVES COMMITTEE OR POSSIBLY THE APA.

CAN BE CONTACTED WEEKDAYS 8AM - 5PM

FBX L10/LJ

*Mark -  
what do you  
think.*

WHILE IN SESSION:

POUCH V

JUNEAU, ALASKA 99811

(907) 465-4925

HOME:

BOX K - COLLEGE

FAIRBANKS, ALASKA 99708

(907) 456-2037

**BRIAN ROGERS**

*Alaska State Legislature*

*Susitna  
Consult*

November 20, 1979

Larry Katkin  
Dynamic Research Corporation  
S. R. Box 10612  
Fairbanks, Alaska 99701

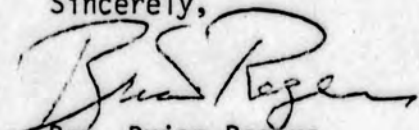
Dear Larry:

This letter will serve as authorization for one round-trip travel between Fairbanks and Anchorage to conduct interviews with R & M Engineering and the Army Corps of Engineers in reference to the Susitna Dam Study.

This travel is covered under Clause IV(B) in the contract between Dynamic Research Corporation and the House Power Alternatives Study Committee.

Due to my tight schedule, I will need the results of those interviews no later than Monday morning, December 10.

Sincerely,

  
Rep. Brian Rogers

WHILE IN SESSION:  
POUCH V  
JUNEAU, ALASKA 99811  
(907) 455-4925

HOME:  
BOX K - COLLEGE  
FAIRBANKS, ALASKA 99708  
(907) 456-2037

**BRIAN ROGERS**

*Alaska State Legislature*

**POWER ALTERNATIVES STUDY**

October 18, 1979

(406) 494-6180

Jerry Plunkett  
Montana Energy Research and Development Institute  
Butte, Montana 59701

Dear Jerry:

I have enclosed a copy of the Alternative Energy Conference schedule, to be held here November 9-11. We have asked you to meet with several people who will be conducting a study of the potential for conservation and renewable resource development in Alaska during that weekend, or the Monday (Nov. 12) following the conference. I have also enclosed a copy of the draft contract for that study, for your information.

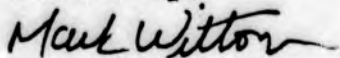
Nancy Lee, at the Alaska Center for The Environment, will be handling details such as transportation and accommodations for the conference. She can be reached at 907-274-3621. I know that you plan to talk with her sometime this afternoon to take care of these details.

I understand that you will be in D.C. from Oct. 20-24, meeting with President Carter and others, and will be in Japan from Oct. 27, with Ambassador Mansfield and a delegation of Western governors, until arriving in Anchorage on Nov. 9.

You will be meeting with Representative Rogers while in Anchorage. He can be reached at the number above, or at his office: 479-7692. The other people we would like to have you meet with include Vic Fischer of the Institute for Policy Studies (272-2381), James Love and Eric Myers of the Alaska Public Interest Research Group (278-3661), Mark Baumgartner of the Fairbanks Federation for Community Self-Reliance (456-7674) and Rich Seifert of the University Water Resources Institute. I provide these phone numbers at your request; however, we will be sure to contact you at the Conference if not sooner to arrange the weekend's meetings.

I am sure you will enjoy your trip to Alaska. I know many people will be interested in learning as much as possible about your Institute, and Montana's efforts in the field of energy research and development. I do not expect to be able to attend to the conference, but I hope to meet you at some future date.

Sincerely,



Mark Wittow  
Study Coordinator

cc: Representative Rogers  
Nancy Lee

WHILE IN SESSION:  
POUCH V  
JUNEAU, ALASKA 99811  
(907) 465-4925

HOME:  
BOX K - COLLEGE  
FAIRBANKS, ALASKA 99708  
(907) 456-2037

**BRIAN ROGERS**

*Alaska State Legislature*

POWER ALTERNATIVES STUDY

October 17, 1979

Chris Conway  
Energy Probe  
43 Queen's Park Crescent East  
Toronto, Canada M5S 2C3.

Dear Chris:

Enclosed is the draft contract and scope of work for the University of Alaska Institute of Social and Economic Research power demand forecast. Also enclosed is a draft contract with the Alaska Center for Policy Studies for a study of the potential for conservation and renewable energy sources in the Railbelt area of Alaska. We have asked you to review the demand forecasts, and to be available to advise the principals in the study by the Center.

I have also included materials that should provide some information on the background and present status of the Susitna hydropower debate.

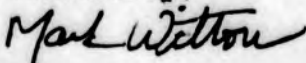
WE have asked you to come to Anchorage on November 9th to meet with the other participants in the Power Alternatives Study, and participate in the Alternative Energy Conference (brochure attached.) You will be able to arrange meetings with Institute personnel on Monday and Tuesday, at your convenience, following the conference.

You should contact Nancy Lee, at the Alaska Center for the Environment (907-274-3621) for details about your participation in the conference, housing/hotel, etc. She has promised to take good care of you and other Energy Probe members.

I expect to be leaving for Ohio and the East Coast on Tuesday, October 23rd. If you need to reach me, I will be at 216-759-0433 after Oct. 25th. For details on the study, you can contact Representative Rogers, or his aide Glenda Straube, in Fairbanks at 907-479-7692, Room 610F, Gruening Bldg., University of Alaska, Fairbanks 99708.

I look forward to reading your work proposal, and hope to have a chance to meet you soon.

Sincerely,



Mark Wittow  
Study Coordinator

cc: Representative Brian Rogers  
Nancy Lee



18 October 1979

The Honorable Brian Rogers  
Box K, College Branch  
Fairbanks, AK 99708

Dear Mr. Rogers:

Re: Northwest Regional Assessment Study  
Solar Electric Workshop

As indicated in earlier correspondence with you, the Solar Energy Research Institute (SERI) is conducting a series of six regional studies to assess the potential for solar electric technologies in the United States. JBF Scientific Corporation, with assistance from CH2M HILL, has contracted with SERI to conduct the Northwest Regional Assessment Study, covering the 10-state northwest region.

An integral part of this study is a series of workshops to gather information from current and potential users of solar electric systems. A brief description of the workshop purpose and objectives and a tentative agenda for the workshops are enclosed for your information.

Because of your interest and involvement in alternative energy development, we would like to invite you to participate in the workshop in Alaska. The session will be held:

13 November 1979  
Captain Cook Hotel  
Anchorage, Alaska

To allow for productive discussions and exchange of ideas, approximately 30 people will be invited to attend. A reply card is enclosed for your convenience; your response by 29 October would be appreciated.

If you are unable to attend, you may wish to designate another person to participate in your place. All participants will receive an information packet containing further information on agenda items before the workshop session.

We appreciate your assistance in this study and look forward to your participation at the workshop.

Sincerely,

Michal A. Wert  
Planner

MAW:gy

WHILE IN SESSION:  
POUCH V  
JUNEAU, ALASKA 99811  
(907) 465-4925

HOME:  
BOX K - COLLEGE  
FAIRBANKS, ALASKA 99708  
(907) 456-2037

**BRIAN ROGERS**

*Alaska State Legislature*

**POWER ALTERNATIVES STUDY COMMITTEE**

October 19, 1979

Jerry Plunkett  
Montana Energy Research and Development Institute  
Box 3809  
Butte, Montana

Dear Jerry,

I am writing to confirm my visit to the Institute on October 25th. I am scheduled to arrive in Butte at 10:30 am that morning, and plan to depart the same time the next day.

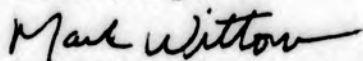
I have three basic reasons for visiting:

1. Our committee is planning a study of the potential of energy savings through the use of renewable energy sources and through conservation. I would like to talk with the people who have done similar studies or work in Montana.
2. Several legislators are interested in using part of Alaska's oil wealth to establish an energy research institute devoted to renewable energy forms, enhanced oil recovery and related areas. I would like to find out the details of how your Institute was established as well as the substance of its current budget and operations.
3. Alaska has large amounts of undeveloped coal resources. I know that your Institute has done a great deal of work on coal, and I would like to be able to be appraised of the areas in which you provide expert or technical help to Alaska.

The first two areas are of greatest interest to me.

I look forward to meeting you and the staff of the Institute, and appreciate your invitation to visit.

Sincerely,



Mark Wittow  
Study Coordinator



# Fairbanks Environmental Center

218 DRIVEWAY  
FAIRBANKS, ALASKA 99701  
(907) 452-5021

17 October 1979

Governor Jay Hammond  
OFFICE OF THE GOVERNOR  
Pouch A  
Juneau, AK. 99811

Dear Governor Hammond:

Over the last few years, we have participated in planning and study of the proposed Susitna hydro-power project at every opportunity available to us. This is because we are convinced that a project of the magnitude of Susitna has major implications not only for future development of the railbelt, but for energy policy Statewide.

Next week, you will make a decision on detailed Feasibility Studies of Susitna.

You will be asked to choose between the Army Corps of Engineers and a consulting firm, Acres American, selected by the Alaska Power Authority.

We feel that you have a third option which you should seriously consider. You can postpone the Feasibility Studies until the current Legislative Study of Susitna is completed.

There is a need to clearly separate our energy planning from energy development. Both the Acres and Corps plans of study address primarily the technical and financial aspects of the project. This is certainly a legitimate end.

However, we may be putting the cart before the horse. Common sense seems to suggest that we first thoroughly assess and establish the need for a project, before we spend \$8.2 million-(eventually as much as \$25, or more) - of taxpayers' money on detailed technical studies.

We strongly suggest that you defer the decision to initiate Feasibility Studies until an up-to-date Market Analysis and Evaluation of Alternatives is completed. The Legislative Study will address these questions from an independent perspective, through contracts to Alaskan experts.

In dividing energy planning and development tasks, maximum objectivity and the public interest would be best protected by separating those who assess feasibility from those who might eventually design and construct a project.

To this end, we suggest that any contract which is written for Feasibility Studies include a provision which expressly precludes the firm or agency' conducting the Studies from any involvement in design or construction.

In making your decision, we hope you will bear our remarks in mind.

*"Cherish, Conserve, Consider, Create"*



# Fairbanks Environmental Center

218 DRIVEWAY  
FAIRBANKS, ALASKA 99701  
(907) 452-5021

16 October 1979

Robert E. LeResche,  
Commissioner  
DEPARTMENT OF NATURAL RESOURCES  
Pouch M  
Juneau, AK. 99811

Dear Commissioner LeResche:

We were delighted to receive your letter of October 10, stating your decision to remove the Revine Creek disposal from the FY 1980 schedule.

It's gratifying to know you have listened to the voices of local residents, Senator Sackett, Representative Moss, Commissioner Skoog and conservationists and responded with such a bold move. We are particularly pleased that further survey and platting contracts in Revine Creek have been postponed, until the issue is resolved among the State, the Legislature and citizens.

The Fairbanks Environmental Center views the disposal issue as one of the most serious land-use problems currently facing Alaska. We intend to continue working closely with your Department and our Legislators in seeking a long-term solution to this matter.

We must find a way to meet the legitimate need for private ownership while still protecting valuable public resources and the self-determination of existing communities. To this end, we are actively working to see that lands suitable for settlement are placed in the "land bank", while areas with significant public interest values are retained in public hands. We feel this is the only way to perpetually serve the needs of the largest number of Alaskans.

Again, we greatly appreciate your considered efforts to administer the disposal program in a sensitive and equitable manner.

Sincerely,

John Adams,  
Executive Director

Copies to: Governor Hammond  
Commissioner Ron Skoog - ADF&G  
Ted Smith - Division of Lands  
Steve Jones - McKinley Park  
Jeri Cole - Denali Citizens Council

Senator John Sackett  
Rep. Pappy Moss  
Wm. Copeland - Div. of  
Lands

*"Cherish, Conserve, Consider, Create"*

LAI 2042 . . .06 JA01 0014 12.06 06/07/79

↑  
TO GREGG ERICKSON, JNU  
FROM CAROL DICKASON, ANCH LIO.

REP. JOE MC KINNON WOULD LIKE YOU TO TELECOPY TO THIS OFFICE THE  
SOLICITATION FOR BIDS FOR ALTERNATIVES TO THE SUSITNA PROJECT.

THANKS. EOM/

SOMA SERVICES  
P. O. Box 10,198  
FAIRBANKS, ALASKA 99701

FOLLOW-UP DATE

\_\_\_\_\_ 19 \_\_\_\_\_

(907) 479-8441

Date 9/10/79 ITNA

Subject SUSITNA

To SAM SKAGGS  
FEDERATION FOR COMMUNITY SELF-RELIANCE

Sam, I talked with Mark more and here's more info. It's a good idea if you write up a simple proposal for the Fed. part of the study. As far as the Railbelt area---- Wittow believes that you would be concerned with the Fairbanks area (FNSB) Your report would deal with the effects of conservation on the demand for energy and I would presume would include the end use study for the area also.

Work will start in October and the first draft will be due approx. Feb. or March 1980. Your report would be needed earlier than some others. The final report due probably in Fall ~~of 1980~~ you should ask for \$5000-\$10,000. I realize this is a wide range, but you'll have to figure that one out. Also, this may include overhead if you so desire. I know you'll be reasonable. Can you write this up before you leave and get it to me?

Please reply       No reply necessary

SIGNED

*Glenda Straube*

WHILE IN SESSION:  
POUCH V  
JUNEAU, ALASKA 99811  
(907) 465-4925

COR.  
HOME:  
BOX K - COLLEGE  
FAIRBANKS, ALASKA 99708  
(907) 456-2037

**BRIAN ROGERS**  
*Alaska State Legislature*

September 11, 1979

Honorable Jay Hammond  
Governor  
Pouch A  
Juneau, Ak 99811

Dear Governor Hammond:

As you know, the legislature appropriated \$200,000 for a study of the assumptions behind and the alternatives to the proposed Susitna Hydroelectric Power Project, for the purpose of addressing some of the unresolved issues central to its feasibility. Our study will focus on explaining and updating population growth and energy demand projections, and analyzing the possibilities for conservation within the state, and in depth analysis of the comparative costs of the available alternatives, including coal and gas-fired plants, geothermal, wind, solar and tidal.

Before we contract with consultants, we would like to receive any questions you or your staff may have relating to the project. In particular, we are interested in the environmental or technical questions which impact project benefits.

Your office is responsible for approval of a commitment of eight million dollars if federal backing of the Phase I portion of the project is not forthcoming. You may wish to consider postponing any major decisions on the course of the project until our study is complete. We expect to have a preliminary report ready by April 1980, with a final report completed in the fall of 1980.

Thank you for your assistance.

Sincerely,

  
Rep. Brian Rogers

cc: Frances Ulmer

Talk to Jiz

5

Susitha

- Brian -  
Plan Seminar MIT  
mid December

(1) General consultants

(2) Conservation impact

(3) Montana Group here - Research needs of state

(4) <sup>Mr</sup> Dec. return - start on Susitha  
split between Eli & Anthony  
forward Susitha files to Brian with  
Jimson

(5) Visits to Consultants outside?

(6) Shape of study

- a) Demand
- b) Conservation
- c) Design for Alternatives Study
- d) N.G.

(7) Private firm PAF program

✓ (8) Can I get on team - Div case about loan?  
find out about loan app

(9) Barron: AETDL  
index of research?

Check on  
finetable  
Sharon Trayner  
\$ available  
assistance in  
reg for Brian  
& Council

# STATE OF ALASKA

## DEPARTMENT OF COMMERCE & ECONOMIC DEVELOPMENT DIVISION OF ENERGY & POWER DEVELOPMENT

JAY S. HAMMOND  
GOVERNOR

7TH FLOOR MACKAY BLDG.  
338 DENALI STREET  
ANCHORAGE, ALASKA 99501  
PHONE: (907) 272-0527

July 2, 1979

Representative Brian Rogers  
P.O. Box K, College Branch  
Fairbanks, Alaska 99708

Dear Representative Rogers:

As you may know, Title IV of the Public Utility Regulatory Policies Act (PURPA) of 1978 authorized loans be made by the Department of Energy (DOE) for feasibility studies and related licensing for small hydro-electric power projects. Ten million dollars was appropriated last year by Congress and another ten million has been requested for FY80. Another section of the law also authorized construction loan funds, but unfortunately, no money was appropriated.

The major drawback of the legislation has been its application to "existing dams which are not now being used to generate power". I have been informed that the ~~Senate Energy Committee~~ has approved an amendment to ~~remove this restriction~~, thereby, greatly increasing its potential use in Alaska (Attachment A). A letter of support from you to our Congressional delegation supporting the amendment would be helpful in bringing the matter to their attention and in assuring passage through the House and Senate.

*do*  
*file*  
*cc to*  
*Clawson*

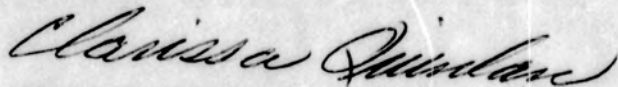
I'm also enclosing for your review proposed regulations prepared by DOE relating to the feasibility studies and licensing loans (Attachment B). Any comments should be submitted in writing as soon as possible even though you will not be able to meet the comment period deadline. In the future we will be sure that you get these items in a more timely manner.

I've also included for your consideration a Program Opportunity Notice (PON) relating to Small-Scale Hydroelectric Demonstration projects being partially funded by DOE (Attachment C). Should you be interested in applying, our office would be happy to assist.

Page Two  
July 2, 1979  
Representative Rogers

Please feel free to contact me should you have any questions. In the meantime we'll keep you informed as to the progress of the legislation and the loan applications timetables.

Sincerely,



Clarissa Quinlan  
Director

cc: Chuck Webber, Commissioner  
Dale Rusnell, DEPD

Attachments:

- A Amendment Public Utility Regulatory Policies Act of 1978-S.948
- B Notice of Proposed Rulemaking and Public Hearing - P.L. 95-617
- C Small-Scale Hydroelectric Power Demonstration Projects

WHILE IN SESSION:  
POUCH V  
JUNEAU, ALASKA 99811  
(907) 455-4925

HOME:  
BOX K - COLLEGE  
FAIRBANKS, ALASKA 99708  
(907) 456-2037

## BRIAN ROGERS

*Alaska State Legislature*

### POWER ALTERNATIVES STUDY

October 18, 1979

Jerry Plunkett  
Montana Energy Research and Development Institute  
Butte, Montana 59701

Dear Jerry:

I have enclosed a copy of the Alternative Energy Conference schedule, to be held here November 9-11. We have asked you to meet with several people who will be conducting a study of the potential for conservation and renewable resource development in Alaska during that weekend, or the Monday (Nov. 12) following the conference. I have also enclosed a copy of the draft contract for that study, for your information.

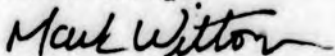
Nancy Lee, at the Alaska Center for The Environment, will be handling details such as transportation and accommodations for the conference. She can be reached at 907-274-3621. I know that you plan to talk with her sometime this afternoon to take care of these details.

I understand that you will be in D.C. from Oct. 20-24, meeting with President Carter and others, and will be in Japan from Oct. 27, with Ambassador Mansfield and a delegation of Western governors, until arriving in Anchorage on Nov. 9.

You will be meeting with Representative Rogers while in Anchorage. He can be reached at the number above, or at his office: 479-7692. The other people we would like to have you meet with include Vic Fischer of the Institute for Policy Studies (272-2381), James Love and Eric Myers of the Alaska Public Interest Research Group (278-3661), Mark Baumgartner of the Fairbanks Federation for Community Self-Reliance (456-7674) and Rich Seifert of the University Water Resources Institute. I provide these phone numbers at your request; however, we will be sure to contact you at the Conference if not sooner to arrange the weekend's meetings.

I am sure you will enjoy your trip to Alaska. I know many people will be interested in learning as much as possible about your Institute, and Montana's efforts in the field of energy research and development. I do not expect to be able to attend to the conference, but I hope to meet you at some future date.

Sincerely,



Mark Wittow  
Study Coordinator

cc: Representative Rogers  
Nancy Lee

Mark Baumgartner  
S.R. 20810  
Fairbanks, AK 99701

Mr. Mark Wittow  
Alaska State Legislature  
727 N Street  
Anchorage, Alaska 99501

1 October

Dear Mark:

Just a brief note to inform you that I appreciate the fact that you and Brian have considered the Federation into your plans for the Susitna study. Personally, I am anxious to work on the project. I hope you will have a contract drawn up soon.

I hope, too, that you, me, Brian and Rich Seifert can get together before the research begins, so that we can go over together what the study will involve and precisely what attitude the Susitna committee wants to assume in presenting the information.

Also, can you please send to me a copy of the chapter on conservation from the Harvard study. I believe that's the one you had in your possession when you were last in Fairbanks.

I look forward to hearing from you soon.

Sincerely,

*Mark*  
Mark Baumgartner

# ALASKA POWER AUTHORITY

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

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

August 29, 1979

The Honorable Brian Rogers  
Alaska State Legislature  
Post Office Box K  
College Branch, Fairbanks, Alaska 99708

Dear Representative Rogers:

As you know, the Alaska Power Authority is in the process of developing a non-federal approach to detailed investigations of the Susitna Hydroelectric Project. This method of proceeding with the project is an alternative to using the Corps of Engineers in a cooperative state/federal program as provided for in Section 203 of the Alaska Hydroelectric Development Act of 1976. Ability to use the Corps is contingent on federal legislation being considered at this time.

Regardless of whether or not the federal/state cooperative program is available, an alternative state sponsored program leading to a Federal Energy Regulatory Commission license is being planned. To this end, the Power Authority requested statements of qualifications from fourteen nationally renowned engineering firms. Eleven firms responded, from which three were selected for further evaluation. Each of the three has been given the assignment of preparing a plan of study outlining the activities, budget, and coordinating mechanisms necessary to fully assess project feasibility and to apply for a FERC license. A copy of the Request for Proposal is attached.

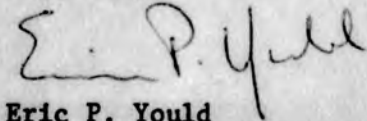
The three competing proposals will be submitted to the Power Authority by September 11, 1979. At the same time, we have requested that the firms also provide you a copy. Your review of the three proposals would be very much appreciated. The proposals will be orally presented by the engineering firms on September 27 and 28 in Anchorage. I invite you to join the Power Authority for these presentations and encourage you to come prepared to question the engineers on their proposals. I also invite you to submit written comments by September 28 to assist us in our evaluation of the competing firms.

The Power Authority Board of Directors will then select a single firm to finalize a proposal. During the latter part of October, the Governor will consider the Power Authority's recommendation of using either the Corps of Engineers under Section 203 or an alternative private engineering firm to conduct the detailed investigations. The investigations will begin in December 1979.

The Honorable Brian Rogers  
August 29, 1979  
Page Two

You can expect to receive the three proposals during the second week of September. I will notify you of the exact time and place of the oral presentations.

Sincerely,



Eric P. Yould  
Executive Director

cc: Governor Hammond  
Each Board Member

JAY S. HAMMOND  
GOVERNOR



STATE OF ALASKA  
OFFICE OF THE GOVERNOR  
JUNEAU

*Susitna  
Corresp.*

August 8, 1979

Mr. John Adams  
Executive Director  
Fairbanks Environmental Center  
218 Driveway  
Fairbanks, AK 99701

Dear Mr. Adams:

Thank you for your recent letter regarding the proposed independent study of the Susitna hydro-power study.

While your idea of allowing the Alaska Council on Science and Technology to undertake such a study in lieu of the now defunct Legislative Affairs Research Division has merit, I have no control over funds appropriated to the Legislature. I will forward a copy of your letter and my response to Senator George Hohman, Chairman of the Council for his consideration.

Thank you for your advice.

Sincerely,

Jay S. Hammond  
Governor

Enclosure

cc: / Senator George Hohman  
/ Senator Glenn Hackney  
/ Representative Brian Rogers  
Representative Sally Smith  
Representative Joseph McKinnon  
Representative Terry Gardiner  
Neil Davis, Chairman, ACST  
Frances Ulmer, DPDP  
Chris Noah, ACST  
Eric Yould, APA  
Keith Specking



## FAIRBANKS ENVIRONMENTAL CENTER

218 Driveway  
Fairbanks, Alaska 99701  
(907) 452-5021

July 30, 1979

Governor Jay S. Hammond  
OFFICE OF THE GOVERNOR  
Pouch A  
Juneau, Alaska  
99811

RECEIVED  
AUG - 6 1979

GOVERNOR'S OFFICE

Dear Governor Hammond:

As you know, last session the Legislature appropriated (in HCSSB 63) \$200,000 to the Legislative Affairs Agency Division of Research Services to conduct an independent study of population trends, energy demand projections and alternatives to the proposed Susitna hydro-power project.

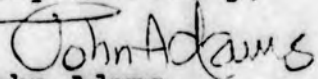
Since the Division of Research Services has been de-commissioned during the interim, we are concerned about the status of this study. In view of the magnitude of the Susitna project and its far-reaching implications for the majority of Alaskans, it is clearly in the public interest to conduct the independent study in a timely, professional manner.

It is our understanding that the future of the independent study will be determined by the Legislative Council, when it meets during the special session. We suggest that direction of this study, including awarding of contracts, be delegated to the Alaska Council on Science and Technology (ACST).

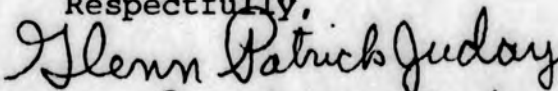
The ACST is composed of prominent Alaskan scientists who are highly-qualified to see that the independent study is conducted from a critical, yet objective, perspective.

We appreciate your careful consideration of this recommendation.

Very Sincerely,

  
John Adams  
Executive Director

Respectfully,

  
Vice-President, Alaska  
Conservation Society

Copies to:

Eric Yould - APA  
Rep. Brian Rogers  
Rep. Sally Smith

Rep. Joe McKinnon

Fran Ulmer - DPDP  
'Gateway to the Arctic'

(100% Recycled Paper)

Christopher Noah -  
ACST

Sen. Glenn Hackney  
Rep. Fred Brown  
Rep. Terry Gardiner

# STATE OF ALASKA

**DEPT. OF ENVIRONMENTAL CONSERVATION**

*Susitna.*  
*cow*  
JAY S. HAMMOND, GOVERNOR

POUCH 0 - JUNEAU 99011

September 25, 1979

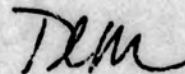
Honorable Brian Rogers  
Box K - College  
Fairbanks, Alaska 99708

Dear Brian:

We have received a copy of your September 11, 1979 letter to Governor Hammond concerning the Susitna project. This Department has also begun to focus on the project and alternatives to it. Our primary contact within the Department is Dave Sturdevant. It would be helpful to us if Dave could monitor the progress of your studies, and perhaps helpful to you to share some of our current thinking. I have asked Dave to contact you.

Thank you for your concern for this project.

Sincerely,



C. Deming Cowles  
Deputy Commissioner

cc: Mr. Sturdevant  
Mr. Waldrop

# HOMER NEWS

May 25, 1979

Gregg Erickson  
Director of Research, Legislative Affairs Agency  
Pouch Y  
Juneau, Alaska 99811



Dear Gregg:

Representative Brian Rogers has asked me to submit the following comments and research requests to you.

1. On the Susitna Alternatives Study (SB 63)

We have reviewed your memo of May 11, and feel that a major focus of the study should be an analysis of the end uses of energy in the state. What types of uses are behind the demand figures? Demand should be broken out into the following categories: Heat--home and commercial

Heat--high temperature (industrial processes)

Transportation--(liquid fuel)commuter, commercial and freight

Other--appliances, lights, etc.

The study should examine the various ways of meeting these demands, and the efficiency of those ways. "Soft" energy forms should be examined and reviewed--what demands could be met by solar power, wind power, ~~tida~~ tidal power, geothermal power, etc?

We would also like to have the base assumptions of the ISER and the Batelle studies reviewed. Do they imply an unlivable environment? If the population of Fairbanks increases according to their projections, with a similar increase in energy use, would the resulting ice fog render the downtown area uninhabitable? Or, what social and environmental effects can be expected given the energy use projections of the studies? These are speculative questions, but they deserve consideration.

2. Water Flooding for the Prudhoe Bay Reservoir (rese-rch request)

A water flooding project for the reservoir could result in the additional production of one-five billion barrels of oil. We would like to be kept informed of the results of the current study of reservoir dynamics, and would like some additional questions covered.

a. a general explanation of water flooding, and its possible effect on the Prudhoe reservoir.

b. possible scenarios and timelines for a water flooding project.

c. employment and other economic benefits to the state that would result from a water flooding project.

d. the ways available to the state for facilitating such a project.

e. the topics under review in the current study.

P.O. BOX 254 HOMER, ALASKA 99603 (907) 235-8925

see  
above

3. Literature Search--Experiences of Other Governments with Oil Development.

A bibliography, with a sentence or two about <sup>each</sup> the work, covering issues such as Petro Canada, the Ecuadorian pipeline, North Sea oil development, OPEC and company histories.

Requests two and three above are in preparation for work that will be undertaken by the House Interim Committee on Leasing Policy, and should be completed by early September.

Representative Rogers is also interested in obtaining <sup>a</sup> copy or two of the annual report of Petro Canada, and would appreciate it if you could <sup>get</sup> them.

Please let me know if you have any questions. I can be reached at the box number above, or you can leave a phone message at 235-8925/8420 for me. I will be in Anchorage for several days in the first couple weeks of June, working with the Leasing Policy committee.

Thank you, and have a good summer.

Mark Wittow

cc: Representative Brian Rogers



# Greater Fairbanks

Member

U. S. Chamber of Commerce  
Alaska State Chamber of Commerce  
Pacific Northwest Trade Ass'n.  
National Better Business Bureau

550 First Avenue

March 15, 1979

Rep. Brian Rogers  
Pouch V  
Juneau, AK 99811

Dear Brian:

Attached hereto you will find a copy of a resolution adopted by the Board of Directors of the Greater Fairbanks Chamber of Commerce relative to the Susitna Hydroelectric project.

This resolution addresses the problem in the light of the recent IRS ruling which will require funding from the General Fund in order to keep the project moving in a timely manner.

We feel that this is a very important project and we would appreciate your consideration in the matter.

Building for Fairbanks' future,

*Wally* ?  
C. W. Baer  
General Manager

CWB:elw  
Enclosure

*Hold -  
No  
answer*



RESOLUTION

A RESOLUTION IN SUPPORT OF FUNDING A  
FEASIBILITY ASSESSMENT OF THE SUSITNA  
HYDROELECTRIC PROJECT.

WHEREAS, the Susitna Hydroelectric Project is of great importance to all of Alaska; and

WHEREAS, a Feasibility Analysis of the Susitna Hydroelectric Project is necessary; and

WHEREAS, the Corps of Engineers have done an environmental assessment of a feasibility study of this magnitude and scope; and

WHEREAS, the overland movement of equipment and materials will be accomplished during the winter months; and

WHEREAS, this proposed work would not have a serious impact on the land or environment in any area of the Susitna Basin; and

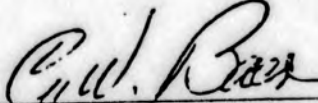
WHEREAS, a joint Senate/House public hearing in Fairbanks is requested; and


WHEREAS, funding should be provided from the General Fund to be refunded through bonded capitalization of the project:

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Greater Fairbanks Chamber of Commerce support the granting of permits and funding from general revenues by the Alaska Power Authority to allow exploratory work necessary to conduct the project feasibility assessment.

PASSED AND APPROVED THIS 14th DAY OF MARCH, 1979.

Attest:

  
\_\_\_\_\_  
C. W. Baer  
General Manager

  
\_\_\_\_\_  
Wallace Burnett  
President

ARRC

# ALASKA RENEWABLE RESOURCES CORPORATION

BOX 1647 • JUNEAU, ALASKA 99802 • (907) 465-4616

October 12, 1979

Co-Evolution Quarterly  
Box 428  
Sausalito, California 94965

Re: Joe Upton; Boat

Dear Sir:

I enjoyed reading your article in the Fall 1979 issue entitled Future Shock in the Fishing Business. What interested me most is Joe Upton's boat with wood fueled steam power.

I would appreciate knowing Joe Upton's current address so that we might write and inquire about more thoughts on this matter.

Thanks for your assistance.

Sincerely,



J.N. Milnes  
Trustee

JNM/vr

cc: ~~Brian~~ Brian Rogers

*Susitna*



# Alaska State Legislature House of Representatives

December 3, 1979

POUCH V  
JUNEAU, ALASKA 99811  
OFFICIAL BUSINESS

Glenda J. Straube  
Administrative Aide  
House Power Alternatives  
Study Committee  
610F Gruening Building  
University of Alaska  
Fairbanks, Alaska 99701

Dear Glenda,

Thank you for the copies of the contracts lead by the Power Alternative Study Committee. I see that some of the results are due on, or about January 1, 1980 and other results are due by the end of that month.

As you are aware, the Revewable Energy Policy Committee is working with the National Conference of State Legislators on renewable energy issues. NCSL is initially dealing with hydro-electric and geothermal. Those are the areas.

However, Ken Rosenstein and I are researching two other important factors, which you may be able to provide information on. Those are: (1) Solar legislation of priority nature; and (2) Tax credits and other types of incentives for residential, commercial and industrial application of energy conservation, weatherization, and small-scale renewable energy installation.

Any assistance your contractors might be able to provide toward the solar or incentive issues would be especially appreciated.

Sincerely,

A handwritten signature in cursive script that reads "Bob Speed".

Bob Speed,  
Administrative Assistant

BS/sf

SUSITNA POWER NOW !

Lee Wareham, Co-Chairman  
200 Gaffney Road  
Fairbanks, Alaska 99701  
907/452-2257

December 27, 1979

The Honorable Brian Rogers  
P.O. Box K  
College, Alaska 99708

The Honorable Rogers:

On January 4th, 1980 at 1:30 p.m. in the Anchorage Westward Hilton, Susitna Power Now! will reconvene for the purpose of electing officers, finalizing the organizational structure and laying out specific near and long term goals.

You are invited to participate in that meeting and to bring to it recommendations and ideas.

The agenda will consist of:

1. Opening remarks.
2. Election of officers and other corporate matters.
3. Establishment of general membership criteria philosophy and dues structure.
4. Setting of specific immediate and long term goals.
5. Scheduling of next meeting and general topics to be covered.

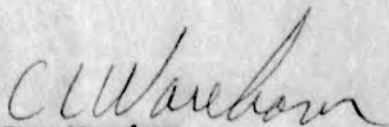
Enclosed is a preliminary fact sheet summarizing technical data relevant to the Susitna Power project. More detailed information will be made available later.

Our initial meeting got us off to a good start. With your help and support, we'll build on that beginning and ensure the Sustina project moves ahead as rapidly as engineering, economic, and political reality allow.

Please make it a point to be there.

Sincerely,

Bob Penny  
Co-Chairman

  
Lee Wareham  
Co-Chairman

SUSITNA HYDROPOWER PROJECT

Pertinent Data

Location	<u>Watana</u>	<u>Devil Canyon</u>
	River Mile 165 (2 mi. upstream from DC pool head)	River Mile 134 (14.5 mi. from Gold Creek)
Type Construction	Earthfill	Concrete, thin-arch
Height, feet	810	635
Crest Length, feet	3,450	2,475
Design Earthquake Richter Scale	8.5	8.5
Water surface area (full pool), acres	43,000	7,550
Average Annual Estimated Drawdown, feet	100	5
Reservoir Length (river miles inundated)	54+	28
Firm Annual Energy BkwHrs	3.1	3.0
Secondary Production for 2-dam system, annually BkwHrs	0.44	0.36
Access Road, miles	37	27
Reservoir Storage Loss-Sedimentation, per 100 years (combination)	4.2 percent	6.5 percent

TRANSMISSION SYSTEM

	<u>To Anchorage</u>	<u>To Fairbanks</u>
Two-single Circuit Lines	136 miles 345 KV	198 miles 230 KV

COSTS

Total Project Costs \$2,590,000,000  
January 1979 Dollars



December 28, 1979

We are not sure exactly how we are trying to accomplish what we think we want to do, but a group of Anchorage and Fairbanks citizens are really going to explore the feasibility of building the Susitna Dams now.

We would be honored and pleased if you could stop by and see how we are doing with our first organizational meeting this Friday, January 4th, at 1:30 p.m. at the Anchorage Westward Hilton in the Trattoria Room.

Sincerely,

SUSITNA POWER, NOW!

*Bob Penney*  
Robert C. Penney  
Acting Co-Chairman

RCP/mb

House Power Alternatives  
Study Committee  
610F Gruening Building  
University of Alaska  
Fairbanks, Alaska 99701


January 3, 1980

TO ALL CONSULTANTS AND INTERESTED PARTIES:

In November, you were sent mailing labels of consultants and other people working with or interested in the activities of the House Power Alternatives Study Committee. You were requested to send copies of reports to everyone on these labels. However, the name of Gregg Erickson was inadvertently omitted. You should send copies of your reports to Gregg at 316-B Coleman Drive, Juneau, Alaska 99801.

Any future correspondence with the committee should be sent: c/o Rep. Brian Rogers, Pouch V, Juneau, Alaska 99811. Also, Rep. Rogers or Mark Wittow, aide to the committee, can be reached at 465-4925.

Sincerely,

  
Glenda J. Straube  
Administrative Aide

ARLON R. TUSSING  
2720 RAINIER BANK TOWER  
SEATTLE, WASHINGTON 98101

TOM MALONE  
ALASKA POWER ADMINISTRATION  
P. O. BOX 50  
JUNEAU, ALASKA 99802

SCOTT GOLDSMITH  
ISER  
707 A ST., SUITE 206  
ANCHORAGE, AK 99501

JAMES LOVE  
P. O. BOX 1093  
ANCHORAGE, ALASKA 99510

DAVE STURDEVANT  
DEPT. OF ENVIRON. CONSERV.  
POUCH 0  
JUNEAU, AK 99811

BRADFORD TUCK  
1822 CINDYLEE LANE  
ANCHORAGE, AK 99507

ERIC F. MYERS  
4725 KERSHNER AVENUE  
ANCHORAGE, AK 99503

ERIC YOULD  
ALASKA POWER AUTHORITY  
333 W. 4th AVE., SUITE 31  
ANCHORAGE, AK 99501

ROBERT CROW  
CHRIS CONWAY  
c/o ENERGY PROBE  
12 MADISON AVENUE  
TORONTO, ONTARIO CANADA

MARK BAUMGARTNER  
S.R. BOX 20810  
FAIRBANKS, AK 99701

MARK WITTOW  
5493 SAMPSON DRIVE  
GIRARD, OHIO 44200

RICH SEIFERT  
INSTITUTE OF WATER RESOURCES  
UNIVERSITY OF ALASKA  
FAIRBANKS, AK 99701

VIC FISCHER  
221 EAST 7TH AVE., #204  
ANCHORAGE, AK 99501

REP. HUGH MALONE  
JIM RHODE  
727 N. ST., SUITE 2  
ANCHORAGE, AK 99501

REP. BRIAN ROGERS  
610F GRUENING BLDG.  
UNIVERSITY OF ALASKA  
FAIRBANKS, ALASKA 99701

SKIP ROY  
BRUCE MELZER  
327 EAGLE  
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25 February 1980

Mr. Mark Wittow  
c/o Representatives Hugh Malone & Brian Rogers  
Alaska State Legislature  
Pouch V  
Juneau, Alaska 99811

Dear Mark:

In response to our initial conversation and subsequent conversations, you have had with Lois Kramer, this letter proposes an amendment to the existing contract between Arlon R. Tussing & Associates, Inc. and the Legislative Affairs Agency concerning alternatives to the Susitna Project;

Section I. Statement of Work (Amended)

Contractor will add an additional task to the scope of work as follows:

5. Examine and evaluate how effectively the plan of study prepared by Acres American Incorporated for the proposed Susitna Hydroelectric Project addresses the following issues:
- a. Possibilities for conservation through load management due to increased load factors; involvement of regulatory agencies and existing utilities;
  - b. Determination of plant mix and necessary reserve margins;
  - c. Anticipated retirement of existing capacity and its effects on system capacity and facility planning;
  - d. Need for generation and transmission system reliability, establishing appropriate and compatible standards; and
  - e. Effect of interest and discount rates on project costs.

Given that the Acres plan of study is a point of departure rather than a final report, the contractor will also discuss these issues in terms of their probable importance to decisions concerning electric power generation in the Railbelt during the next 20 years. As relevant, recent case histories, such as the Churchill Falls project, will also be examined.

*Handwritten notes:*  
12-  
Held  
Cost  
overruns

Mr. Mark Wittow  
25 February 1980  
Page Two

Section II. Period and Dates of Performance (Amended)

- D. Contractor shall submit a review draft of the report described in amended section 7 (A) to the Project Director not later than 15 April 1980 and a final photo ready version not later than three weeks after receiving comments from the Project Director.

Section IV. Compensation & Method of Payment (Amended)

- A. The contractor shall be compensated at the following rates for the time and effort of professional personnel; provided, however, that not more than eight hours shall be chargeable for the effort of any one person in any 24 hour period:

Arlon R. Tussing	\$85.00 Per hour
Lois S. Kramer	\$50.00 Per hour

All other sections of the contract will stand as agreed.  
Please let me know what you think.

Very truly yours,

Arlon R. Tussing

(e) up to ~~7,000~~

20,000



# the National Center for Appropriate Technology

P.O. Box 3638 Butte, Montana 59701 (406) 494-4572

FEB 6 1980

January 22, 1980

MARK WITTOW  
Study Coordinator  
c/o Rep. Brian Rogers  
Box K - College  
Fairbanks, Alaska 99708

Dear Mark,

Thank you for your letter of October 29, 1979, subsequent to your visit here. I have delayed in answering pending the reprinting of many of our publications and technical documents -- which, unfortunately has not been completed as yet. I will, however, send you a complete packet of information within the next three weeks or so (hopefully).

I do hope that the people of Alaska can use our services, and should we be of any further help in your work, please let us know.

Sincerely,

SHERRY EISENBART  
Administrative Coordinator  
Research & Development Division

*Circle*  
*Mail 2501*

*B/24-6*  
*Energy Technology*  
*Conference*  
*D.L.*



ARLON R. TUSSING & ASSOCIATES / 880 H St., Suite No. 210, Anchorage, Alaska 99501

4 January, 1980

Representative Brian Rogers  
Box K  
College, Alaska 99708

Dear Brian:

Here is a copy of our first report, ". . . on the electric utility industry currently serving the Railbelt area of Alaska; the state and federal government agencies that promote, plan, and regulate the generation and distribution of electricity in Alaska; the history and status of the proposed Susitna hydroelectric project; and related topics."

As we stated in our proposal, and as the contract provided, the paper is "a background document for legislative staff, [etc.] . . . and is not intended for public distribution in its present form." I believe, however, that it meets the specification in the proposal and contract that it be "brief, concise, and easily understood by non-specialists."

I plan to include the same material in perfected and annotated form in the main report, so whatever is of value here will not be lost to the larger audience.

The research and writing for this paper overlapped that required for our other report so much that it is meaningless to try to segregate them strictly. For this reason, I shall shortly send you a statement covering the first \$5,000 in effort on the two projects together, in the form of a statement reflecting effort on this project alone.

Very truly yours,



Arlon R. Tussing

enclosure

cc: Hugh Malone  
Lois Kramer

\*Suggested year's subscription to Hold That Line

PRICE LIST OF ITEMS AVAILABLE FROM GASP

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BUMPERSTICKERS - 75¢

NO POWERLINE - white on deep blue

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FARMLAND FOR FOOD - picturing crossed out tower, red or blue on white

UNSAFE-UGLY - picturing cobweb of powerlines, blue on white, or red on white

BUTTONS

IF YOU KILL OUR FARMS YOUR CITIES WILL DIE - picturing crossed-out tower, red on white - \$1

QUESTION AUTHORITY - white on blue - 50¢

USE ALTERNATIVE ENERGY - red lettering on yellow, picture of hand reaching up to sun with mountains in background outlined in brown - 50¢

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ELECTROMAGNETIC POLLUTION - by Becker & Marino, a summary of health hazards - 25¢

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EFFECTS OF HV LINES ON CATTLE REPRODUCTION - written by a farmer in Wisconsin the effects of a 345kV line on his cattle - 50¢

ELECTRICAL WIRING CONFIGURATIONS & CHILDHOOD CANCER - a study done in the Denver area - \$2

EFFECTS OF COAL PLANTS - we have 4 different publications on this issue, each of medium length, they are 50¢ a piece

EFFECTS OF EXTREMELY HIGH VOLTAGE TRANSMISSION - by Louise B. Young, submitted to the EPA - \$1

ENVIRONMENTAL PROBLEMS IN EXTRA HIGH VOLTAGE TRANSMISSION - also by Louise B. Young, an overview - 75¢

BECKER BEFORE THE N.Y. PSC - testimony on ill health effects of high voltage lines - \$2

ELECTROMAGNETIC FIELDS & LIFE - by A.S. Presman, a reprint of the lengthy introduction to his book of the same name - \$1.50

(IV) LITERATURE - INDUSTRY VERSIONS OF HEALTH EFFECTS

BIOLOGICAL EFFECTS OF STATIC & LOW-FREQUENCY ELECTROMAGNETIC FIELDS - by the Electric Power Research Institute - \$2

EPRI'S RESEARCH PROGRAM ON BIOLOGICAL EFFECTS OF ELECTRIC FIELDS - by Kronberg - 75¢

STUDY IN THE USSR OF MEDICAL EFFECTS OF ELECTRIC FIELDS ON ELECTRIC POWER SYSTEMS - a commentary by America's Power & Environmental Sciences Committee on russian studies regarding health - \$2

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