

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 8672

993 SCOMM44: HOUSE POWER ALTERNATIVES STUDY COMM. 1979-80

CONTRACT BETWEEN

STATE OF ALASKA
LEGISLATIVE AFFAIRS AGENCY
Pouch Y, State Capitol
Juneau, Alaska 99811

and

ENERGY PROBE
43 Queens Park Cres. E.
Toronto, Ontario M5S 2C3

The parties to this agreement are the LEGISLATIVE AFFAIRS AGENCY, on behalf of the Alaska State Legislature's House Power Alternatives Study Committee, hereinafter referred to as the AGENCY, and ENERGY PROBE, hereinafter referred to as the CONTRACTOR.

THE ABOVE PARTIES TO THIS CONTRACT, in consideration of the covenants hereinafter contained, hereby mutually agree to the terms and conditions hereinafter set forth:

CLAUSE I - STATEMENT OF WORK

(A) Scope of Work
Set out in Attachment A

(B) Schedule

1. Task 1(A) of Attachment A shall be completed by December 10, 1979.
2. Task 1(B) of Attachment A shall be completed by January 7, 1980.
3. Task 1(C) of Attachment A shall be completed by April 1, 1980.
4. Task 1(D) of Attachment A shall be completed by May 1, 1980.

CLAUSE II - PERIOD OF PERFORMANCE

The period of Performance shall be retroactive to November 1, 1979, and terminate on July 1, 1980.

CLAUSE III - TERMINATION

This contract may be terminated by either party upon 30 days notice to the other party.

CLAUSE IV - PROJECT DIRECTOR

The Project Director shall be the Honorable Brian Rogers, Co-Chairman of the House Power Alternatives Study Committee.

CLAUSE V - COMPENSATION AND METHOD OF PAYMENT

- (A) Payment for Task 1(A) and 1(B) of Attachment A shall not exceed U.S.\$4,000.00 and shall be payable immediately upon billing by the CONTRACTOR.
- (B) Payment for Task 1(C) of Attachment A shall not exceed U.S.\$4,000.00 and shall be payable immediately upon billing by the CONTRACTOR.
- (C) Payment for Task 1(D) of Attachment A shall not exceed U.S.\$2,000.00 and shall be payable immediately upon billing by the CONTRACTOR.
- (D) Total compensation shall not exceed U.S.\$10,000.00.
- (E) The CONTRACTOR shall receive no payment in addition to that specified in Clause V(D) for travel and related expenses unless the Project Director requests that the CONTRACTOR travel between the CONTRACTOR'S place of business and Juneau.

CLAUSE VI - RECORDS, DOCUMENTS, AUDITS

The CONTRACTOR shall maintain accurate records, including detailed time records, as may be required by the AGENCY. The records are subject to inspection by the Project Director of the AGENCY at all reasonable times. All documents, reports and writings produced in the course of the work performed under this contract are, upon delivery to the Project Director or the AGENCY or at termination of this agreement, the property of the AGENCY, and/or in the public domain; provided that the CONTRACTOR will have the right to use any such materials for purposes of writing about or discussing the issues.

CLAUSE VII - ALL WRITING CONTAINED HEREIN

This agreement contains all the terms and conditions agreed upon by the parties. No other understandings, oral or otherwise, regarding the subject matter of this agreement shall be deemed to exist or to bind either of the parties to this agreement.

CONTRACTOR

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ATTACHMENT A

1. Scope of Work

A. Examine current state and structure of the ISER electricity demand forecast. Collect data and information in order to perform a more detailed investigation of the forecast in conjunction with ISER forecasting personnel.

B. Prepare report to ISER forecasting staff which states an evaluation of the current model, identifying areas in which it should be revised and improved. Outline any additional data requirement necessary for an in-depth analysis of the forecast.

C. Maintain an ongoing analysis and development of alternative coefficient and independent variable values and an ongoing analysis of structural adequacy of model.

Continue involvement and discussions with ISER personnel resulting in development and evaluation of alternative model structure and components.

Perform a sensitivity analysis on electricity demand as it relates to different market share and efficiency assumptions.

D. Examine normative context within which the ISER forecast will be introduced, with specific reference to the effects of proposed or potential policies on electricity growth and the impact of these policies on preferred model structure and interpretation.

Submit final report outlining: the revisions (if any) that were made to the ISER forecast during the course of Energy Probe's involvement and the rationale for these revisions, changes that were recommended by Energy Probe but which were not incorporated into the model and the effects (if any) of these, the appropriate role and interpretations of the model results given these revisions.

2. Other Considerations

A. CONTRACTOR may provide additional services upon the request of the Project Director.

B. Scope of Work will include travel for 4 round-trips between Toronto and Alaska.

MEMORANDUM

October 21, 1979

TO: Representative Brian Rogers and Representative Hugh Malone,
Co-Chairmen of the House Power Alternatives Project Committee
FROM: Mark Wittow M
RE: Activities of the Committee, Status of Power Alternatives Study

A. Alaska Power Authority's Selection of a private firm to carry out the Susitna Phase I Plan of Study

The committee analyzed the three voluminous proposals submitted to the Authority by Acres American, International Engineering and Harza. Larry Katkin, a geotechnical consultant, was retained by the committee to review the quality of the geotechnical aspects of the proposals. The committee focused on the sections of the study dealing with power market demand projections, power alternatives, environmental impacts and public participation.

Rep. Rogers presented detailed testimony to the board of the Authority. The testimony strongly supported the choice of Acres American for several reasons:

1. Acres possessed the greatest experience with sub-Arctic construction and planned to retain the most experienced firm in Alaska for geotechnical work.
2. Acres planned to spend a greater portion of the budget in-state than any of the firms.
3. The Acres proposal contained the most objective and detailed studies of power market demand and power alternatives.
4. The Acres proposal provided for the most extensive and direct public participation process.
5. The Acres proposal provided for the most expert, objective check on the quality of seismic work.

Concurring with the committee analysis and other testimony, the Board chose Acres to be the firm to carry out the Plan of Study if the Board chooses to have a private firm, and not the Army Corps of Engineers, build the project. The decision on whether to use the Corps or a private firm will be made at the end of this month. (Committee testimony supported the use of a private firm, due to the greater degree of flexibility and control that the state would have.)

B. Basic Study Design

The legislation authorizing the Power Alternatives Study mandated the completion of a \$200,000 study discussing the assumptions of the Susitna project and the feasibility of alternatives including coal, natural gas and small hydro.

A complete analysis of the alternatives has been put off until next year, when the Power Authority will have to review all of the available alternatives in detail as part of the Phase I FERC licensing procedure. The committee will attempt a detailed analysis of the power alternatives section of the Susitna Plan of Study at that point. The Committee's efforts to date have focused on the areas where the most serious gaps exist, and the areas where work could most constructively be accomplished before the April 15, 1980 deadline for the report.

Part of the explanation for reworking the structure of the study lies with the demise of the Legislative Research Division. The \$200,000 study was originally to be managed by the Division, along with a concurrent appropriation of \$150,000 for a study of the in-state use of natural gas. The funding for the Susitna study was not freed up until the August Legislative Council meeting, when you and Representative Malone were appointed to be committee to manage the study. The additional \$150,000 appropriation for gas use is still in limbo. Since August, you and I have talked with a variety of interested parties to see what could best be accomplished before April 1980.

The Alaska Power Authority has been receptive to the concerns of the Committee, and we have decided to cooperate with them as much as possible in order to prevent duplication of effort while providing criticisms of their work at the most useful times. The key areas of concern before April will include work in the areas of power market demand projections, conservation, renewable energy sources and natural gas, as well as a broader look at the basic financing and management issues involved in providing power to the Railbelt area.

The Committee will present a report to the legislature on April 15, 1980, as specified in the legislation. However, some of the sections will still be in draft form then. A final report should be presented sometime in May, although additional work will be necessary after that date if the Power Alternatives Study is to continue checking the work of the Power Authority.

C. Specific Study Contracts

1. Power Market Demand Projections -- by the University of Alaska Institute for Social and Economic Research.

The section of the study is being done in cooperation with the Power Authority. They have shared in the design of the contract,

and will participate in the funding. This portion of the study will also serve as the power market demand projection for the Susitna Phase I Plan of Study.

The particulars of the scope of work include methodological review, data collection and updating, economic projections, assessment of interfuel substitution possibilities, electricity use projections, and an assessment of the probabilities of the various scenarios and projections. The Institute will hold a workshop in December to review the assumptions behind the economic projections, and will cooperate with a variety of other Committee consultants.

2. Review of the ISER Demand work

Brad Tuck, an economist with the University of Alaska School of Business, and Energy Probe, of Toronto, will separately analyze and criticize past demand projections as well as the work ISER is undertaking for the committee.

3. Potential of Conservation and Renewable Energy

The Alaska Center for Policy Studies will manage the various portions of this section of the study. The work will include an analysis of the end uses of energy in the Railbelt area, a determination of the potential for energy conservation and the use of renewable energy sources, a discussion of the social, economic and political measures necessary to achieve the conservation and renewable energy potential, and work on conservation legislation for the 1980 session (HB 364). A variety of subcontractors will carry out the specific tasks.

4. Natural Gas

This portion of the study will address institutional limitations on the future use of natural gas for power generation, the future price and availability of gas, the efficiency of gas-fired generation facilities, and the potential for the use of natural gas in direct consumer applications. A proposal by economist Greg Erickson is pending.

5. Overview

This section would address the historical background of the supply of electric power in the railbelt, survey the basic policy questions at stake in the Susitna decision, delineate financing questions and address the decision-making structure for Susitna and other power alternatives. A proposal by economist Arlon Tussig is pending.

6. Soci-cultural impacts

This section would investigate the effect of the construction of the Susitna dam on both the local area and Alaska, and relate those effects to both a historical and anormative context. A proposal by the Arctic Environmental and Data Center of the University of Alaska is pending.

7. Other sections of the study

Additional work is contemplated in the areas of coal-fired generation. A review of the adequacy of Phase I study of environmental impacts is also contemplated.

C. Coordination, Misc.

The committee contacted a variety of consultants both inside and outside the state about possible participation in the study. The consultants with the greatest abilities to address questions in an Alaskan context were selected. Constraints of funding, time and experience prevented the Committee from contacting all possible participants.

The committee is coordinating the study with other legislative committee and administrative agencies who are doing related work.

These other contacts include:

Small Hydro (Renewable Energy) Committee
Rural Energy Interim Committee
House Resources Committee
House Finance Committee
Alaska Power Authority
Division of Energy and Power Development
Division of Policy Development and Planning
Department of Environmental Conservation
Department of Fish and Game

*Other legislative
or reg. staff*

The committee has also kept various public groups apprised of our work.

MEMORANDUM

SUBJECT: Power Alternatives Study

TO: Mark Wittow

FROM: Glenda Straube

DATE: November 21, 1979

Brian will be spending December 13 and 14 at MERDI on his way to the East Coast.

Enclosed is a variety of information I thought you should review: Center outline, contracts for Energy Probe, Brad Tuck and Gregg Erickson, ideas that Brian had for CSHB-364, and the Center outline that was worked on at the Nov. 8th meeting.

Mark, I wish that I could put together a package concerning the Nov. 8th meeting, but I'm too busy. Sorry.

Any suggestions? Enjoy your trip.

DRAFT
CONTRACT BETWEEN
LEGISLATIVE AFFAIRS AGENCY
AND
ARLON R. TUSSING & ASSOCIATES, INC.

The parties to this agreement are the LEGISLATIVE AFFAIRS AGENCY, Pouch Y, Juneau, Alaska 99811, on behalf of the Alaska State Legislature, hereinafter referred to as the "Agency," and ARLON R. TUSSING & ASSOCIATES, INC., 880 H Street, Suite 208, Anchorage, Alaska 99501, hereinafter referred to as the "Contractor".

IT IS MUTUALLY AGREED THAT:

SECTION I. STATEMENT OF WORK

A. Contractor will submit a report to Representatives Brian Rogers and Hugh Malone on the electric utility industry currently serving the Railbelt area of Alaska; the state and federal governmental 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. Specifically, the contractor will:

1. Describe the major electric utilities of the Railbelt area of Alaska:
 - a. Type of organization (investor-owned, cooperative, municipal agency, or what?);
 - b. Size and character of market, and its recent growth;
 - c. Existing generating facilities, facilities under construction or planned, interties;
 - d. Who decides rate policy? Construction of facilities? (Management. directors, subscribers, municipal assembly?);
 - e. Utility policies and personality (Is the utility aggressively expansionist? Concerned mainly with costs? Wracked by internal conflict? Etc.?);

2. Describe the main characteristics of the different types of utility organization (investor-owned, cooperative, municipal agency, etc.) with respect to:

- a. Organization and governance;
- b. Regulation;
- c. Access to capital (tax-exempt bonding, REA loans, etc.);
- d. Etc., etc.

3. Describe the regulatory framework for the electric utility industry in Alaska. With respect to the Federal Energy Regulatory Commission (FERC), the Alaska Public Utilities Commission (APUC), the Economic Regulatory Administration (ERA) of the U.S. Department of Energy (DOE), and other agencies (if significant):

- a. What is its legal jurisdiction and what is the main statutory derivation of that authority?
- b. How does it make decisions (by informal rulemaking, adjudication in adversary-type proceedings)?
- c. What important state, federal, and local certificates, licenses, permits, etc., would be required for construction in Alaska of new electrical generating facilities? ("Important" means potentially contested, or possible sources of prolonged delay or project abandonment. Distinguish where appropriate between procedures that apply to major hydro projects; small hydro projects; oil, gas, or coal-fired steam plants; combustion turbines, etc.)
- d. Relate the history, governing legislation, and current status, plans, and proposals of the Alaska Power Authority.

4. Relate the history, with respect to studies, promotion, legislation, and present status or final disposition of past and pending proposals for major Susitna River

hydro projects; and describe any significant legislation (with significant prospects for success) related to proposed Susitna River hydro projects or alternatives currently pending before the U.S. Congress or the Alaska legislature?

B. The report described herein is intended as a background document for legislative staff, consultants and contractors, and is not intended for public distribution in the form produced pursuant to this contract. It shall be brief, concise, and easily understood by nonspecialists.

SECTION II. PERIOD AND DATES OF PERFORMANCE

A. This contract shall have retroactive effect as of 15 November, 1979, and work under this contract shall be accomplished between that date and 31 December, 1979.

B. This contract terminates on 31 December, 1979, unless terminated earlier in accordance with subsection (C) of this section.

C. This contract may be terminated on written notice of the terminating party to the terminated party at the address stated in this agreement.

D. Contractor shall submit the report described in section I(A) to the Project Director not later than 31 December, 1979.

SECTION III. PROJECT DIRECTOR

A. The Project Director shall be Representative Brian Rogers, Box K, College, Alaska 99708.

SECTION IV. COMPENSATION AND METHOD OF PAYMENT

A. The contractor shall be compensated at the following rates for the time and effort of professional personnel; provided, however, that not more than 8 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
Barbara F. Morse	\$30.00 per hour

B. The Contractor shall submit time statements with each billing on which there shall be certified the time worked under this contract, the subject of the work, and the starting and ending time of the work to the nearest one-tenth of an hour. The Contractor shall certify that the time billed under this contract has not been billed to or paid for by any other party.

C. The Contractor is authorized to present a bill for services under this contract at the time he submits the report specified in Section II(D).

D. The costs of necessary and appropriate travel shall be reimbursable to the Contractor on the basis of state per diem rates and coach class air fare.

E. Total compensation for work performed under Section I of this contract, inclusive of travel costs, shall not exceed \$5,000.00

SECTION V. OFFICE SPACE, EQUIPMENT, CLERICAL SUPPORT

A. Office space, equipment and clerical support necessary to carry out the Contractor's obligations under this contract shall be supplied by the Contractor at no cost to the Agency.

SECTION VI. RECORDS, DOCUMENTS, AUDIT

A. The Contractor shall maintain accurate records as may be required by the Project Director. The records are subject to inspection by the Agency or the Project Director at all reasonable times. All documents, reports and writings generated as a consequence of work done under this contract shall become the property of the State of Alaska, and on completion of the work or at the termination of this contract shall be delivered to the Agency. The Contractor shall keep the Project Director informed as to the progress of the work performed under this agreement and shall provide progress reports as specified by the Project Director.

SECTION VII. CONFLICT OF INTEREST

A. The Contractor affirms that he is not now engaged in any professional business relationship that could reasonably be construed to constitute a conflict of interest relative to this obligation under this contract, and that he will notify the Project Director before undertaking any such professional business relationship.

SECTION VIII. ALL WRITINGS CONTAINED HEREIN

A. This agreement contains all the terms and conditions agreed upon by the parties. No other understandings, oral or otherwise, regarding the subject matter of this agreement shall be deemed to exist or to bind either of the parties of this agreement.

CONTRACT BETWEEN
LEGISLATIVE AFFAIRS AGENCY

AND

GREGG K. ERICKSON

The parties to this agreement are the LEGISLATIVE AFFAIRS AGENCY, Pouch Y, Juneau, Alaska 99811, on behalf of the Alaska State Legislature, hereinafter referred to as the "Agency," and GREGG K. ERICKSON, 316 Coleman Drive, Juneau, Alaska 99801, hereinafter referred to as the "Contractor."

IT IS MUTUALLY AGREED THAT:

CLAUSE I. STATEMENT OF WORK

A. The Contractor shall be responsible for preparation and submission to the Project Director of a written report on the economic, political, and technical feasibility of future development of a natural gas based electrical economy in the railbelt area of Alaska. The report shall specifically address the following points:

1. The constraints on natural gas usage imposed by the federal "Powerplant and Industrial Fuel Use Act of 1978," and associated administrative regulation.
2. The constraints imposed by the act on the use of state-owned royalty natural gas.
3. The strategies of utilities, both in and outside of Alaska, for obtaining exemptions from the Act.
4. The status and effects of federal natural gas price regulation on the prices of natural gas produced and consumed in Alaska.
5. The effects of pipeline investments which make existing sources of Alaska natural gas available to demand centers in the state.
6. The prospects for, and effect of new gas discoveries on natural gas prices.
7. The significance for future gas prices of existing price escalation provisions in current electrical utility natural gas contracts.
8. The extent to which Alaska gas prices can be expected to respond to changes in world energy price levels.

9. The technical alternatives for implementing a natural gas based electrical economy, and the thermal efficiency to be expected from them, with the implications of these for electrical energy costs.

10. The extent to which electrical demand growth could be moderated by substitution of natural gas for electricity in direct consumer applications, including on-site power generation, with separate consideration of those areas already served by gas utilities and those where gas service is prospective.

11. The institutional and economic means of implementing decisions to substitute natural gas powered generation for other forms of generation.

12. Identification of additional studies that may be appropriate in addressing the viability of an electrical economy based on natural gas.

B. The Contractor shall, at the request of the Project Director, provide up to four days of additional work to be specified by the Project Director. It is contemplated that this work would include testimony for legislative committees on the subject matter of the report prepared under Paragraph (A) of this clause and related subjects.

CLAUSE II. PERIOD AND DATES OF PERFORMANCE

A. This contract shall commence on 1 December 1979 and shall terminate on 30 June 1980, unless terminated earlier by mutual written agreement of the Contractor and the Agency.

B. A preliminary draft of the report described in Clause I(A) shall be submitted to the Project Director on or before 31 January 1980. The final report shall be submitted to the Project Director on or before 7 March 1980.

CLAUSE III. COMPENSATION AND PAYMENT

A. Total payments for the work described in Clause I shall be \$20,000, inclusive of all expenses and costs, including travel expenses.

B. Payments to the Contractor shall be made in three installments. The first of these shall be in the amount of \$6,000 due on the date this contract is executed by the Agency. The second and third installments shall be of \$7,000 each, and shall be due on submission of the preliminary and final reports, respectively.

CLAUSE IV. PROJECT DIRECTOR

The Project Director shall be Representative Brian Rogers, Box K, Fairbanks, Alaska 99708, or his designee.

CLAUSE V. COORDINATION WITH OTHER WORK

The Contractor shall be responsible for insuring the maximum degree of coordination between the work described in this contract and related work being carried out by Arlon R. Tussing and Associates, Inc., and by other contractors working under the direction of Rep. Rogers. The Contractor shall consult with Tussing, coordinate research and writing with him, and so far as practical, endeavor to make the reports submitted by Contractor and Tussing consistent in assumptions and complementary in scope.

CLAUSE VI. OFFICE SPACE, EQUIPMENT, CLERICAL SUPPORT

A. Office space, equipment, clerical support and all other goods and services necessary to carry out the Contractor's obligations under this contract shall be supplied by the Contractor at no cost to the Agency.

CLAUSE VII. RECORDS, DOCUMENTS, AUDIT

A. The Contractor shall maintain accurate records as may be required by the Project Director. The records are subject to inspection by the Agency or the Project Director at all reasonable times. All documents, reports and writings generated as a consequence of work done under this contract shall become the property of the State of Alaska, and on completion of the work or at the termination of this contract shall be delivered to the Agency. The Contractor shall keep the Project Director informed as to the progress of the work performed under this agreement and shall provide progress reports as specified by the Project Director.

CLAUSE VIII. CONFLICT OF INTEREST

A. The Contractor affirms that he is not now engaged in any professional business relationship that could reasonably be construed to constitute a conflict of interest relative to this obligation under this contract, and that he will notify the Project Director before undertaking any such professional business relationship.

CLAUSE IX. ALL WRITINGS CONTAINED HEREIN

A. This agreement contains all the terms and conditions agreed upon by the parties. No other understandings, oral or otherwise, regarding the subject matter of this agreement shall be deemed to exist or to bind either of the parties of this agreement.

IN WITNESS WHEREOF, the parties have executed this agreement on the dates noted.

CONTRACTOR

LEGISLATIVE AFFAIRS AGENCY

Gregg K. Erickson 11/5/79
Date
(Ak. Business License 73957)

MYRTON R. CHARNEY
Executive Director

Date

Approved as to form:

Agency Legal Counsel Date

Accepted:

Rep. Brian Rogers Date

from
meeting
on 11/8

ALTERNATIVE ENERGY/CONSERVATION STUDY

for the

HOUSE POWER ALTERNATIVES STUDY COMMITTEE

Phase I: Workplan Development

Feb 1

March 1

March 1

Legislative
package
Jan. 7

1. End Use Structure.....Alaska Federation for
a. Residential Community Self Reliance
b. Commercial
c. Industrial
d. Transportation
2. Conservation Potential.....Alaska Federation for
Community Self Reliance
3. Alternative Energy Source
Potential.....Mark Fryer and Associates
a. Geothermal
b. Waste Heat
c. Solid Waste
d. Wind
e. Wood
f. Hydro
g. Solar (active, passive
and photovoltaic).....Rich Seifert, Institute
of Water Resources
4. Implementation and Management
Considerations.....Alaska Public Interest
Research Group
a. State Law
b. State agencies
c. Utilities
d. Financing
e. Local government
f. Research and Demonstration
g. Values and attitudes
h. Marketing
i. Employment

April 1

April 15 - Consolidated

Scope of work to be undertaken by Alaska Federation for Community Self Reliance on the Susitna study. Includes methodology for investigating end use structure and for conservation. The following is intended for use by the Alaska Center for Policy Studies in formulating a work plan for Phase Two of the study. Please read carefully and prepare comments for November 9 meeting. After that meeting we hope to have a reasonably clear idea of what work we will be doing over the next few months.

END USE STRUCTURE

The Federation will be investigating energy end uses in the railbelt north of the Alaska Range. We will attempt to estimate total regional energy consumption, and break down this total according to the amounts of energy used in the various sectors. The sectors are:

residential
commercial
industrial
transportation.

We may decide that it's necessary to separate government and/or military consumption. If so, these would become independent sectors.

- also divide between state & local

Within each sector are several subsectors. Depending on data available, we will further break down the energy consumed in each sector to the appropriate subsector. We will look at sources of energy which supply heat below 100°C, and those which supply heat over 100°C. Heat below 100°C is considered of low quality, while heat above 100°C is of high quality. The notion of energy quality is important, as in order to use energy efficiently, energy quality must be well matched to energy requiring tasks. Low quality heat is sufficient for a variety of tasks, and these tasks can be performed with low quality energy sources. Vice versa for high quality.

Here's a sector by sector look at what we will be investigating in developing an end use structure for the northern railbelt:

Residential sector - We will try to find end use numbers for the following subsectors: space heat, water heat, lighting, refrigeration, cooking, and other appliances.

Where we'll look for the information - utilities, AK Division of Energy, local governments, AK Public Utilities Commission, HUD ...

What's needed in analyzing this sector - 1) # of housing units, broken down according to type 2) heating degree days, and 3) heating requirements for a standard house.

Commercial sector - includes retail stores, office buildings, hospitals, radio stations, restaurants, and the like. This should prove to be the most difficult sector to compile end use information for. We will attempt to break down total energy used in the sector to: space heating, space cooling, lighting, water heating, refrigeration, cooking, and other.

Sources of information - Chamber of Commerce, ISER, local governments, State Department of Economic Development, Clarissa's office, ...

We need to know the energy requirements for the subsectors. Will involve guesstimates. We may base guesstimates on energy intensities per square foot of commercial space, or intensities per employee. Or, we may be able to use some national data for this sector.

Industrial sector--- includes manufacturing, mining, agriculture, and construction, as well as petroleum refining and other processes. We need to break down energy end uses according to type of industry, and fuel sources required.

Information can be tracked down in a Census Bureau publication titled "Annual Survey of Manufacturing: Fuel and Electrical Energy Consumed". Other information might come from U.S. Department of Commerce publications on the Minerals, Construction and Agriculture industries. AK Division of Energy may be helpful, and the Yellow Pages no doubt will be.

Transportation sector - We will want to determine the Vehicle Miles Travelled for Alaskan automobiles, trucks, boats, buses, barges, airplanes, and the Alaska Railroad. Once this is done, comparisons of fuel efficiencies will be made. Sources of information include local governments, and the State Department of Transportation and Public Facilities.

CONSERVATION

In this section, we will be looking at ways to increase the energy productivity of the energy being applied to various tasks in the railbelt. We will concentrate on technical fixes. In this section, the following will serve as an outline:

- 1) Discuss energy use efficiency in terms of the Second Law of Thermodynamics.
- 2) Quantify current energy uses for performing specific tasks.
- 3) Identify opportunities to increase present efficiencies.
- 4) Estimate capital costs of implementing technical fixes to raise energy efficiencies.
- 5) Quantify the resultant increases in energy productivity.
- 6) Estimate the indirect benefits of conservation - in terms of economic multipliers, the creation of new work places ...

We will want to look at energy conservation in each sector. The information we need to carry out this section of the study includes:

Residential sector -- we'll need to estimate residential space heating requirements, have a fair idea on what the current housing stock looks like, and know what the efficiencies of various home appliances are.

Commercial/industrial sectors -- Using the end use information compiled for these sectors we can estimate where energy can be conserved. Potential energy conservation can result from attentive management, lighting standards, insulation, waste heat capture, thermostat set-backs, cogeneration of electricity and steam etc...

Transportation sector -- We will limit our discussion of conservation in this sector to decisions which can be made in Alaska. We will primarily look at the various fuel efficiencies for transportation forms, and look for possible substitutions to increase efficiencies.

Rich - address
energy storage



WORK PLAN OF ALTERNATIVE ENERGY SOURCE POTENTIAL

The work will analyze renewable energy resources along the rail belt:

1. Geothermal
2. Solar
3. Waste Heat

4. ^{not assume 100% burn} Solid Waste
5. Wind
6. Wood

7) HYDRO
tidal

Three maps will be drafted, each containing renewable energy resource "opportunity" isolines (Solar, Wind, & Waste Heat). The isoline "opportunity index" for each resource mapped will contain:

- * Cost of non-renewable resource currently in use
- * Climate factors
- * Availability of renewable resource at current costs

site specific

The level of independence upon the non-renewable resource will be determined for each of the options examined. This analysis will be developed on a unit model basis, through the construction of generic end use consumption machines:

- * Residential model
- * Institutional model
- * Commercial model

The product of the work will be:

1. Opportunity index maps
2. End use models
3. Intra-project report
 - a. Summary
 - b. Introduction
 - c. Overview of renewable energy resources
 - d. Methodology
 - e. Solar resources
 - f. Wood resources
 - g. Wind resources
 - h. Solid waste
 - i. geothermal
 - j. HYDRO.
4. Conclusions and recommendations

Comments on
potential of
tidal power.
Don't do model on
it - but just
applicability in
future. Should
state look into?

Proposed workplan

AkPIRG will address the management, regulatory, and legal issues presented by a program to encourage conservation and the use of alternative renewable energy resources, looking at the institutional and financial barriers to wider acceptance and use.

Other subcontractors will study the technical feasibility of conservation and alternative energy sources, including an attempt to quantify the potential for particular sources. A good deal of coordination will be essential in determining the alternatives with the most promise and identifying problems common to those alternatives.

It will be important for all parties concerned to develop some similar standards or common assumptions for determining the economic feasibility of various energy sources.

Our proposed workplan includes the following:

1. State law. Alaska statutes and pending legislation will be analyzed to determine its effects on the acceptance of alternative energy sources and conservation efforts. In conducting this review, AkPIRG will examine the laws of other states and Canadian provinces/territories. Of particular concern will be:
 - a) building codes and standards
 - b) public facility procurement policy
 - c) solar access rights
 - d) waste heat recovery
 - e) electrical efficiency standards
2. State agencies. Examine the organization, management, funding, and mandates of state agencies with responsibility for conservation or alternative energy. Review:
 - a) level of coordination between agencies
 - b) short and long-range goals
 - c) planning capabilities
 - d) staffing and funding levels
 - e) sensitivity to community needs
3. Utilities. Among other things, AkPIRG will consider:
 - a) existing utility involvement in conservation and alternative energy programs
 - b) implications of the National Energy Act
 - c) role of the APUC

Proposed workplan, page two

4. Finance mechanisms. The how and who of paying for energy programs, including:

- a) private market
- b) government loans and subsidies
 - AHFC
 - APA
 - REA
 - other agencies and approaches
- c) tax incentives

5. Local government. Programs involving energy conservation and alternative energy may have to depend upon local governments to require better use of existing resources and to develop new ones. This may include building standards, zoning for cogeneration, or government-run winterization programs. We will look at communities of different sizes in different areas and climates of the railbelt.

6. Research and Demonstration. Key to any Alaskan soft energy path will be R&D efforts to eliminate information gaps and demonstrate the viability of new approaches to heating and power generation. AkPIRG will:

- a) describe state R&D programs
- b) identify specific data problems
- c) suggest priorities for additional research
- d) identify needed pilot and demonstration projects

7. Values and attitudes. The perceptions of key energy players, including public officials, utility managers, financiers, builders, and consumers, have an important part in determining the availability of conservation and alternative sources of energy. AkPIRG will interview and survey these groups to determine their perceptions of the barriers to an effective soft energy path program for Alaska.

8. Marketing. If attitudes or lack of information are a barrier to the acceptance of conservation and alternative energy, new or expanded marketing efforts may be important. We will look at the type of marketing problems these energy approaches encounter and discuss possible responses.

9. Employment impacts. AkPIRG will undertake a review of the employment benefits of an aggressive solar and conservation program, as compared to more centralized, capital intensive energy production strategies.

HOUSE POWER ALTERNATIVES
STUDY COMMITTEE
610F Gruening Building
University of Alaska
Fairbanks, Alaska 99701

November 5, 1979

Mark Wittow
5493 Sampson Drive
Girard, Ohio 44200

Dear Mark,

Brian received your 5 page memo concerning MERDI. However, page 2 was missing. Could you please send it to us soon. I haven't seen the memo yet, but Brian said that it's extremely interesting.

The committee meeting on the 9th is set up and the following people will be there, Seifert, Baumgartner, Goldsmith, Jamie and Eric, Vic, Marc Fryer, Chris Conway and Bob Crow, Tussing, Tuck, Van der Ryn, Plunkett, Brian and myself. Apparently noone had called Sim back, so it was nip&tuck as to getting him here. Everything is OK now, though. He's going to speak at the Conference on energy conservation emphasizing the potential of state and local government involvement to encourage conservation. He'll speak about the Farrallones Rural Center and hopefully show some slides. He's agreed to do a 2 hour workshop Saturday morning on waste disposal issues.

We miss you!!!!!! There are many things in life that I feel confident with, but this is not one of them. ha. Technically, I know very little about alternative energy and conservation but I am interested in it. Oh--- never fear, though ----I am keeping on top of the organizational end of the study.

Here's the rundown on the status of the contracts: Tuck (BR signed and forwarded to Brad), TUSSING (AT & BR signed, sent to LAA), VAN DER RYN (BR signed, sent to Sim), ISER (Signed and sent to LAA), CENTER (signed and sent to LAA), ENERGY PROBE (being drafted with final draft being completed upon meeting with Conway in Anchorage), PLUNKETT (have seen no paper work concerning contract for his consultation services and cannot reach him -- he's in D.C. Can deal with that when we meet in Anchorage).

Mark, if there's anything else you might want to keep informed about, don't hesitate to let me know. I'll send you a memo after next weekend's meeting and Conference.

Glenda Straube

I sent Malone a letter concerning 11/9 meeting.

MEMORANDUM

SUBJECT: Power Alternatives Study

TO: Jim Rhodes

FROM: Glenda Straube *JS*

DATE: November 16, 1979

I spoke with Brian about Hugh's and your concern with the Power Alternatives Study. We should be contracting the "cost-effectiveness" work out near the end of the study.

Chris Conway and Bob Crow from Energy Probe were quite interested in doing it and have some expertise in it. However, they feel that it would be unfeasible to attempt to put together any kind of formula at this time due to the amount of variables present. They have suggested that this work be done shortly after all the contractors' reports have been submitted.

So, at this time, I think we should wait. If there are any other suggestions you may have, please let me know.

cc: Brian Rogers
Mark Wittow ✓

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.

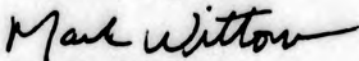
I have three basic reasons for visiting:

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



**Alaska Center
for the Environment**
1069 West 6th
Anchorage, Alaska
99501

**1ST
ALASKA
ALTERNATIVE
ENERGY
CONFERENCE**

Non-Profit
Organization
U.S. Postage
PAID
Anch. AK
Permit No. 139

GENERAL SESSIONS — CUDDY CENTER, UNIVERSITY OF ALASKA, ANCHORAGE

FRIDAY, NOVEMBER 9TH — 7:30 pm

Welcome Introduction — Bill Spear, Alaska Renewable Resource Corp.

Keynote Speaker — Floyd Stein, Organization for Renewable Energy, Copenhagen, Denmark.

"Alternative Energy in Denmark & Scandinavia"

sponsored by the Alaska Renewable Resources Corp.

Rich Selfert, Water Resources Institute, Fairbanks.

"Renewable Resource Potential for Alaska"

David Morris, Institute for Local Self-Reliance, Washington D. C.

"Community Energy Systems"

SATURDAY, NOVEMBER 10TH — 9:00 am

Jerry Plunket, Montana Energy Research and Development Institute, Butte, MT.

Sim Van der Byne, Farallones Institute, Berkeley and Occidental, CA.

Chris Conway, Energy Probe, Ottawa, Ontario, Canada

SUNDAY, NOVEMBER 10TH — 9:00 am

Rep. Bill Miles, Statewide Energy Policy

State Panel — Clarissa Quinlan, Division of Energy and Power Development

Phil Smith, Rural Alaska Community Action Program

Brian Rogers, Legislator

WORKSHOP SERIES I

Saturday, November 10th 10:30 — 12:30 pm

PASSIVE SOLAR DESIGN

BOB ROGSCHE, Super insulated houses Fairbanks
SKIP ROY, D.A.T.A., Davis, CA
ED McGRATH, insulated shutters, Fairbanks

GREENHOUSES

BIRNEY BIENBAUM, National Center for Appropriate Technology, Field Representative
JOHN COLLETT, Fairbanks Solar Greenhouse

FINANCING

BILL SPEAR, ARRC
ABE LOVE, Homer Federal Savings
BOB SULLIVAN, Alaska Mutual Savings

WIND ENERGY BASICS

BOB SHIPLEY, Division of Energy
JIM WISE, Arctic Environmental Data and Information Center
TUNIS WENTINK, University Of Alaska (Fairbanks)

FUNDING

CHRIS NOAH, Office of Science and Technology
FRANK BROWN, D.O.E. Small Grants Program
ANNE HEGNAUER, U.S.D.O.E. Washington D.C.
BOB SHIPLEY, Western Sun
NEWTON CHASE, H.U.D.

METHANE

CHUCK VOWELL, Unalaska
ELLIOT LIPSON, Dept. of Environmental Conservation

GEOTHERMAL

DON MARKLE, Division of Energy

RENEWABLE ENERGY EDUCATION K-4 ANNE WIELAND, Science Coordinator, Anchorage Public Schools

WORKSHOP SERIES II

Saturday, November 10th, 1:30 — 3:30 pm

WIND ENERGY APPLICATIONS

MARK NEWELL, Wind Program, Alaska Native Health Service
DAN DENSLOW, Ambler
SARA & CHUCK HORNBERGER, Lake Clark

SMALL HYDRO

LORAN BAXTON, U.S. Army Corp of Engineers

RECYCLING

BOB MORRISON, AK Center for the Environment
VIRGINIA del PIAZ, Bottle Bill

ALCOHOL

(To be announced), Solar Energy Research Institute

SOLAR WATER HEATING

BIRNY BIRNBAUM, National Center for Appropriate Technology, Field Representative

MAKING YOUR HOME MORE ENERGY EFFICIENT

ED McGRATH, Energy Extension Service, Fairbanks
LESLIE TOUSSANT, Designer, Fairbanks
JEFF WILSON, AIA

DESIGNING SOLAR NEIGHBORHOODS

SKIP ROY, D.A.T.A., Davis, CA

WORKSHOP SERIES III

Saturday, November 10th 4:00 — 6:00 pm

PASSIVE SOLAR

SKIP ROY, D.A.T.A., Davis, CA

AGRICULTURE AND SOLAR

BARNEY HOLLEMBAEK, Farmer
SAM SKAGGS, Small Scale Agriculture

STATE AND LOCAL PROGRAMS

STEVE BADEN, Division of Energy
LEE LEONARD, Dept. of Transportation & Public Facilities
MARY STACKELROOT, Bethel House
DEE LANE, Rural CAP

UTILITY INVOLVEMENT WITH SOLAR

CHUGACHE ELECTRIC
DAVID MORRIS, Institute for Local Self-Reliance
KETCHIKAN UTILITY

DISTRIBUTED ENERGY SYSTEMS

BOB CHILDERS

WOOD HEAT

KEN KILBORN, U.S. Forest Service
OLI WIK, Ambler
JACK SPRATT, Anchorage

COMMUNITY SELF-RELIANCE

MORRIS MORGAN, Tanana Chisena Conference
WENDY WARNICK, Sun Till

RENEWABLE ENERGY EDUCATION SECONDARY LEVEL

STEVE HENNESSY, Wasilla High School
DAN BRISCOE, SAVE I High School

HOEDOWN

8:30 pm — 1:00 am — Cuddy Center with live bluegrass music

WORKSHOP SERIES IV

Sunday, November 11th, 10:30 am - 12:30 pm

COMMUNITY ENERGY SYSTEMS

DAVID MORRIS, Institute for Local Self-Reliance
MARK NEWELL, Wind Program, Alaska Native Health Service

SELF-SUFFICIENT HOMESTEAD

DAN DENSLOW, Ambler
SARA & CHUCK HORNBERGER, Lake Clark

TRANSPORTATION

LEE LEONARD, Dept. of Transportation & Public Facilities
HERB CUTLIP, Alternate Energy Systems, Inc.
natural gas auto
JOHN RICHARDS, electric car, Anchorage

HYDRO

Same as Above

FINANCING

Same as Above

GEOTHERMAL

DON MARKLE, Division of Energy and Power Development

FUNDING

Same as above

WORKSHOP SERIES V

Sunday, November 11th 1:30 — 3:00 pm

POLICY CAUCUS

•Marketing •Utility •Involvement •Financing •Solar Information and Education •Rural Energy •Urban Energy •Energy Conservation •Solar and Food Production

FINAL GENERAL SESSION 3:15 — 5:00 pm

Adoption of resolutions from policy caucus

HOUSING: Housing has been arranged as follows:

☐ **GOLDEN LION** — Closest hotel to the Conference (1 mile). Attractive, comfortable, the Golden Lion offers a restaurant, coffee shop, lounge and gift shop at \$44.10 per person for single or double occupancy.

☐ **ALASKA PACIFIC UNIVERSITY, DORMS** — \$16.00 for Single (Includes linen) \$20.00 for Double

Meals can be purchased in nearby Providence Hospital adjacent to UAA

☐ **I WOULD LIKE SLEEPING BAG SPACE**

☐ **I LIVE IN ANCHORAGE AND WILL PROVIDE SLEEPING BAG SPACE FOR OTHERS**

☐ **I HAVE CAMPING OR SLEEPING BAGS**

1ST ALASKA ALTERNATIVE ENERGY CONFERENCE

WHAT WE ARE ALL ABOUT.....

Alaska's First Alternative Energy Conference will be held November 9, 10 and 11, on the University of Alaska at Anchorage, campus. It will provide information to Alaskans concerned with high energy costs about the potential of solar, wind, small hydro, biomass and geothermal energy. Alaskan experts and resource people from "Outside" will discuss the state of the art of alternative energy technologies, as practiced here and elsewhere. Participants will learn about demonstration projects developed in Alaska, and have an opportunity to discuss these projects with the people responsible for them. The tone of the Conference will be relaxed and informal for a maximum information exchange.

THE WIND BLOWS

There are many operating wind generators in Alaska, providing reliable service. Lake Iliamna is one center with over a dozen operating units, and more to be installed this year. Dan Denslow of Ambler has a Jacobs wind electric generator, that not only powers his house, but 2 others as well. With 33,000 miles of coastline, and various wind tunnels through our mountain ranges, wind power for electricity provides a real energy alternative to many areas where liquid fuels are most expensive.

THE WATER FLOWS

Remote mining, cannery operations have been powered by Pelton wheels throughout Alaska since the 1890's. Many of these small hydro systems still provide power to the bush communities. Gerald Johnson of Valdez received a Federal grant this year to expand his water power

project to include the home of a neighbor, while in southeast, several homes and lodges are powered by hydro plants of up to 50 KW in size.

THE SUN SHINES

Many Alaskans still feel that solar energy is unfeasible this far north. This is hardly the case. Alaskans, like Bob Roggash of Fairbanks, are finding that passive solar energy can reduce annual heating bills by 75%, through proper design and construction for natural heat gain. Joe Balch in Fairbanks has pioneered a method of raising ground temperature for gardening by running solar heated water through underground pipes. Berry Hollenbaek will use the same technique in combination with solar grain drying, and space heating at his new Delta Junction farm. Even downtown Anchorage fire alarm boxes are powered by photo cells. Applications are numerous and widespread.

ENERGY FOR AN ALASKAN LIFESTYLE

During the next legislative session state leaders will be meeting to formulate a statewide energy policy for Alaska. Unfortunately many decision-makers feel that renewable energy is still a technology of the future, despite the fact that problems like utility interface, financing, and community planning have limited solar development, not technological shortcomings. It is important for this conference to demonstrate that a grassroots constituency exists that understands the problems facing alternative energy technologies, and wishes its state energy policy to clear the way for alternative energy development.

Therefore, policy workshops and speakers will be offered at the conference to clarify these issues. After hearing these options, conference participants will be asked to choose a policy issue, about which they are concerned, and attend that Policy Caucus. There a position will be defined by the workshop members. This resolution will then be presented to the general assembly for approval.

Alaska is the last frontier, the refuge for those who want to take control of their own lives. The idea of relying less and less on centralized power sources, and more on local, small scale energy systems is a concept that the conference will explore. Alaska can lead the nation in this direction. We have the potential, the need, and the independence to do it. Discussions and resolutions will be carried to decision makers to insure consideration of an active renewable energy policy in Alaska.

A SOLAR CATALOGUE FOR ALASKA

The Alaska Center For The Environment has recently produced an Alaskan segment of a national catalogue of model solar and conservation projects for the Center For Renewable Resources, in Washington, D.C. Solar is used here in a broad definition, that include wind, hydro, biomass, and other renewable energies. Through this project 1500 individuals and agencies in Alaska were surveyed as to their knowledge, experience and skills, relating to alternative energy projects. The twenty

(20) most unique were chosen for the catalogue, along with some 175 individuals, resource people business and agencies, in the Directory listing.

Work continues on an expanded version for in-state use that will be as comprehensive as possible. Conference participants will be asked to contribute their expertise.

Registration fees for the Conference will include a copy of the catalogue for each participant, upon its publication, after the Conference.

1ST ALASKA ALTERNATIVE ENERGY CONFERENCE

REGISTRATION FEES

Regular \$5.00 In Advance \$10.00 Day of Conference
Seniors and Students \$5.00

WHERE: University of Alaska, Anchorage, at the Cuddy Center

FRIDAY, NOVEMBER 9, 1979 — 4:00PM to 8:00PM

SATURDAY, NOVEMBER 10, 1979 — 8:00AM to 11:00PM

SUNDAY, NOVEMBER 11, 1979 — 10:30AM to 5:00PM

Registration Fee includes Admission to the Conference, a registration packet, and one copy of the Alaska Solar Catalogue, to be published following the Conference.

☐ Pre-Registration for Conference \$5.00

☐ I would rather volunteer to work with the Conference Committee than pay a registration fee (Limited number only!)

☐ I have an exhibit to display (Please include a brief description, and space requirements)

REGISTRATION

NAME: _____

ADDRESS: _____
(Street) (City and State) (Zip)

TELEPHONE: _____

AREAS OF INTEREST IN ALTERNATIVE ENERGY: _____



POUCH V
JUNEAU, ALASKA 99811
OFFICIAL BUSINESS

Alaska State Legislature
POWER ALTERNATIVES STUDY COMMITTEE

Address until January 1980:

c/o Representative Brian Rogers
Box K -- College
Fairbanks, Alaska 99708

October 22, 1979

To Whomever:

Attached are the draft contracts and contract proposals
under active consideration by the Committee.

CONTRACT BETWEEN

STATE OF ALASKA
LEGISLATIVE AFFAIRS AGENCY
Pouch Y, State Capitol
Juneau, Alaska 99811

and

UNIVERSITY OF ALASKA
INSTITUTE OF SOCIAL AND ECONOMIC RESEARCH
700 "A" St.
Anchorage, Alaska 99501

The parties to this agreement are the LEGISLATIVE AFFAIRS AGENCY, on behalf of the Alaska State Legislature's House Power Alternatives Study Committee, hereinafter referred to as the AGENCY, and the University of Alaska Institute of Social and Economic Research, hereinafter referred to as the CONTRACTOR.

THE ABOVE PARTIES TO THIS CONTRACT, in consideration of the covenants hereinafter contained, hereby mutually agree to the terms and conditions hereinafter set forth:

CLAUSE I - STATEMENT OF WORK

(A) Scope of Work
Set out in Attachment A

(B) Work Products

1. A detailed work plan of I(A) shall be completed by November 15, 1979.
2. A Workshop on the input assumptions, as described in 1(C) of Attachment A, shall be held on approximately December 11, 1979 for the purpose of gauging the validity of those assumptions
3. A draft report shall be completed by March 1, 1980
4. A final report, as described in 1(G) of Attachment A, shall be completed by May 15, 1980.

CLAUSE II - PERIOD OF PERFORMANCE

The Period of Performance shall be October 1, 1979 through June 30, 1980.

CLAUSE III - TERMINATION

This contract may be terminated by mutual consent.

CLAUSE IV - PROJECT DIRECTOR

The Project Director shall be the Honorable Brian Rogers, co-Chairman of the House Power Alternatives Study Committee.

CLAUSE V - COMPENSATION AND METHOD OF PAYMENT

- (A) The CONTRACTOR shall be compensated \$60,000 for the work specified in Clause I of this Agreement.
- (B) Payment shall be on the basis of monthly billings of not more than \$7,000.
- (C) The CONTRACTOR shall receive no payment in addition to that specified in Clause V (A) for travel and related expenses unless the Project Director requires more than four total trips between the CONTRACTOR'S place of business and Juneau, Alaska. The four trips may be four trips by one individual, two trips by two individuals, etc.

CLAUSE VI - RECORDS, DOCUMENTS, AUDIT

The CONTRACTOR shall maintain accurate records, including detailed time records, as may be required by the AGENCY. The records are subject to inspection by the Project Director or the AGENCY at all reasonable times. All documents, reports and writings produced in the course of the work performed under this contract are, upon delivery to the Project Director or the AGENCY or at termination of this agreement, the property of the AGENCY, and/or in the public domain; provided that the CONTRACTOR will have the right to use any such materials for purposes of writing about or discussing the issues.

CLAUSE VII - ALL WRITINGS CONTAINED HEREIN

This agreement contains all the terms and conditions agreed upon by the parties. No other understandings, oral or otherwise, regarding the subject matter of this agreement shall be deemed to exist or to bind either of the parties to this agreement. IN WITNESS WHEREOF, the parties have executed this agreement on the dates indicated.

CONTRACTOR

LEGISLATIVE AFFAIRS AGENCY

Lee Gorsuch Date
Director, Institute of Social
and Economic Research

Myrton R. Charney Date
Executive Director

Howard Cutler Date
Chancellor, University of Alaska

Accepted:

Approved as to Form:

Rep. Brian Rogers Date
Co-Chairman, House Power
Alternatives Committee

Agency Legal Counsel Date

ISER

ATTACHMENT A

1. Scope of Work

A. Methodological Review and Data Collection \$5,000

Review methods available for projecting the level of economic activity in the railbelt and for estimating the level of electricity consumption. Review the existing work on both subjects with special reference to strengths and shortcomings and relevance to present study. Prepare a detailed work plan for review by the Project Director or consultant of his choice.

Collect the economic and electricity consumption data required for the study. The economic data is readily available to the Institute, and it is only required that it be properly formatted for this study. The Institute has a large amount of historical data on electric power consumption in Alaska through 1974 which must be updated through more recent years. This data will be obtained directly from the utilities, the Alaska Public Utilities Commission, and the Federal Energy Regulatory Commission.

B. Economic Model Specification \$10,000

Incorporate 1978 economic data into the Man-in-the-Arctic Program (MAP) econometric model which will be used to project economic activity in Alaska and the railbelt regions. The most recent economic data is important for providing the best information on the structure of the economy.

Develop a procedure which regionalizes the economic projections in a manner consistent with the three potential service areas of a Susitna hydroelectric facility. These regions will be:

1. Anchorage-Cook Inlet
2. Fairbanks-Tanana Valley
3. Glennallen-Valdez

C. Economic Projections \$8,000

Develop the input scenarios required to run the economic model. Specify the assumptions upon which each scenario is built. Several alternative scenarios will be generated which will provide both a most likely case as well as a likely range of outcomes. The scenarios will include not only estimates of exogenous basic sector activity but also of state government activity. A workshop will be held in early December to familiarize the Project Director with the scenarios and to obtain suggestions regarding corrections and additions to scenarios from invited experts on the various sectors of the Alaskan economy.

Generate the economic projections from the scenarios. The projections will be by region and will be through the year 2005. The sensitivity of the results to both variations in the scenarios as well as the specification of the equations will be tested and reported.

D. Assessment of Interfuel Substitution Possibilities \$13,000

Conduct an econometric analysis of the sensitivity of electricity consumption to changes in prices of fuels and of income. This analysis will concentrate on the residential sector for which the best data is

available. It is recognized that severe technical problems exist in attempting to estimate a "demand function" for electricity within Alaska, but the best and most appropriate techniques will be applied to this analysis. The results will be interpreted in relation to their relevance for the overall study objective.

Conduct a case study-type analysis of interfuel substitution possibilities, again concentrating primarily on the residential component use. This study will attempt to define the relative fuel prices at which it becomes economically rational for consumers to substitute among fuels for various purposes. It will further attempt, on the basis of present and future inventories of durable goods used in energy-related functions, to determine the aggregate electricity-use impact such interfuel substitution could have. This analysis will concentrate on space heating which is the largest energy user in the home and which can be supplied by a variety of energy sources. It will attempt to define the limits of substitution possibilities by investigating the extreme cases of all electric space heating and all gas (or other nonelectric alternative) space heating in the residential sector. This study will attempt to draw upon and integrate previous work done on this subject in Alaska and elsewhere.

E. Electricity Use Projections \$14,000

Develop electricity use projections for the following categories of consumers:

1. Residential
2. Commercial
3. Non-self-supplied industrial

4. Self-supplied industrial, presently operating in railbelt market areas
5. Potential industrial consumers, not presently operating in the railbelt area
6. Residential and commercial electricity users who cannot be integrated into the urban power grid.

The projections, through the year 2005, will be for total kilowatt hours of electricity consumed. They will not include projections of peak load, capacity requirements, or the load curve over the year or for representative days during the year. Projections will be provided for each of the market areas described in Task B. Several electricity-use projections will necessarily be developed in order to incorporate the results of the analysis of interfuel substitutability. The sensitivity of projection results to this factor as well as to other factors affecting per-customer usage will be analyzed.

The analysis of electricity consumption requirements of potential industrial consumers will not be directly integrated into the results for other sectors since this is recognized to be a highly speculative and uncertain component of demand. Probable electric power requirements for more likely alternatives will be identified, but "scenarios" for such industrial development will not be generated. In this category will also fall estimates of energy requirements for unconventional uses of electricity such as railroad electrification.

The projections will be constructed in such a way that estimates of the impact of various conservation measures could be integrated into the analysis. Such measures would derive from other studies.

F. Assess Projection Probabilities \$2,000

Subjectively evaluate the probability of each of the projections generated by a combination of an economic projection and an electricity-use projection. Choose a most likely case and analyze the sensitivity of that case to key economic and energy-use factors. Compare the results of the analysis to previous work.

G. Prepare Final Report \$8,000

The final report will be written in nontechnical language with appendixes containing the required technical backup information necessary not only to critically evaluate the work but to serve as a guide for updating the analysis periodically. As Tasks A and C are completed, a draft of each will be written and made available to the Project Director.

The final report will include a discussion of all tasks outlined in the Scope of Work. It will specifically document the choice of methodology for the analysis including not only a discussion of its strengths but also of its weaknesses and indicating the proper interpretation of results that these weaknesses require.

2. Additional Considerations

A. Coordination

This analysis of electricity requirements forms a portion of a larger study of alternatives for supplying electricity to the railbelt market in future years. It is important for this analysis to be consistent with the requirements of this larger study and also for the methodology

and assumptions used in the analysis to have as broad a consensus as possible. Thus, the Institute will seek to coordinate with the following groups and solicit suggestions and criticisms of methods and assumptions from them. Final decision on all matters discussed with regard to these efforts will remain with the Institute.

1. The Army Corps of Engineers (or their representative) or Acres American Incorporated (or their representative) - review of methodologies used in economic projections and demand analysis.
2. Energy Probe (or other consultants of the Project Director's choosing) - review of methodologies used in economic projections and demand analysis.
3. Dr. Bradford Tuck (or other consultants of the Project Director's choosing) - review the economic assumptions underlying the econometric model and the demand analysis.
4. Other consultants of the Project Director's choosing.
5. Alaskan utilities - consultation concerning electricity demand projections.
6. Center for Policy Studies - consultation concerning conservation possibilities.

In addition, the study will coordinate with the Alaska Power Authority and the Division of Energy and Power Development through the Project Director or his representative.

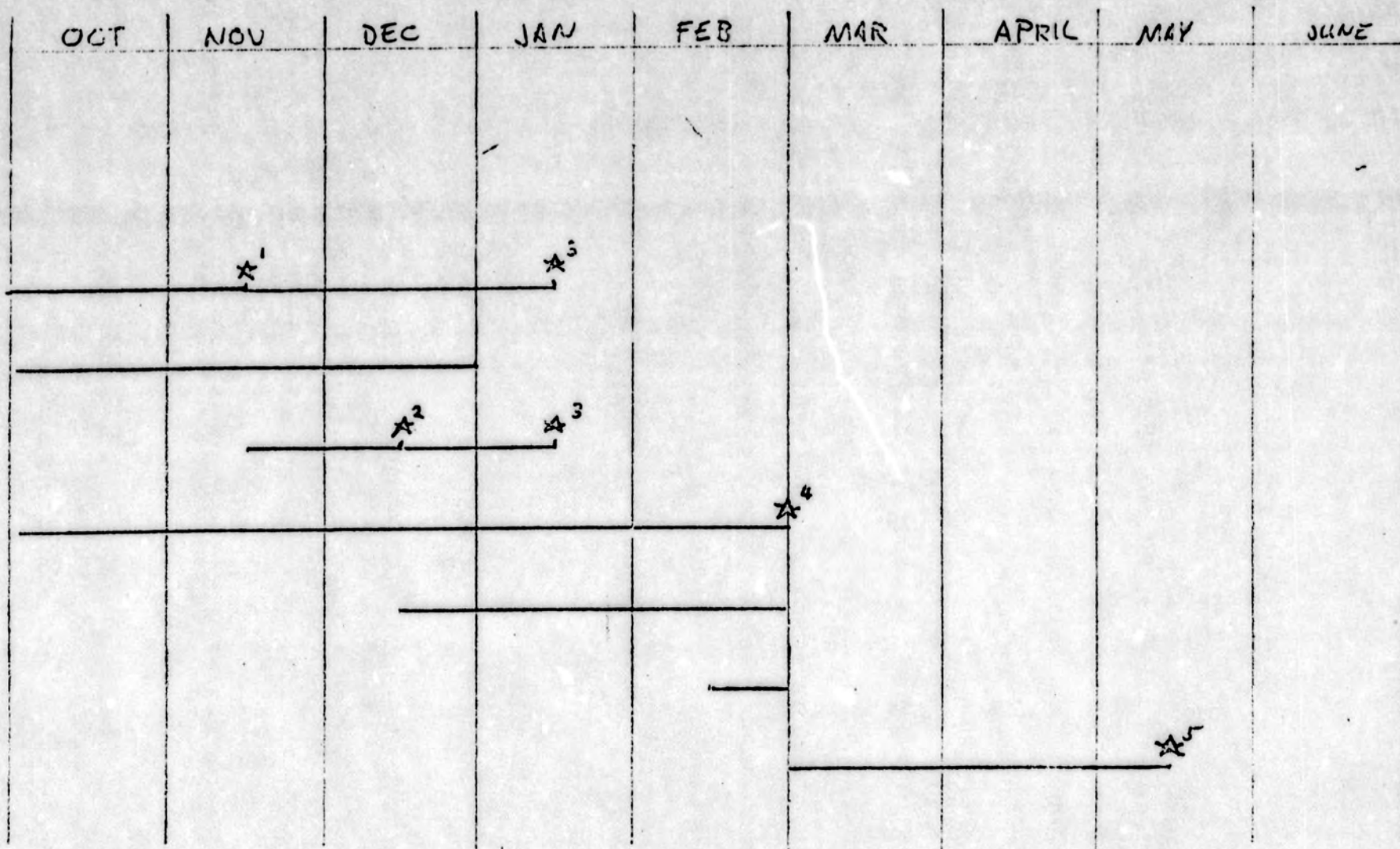
B. Updating

The analysis will be conducted in a manner which, as much as possible, will allow for updating of the results in a straightforward and consistent manner as factors affecting the projections change over time. All relevant methodological steps will be outlined in technical appendixes to the final report.

PROJECT SCHEDULING

TASK

A
B
C
D
E
F
G



★ DATES WHEN PRODUCTS DUE.

1 Detailed work Plan

2 Input Assumptions Workshop

3 Total A & C reports

4 Interim Report

5 Final Report

study. Since the ISER forecasts will, in part, be dependent upon the MAP model, special attention will be given to the properties of the MAP model and to the data scenarios used to generate the forecasts.

III. SUMMARY AND CONCLUSIONS

- A. Synopsis of findings.
- B. Usefulness of findings for decision about Project.

DATE OF STUDY: To be completed by March 1, 1980.

COST: \$5,500.00.

lump sum at completion

*interim
report*

*1822 CINDY LEE LANE
ANCHORAGE, AK 99507
907-344-9293*

Jan. 20, 1979

from Energy Probe

A PROPOSAL TO EXAMINE THE ELECTRICITY DEMAND FORECASTS
USED BY THE ALASKA POWER ADMINISTRATION AND THE INSTITUTE
FOR SOCIAL AND ECONOMIC RESEARCH

Introduction

The electricity demand forecast is the most significant component of the utility planning process. The forecast provides the primary rationale for the construction of new generation and distribution facilities, and dictates their nature and scheduling.

The demand forecasting procedure generally requires the development and interpretation of one or more mathematical models, usually econometric. Basic relationships between electricity demand and key socioeconomic factors are estimated in a core model using time series and/or cross sectional data. Independent variables are projected into the future using a variety of techniques; these forecasted values are then applied to the core model to yield an estimate of electricity demand for the forecast year. Frequently, subjective adjustments are applied to the forecast model results to accommodate the effects of qualitative factors which cannot be explicitly accounted for.

Analyzing Forecasting Procedures

A forecast of this type represents a "most likely" future state, given that basic relationships between demand and the predictors in the model remain stable over the forecast period, and that the forecasted values of the predictor variables are also "most likely". Any critique of an electricity demand forecast, then, must address at least the following questions:

1. Is the model reasonably specified and appropriately estimated?
2. Is the model's explanatory power adequate?
3. What values have been assumed for the independent (predictor) variables over the forecast period? What techniques and assumptions were employed in projecting the values of these independent variables?
4. What values have been estimated for the model's coefficients? Are the coefficients likely to remain relatively stable over time? Are the

values used consistent with other empirical work?

5. Does the forecast include an indication of the sensitivity of electricity demand to changes in the values of the independent variables and their coefficients?
6. Are the forecast results reasonably compatible with end use projections based on expected fuel market shares and utilization efficiencies?
7. To the extent that sub-markets are identified and are likely to change over the forecast period, are both energy and peak demand growth given consideration?
8. Does the forecast model allow an examination of the effect of changing energy market shares on electricity demand?

In addition to these structural issues, electricity demand forecasts can be analyzed with respect to their role in a broader energy policy and planning process. Consequently, a demand forecast must be examined in terms of its compatibility with local, state and federal policy initiatives which could have effects on electricity growth during the forecast period. These policy initiatives may have sweeping effects on the values of both the predictor variables and their partial relations with electricity demand. In addition, these initiatives may warrant the respecification of the basic (core) model.

Structural issues must be supplemented, then, with an analysis of other, normative issues:

1. Are the values used for the independent variables consistent with proposed or potential policy intervention?
2. Are the values of the coefficients consistent with proposed or potential policy intervention?
3. Are proposed or potential policy initiatives likely to introduce new, significant predictor variables?

Summary

Such a review of the electricity demand forecasts now used in the State of Alaska will provide important

information concerning the need for additional supply facilities and their alternatives. With its expertise in quantitative analysis and its access to computer facilities, Energy Probe believes it could make a significant contribution to an understanding of the possibilities for Alaska's electricity future.

+ help in

conservation

study

design

8

CONTRACT BETWEEN

STATE OF ALASKA
LEGISLATIVE AFFAIRS AGENCY
Pouch Y, State Capitol
Juneau, Alaska 99811

and

ALASKA CENTER FOR POLICY STUDIES
221 E. 7th Ave. #204
Anchorage, Alaska 99501

The parties to this agreement are the LEGISLATIVE AFFAIRS AGENCY, on behalf of the Alaska State Legislature's House Power Alternatives Study Committee, hereinafter referred to as the AGENCY, and the Alaska Center for Policy Studies, hereinafter referred to as the CONTRACTOR.

THE ABOVE PARTIES TO THIS CONTRACT, in consideration of the covenants hereinafter contained, hereby mutually agree to the terms and conditions hereinafter set forth:

CLAUSE I - SCOPE OF WORK

- (A) General Tasks - The Contractor shall accomplish the following:
1. End Use Structure -
Establish the general end uses of energy by category for the Anchorage-Cook Inlet and Fairbanks-Tanana Valley power planning regions.
 2. Potential for Energy Conservation -
Establish the varying levels of energy savings in the Railbelt area that would be realized from conservation measures taken by utilities, consumers, businesses and government. The numbers from this portion of the study will be used in the second stage of the University of Alaska Institute of Social and Economic Research power demand analysis, also being undertaken by the AGENCY.

3. Potential for Renewable Energy sources - Establish the contribution the available renewable energy sources can make towards satisfying energy demand in the Railbelt area. The numbers from this portion of the study will be used in the second stage of the University of Alaska Institute of Social and Economic Research power demand analysis, also being undertaken by the AGENCY.
4. Policy Development and Implementation - discuss the social, political and economic measures necessary to realize the potential described in numbers 2 and 3 above. These measures would include a draft legislative package and suggestions for market incentives, consumer education and state programs. The possible role of state agencies in developing and implementing these programs will also be discussed. A discussion of the employment effects of conservation and renewable energy programs will be included in this section.
5. Prepare one or more final reports as specified by the Project Director.

(B) Phase One

CONTRACTOR shall prepare a detailed plan of study including allocation of work responsibilities, designation of any subcontractors and related activities. The detailed study will be subjected to review by the Project Director and such parties as he may designate.

(C) Phase Two

Phase Two will consist of implementation of the study plan developed in Phase One, as approved by the Project Director.

(D) Schedule

1. Phase One shall be completed by November 15, 1979.
2. Phase Two shall be commenced as soon as possible, but no later than November 15, 1979.
3. Task A(1) shall be completed by February 1, 1980.
4. Tasks A(2) and A(3) shall be completed by March 1, 1980.
5. Tasks A(4) and A(5) shall be completed by April 2, 1980.

The draft legislative package shall be submitted to the Project Director or his designee by January 7, 1980.

CLAUSE II - PERIOD OF PERFORMANCE

The Period of Performance shall be October 1, 1979 through June 30, 1980.

CLAUSE III - TERMINATION

This contract may be terminated by either party upon 30 days notice to the other party.

CLAUSE IV - PROJECT DIRECTOR

The Project Director shall be the Honorable Brian Rogers, Co-Chairman of the House Power Alternatives Study Committee.

CLAUSE V - PRINCIPAL INVESTIGATOR

The principal investigator shall be Vic Fishcher.

CLAUSE VI- COMPENSATION AND METHOD OF PAYMENT

- (A) Total compensation shall not exceed \$68,500.
- (B) Payment for Clause I(B) shall not exceed \$8,500.00 and shall be payable immediately upon billing by the CONTRACTOR.
- (C) Payment for Clause I(C) shall not exceed \$60,000, and shall be on the basis of monthly billing.
- (D) The CONTRACTOR shall receive no payment in addition to that specified in Clause VI(A) for travel and related expenses unless the Project Director requests that the CONTRACTOR travel between the CONTRACTOR'S place of business and Juneau.

CLAUSE VII - RECORDS, DOCUMENTS, AUDIT

The CONTRACTOR shall maintain accurate records, including detailed time records, as may be required by the AGENCY. The records are subject to inspection by the Project Director of the AGENCY at all reasonable times. All documents, reports and writings produced in the course of the work performed under this contract are, upon delivery to the Project Director or the AGENCY or at termination of this agreement, the property of the AGENCY, and/or in the public domain; provided that the CONTRACTOR will have the right to use any such materials for purposes of writing about or discussing the issues.

CLAUSE VII - ALL WRITINGS CONTAINED HEREIN

This agreement contains all the terms and conditions agreed upon by the parties. No other understandings, oral or otherwise, regarding the subject matter of this agreement shall be deemed to exist or to bind either of the parties to this agreement.

IN WITNESS WHEREOF, the parties have executed this agreement on the dates indicated.

CONTRACTOR

LEGISLATIVE AFFAIRS AGENCY

Joe Josephson, Chairman Date
Board of Directors, Alaska
Center for Policy Studies

Myrton R. Clarney Date
Executive Director

Accepted:

Approved as to Form:

Rep. Brian Rogers Date
Co-Chairman, House Power Alternatives
Study Committee

Agency Legal Counsel Date

Subcontractors for the Scope of Work

I (A) 1. & 2. - Fairbanks Federation for
Community Self-Reliance
(Mark Baumgartner & Sam Skaggs)

3. Rich Seifert, UA, other consultants to be
chosen

4. AKPIRG

Energy Probe will be utilized as an advisor
for the entire scope of work

Additional subcontracts, both in-state & out of
state, will be let as necessary.

DRAFT

MEMORANDUM

TO: The Honorable Brian Rogers

FROM: Gregg Erickson

SUBJECT: A natural gas based electric economy in central and southcentral Alaska - hazards and prospects

SUMMARY

An important part of the legislature's study of alternatives to the proposed Susitna Hydroelectric Project will be an analysis of the prospects and possible risks associated with basing the electrical economy of the railbelt area of Alaska on natural gas fired generation. At your request, we submit here our preliminary study design for conducting this Analysis. We propose to carry out the work described below for a fixed fee contract price of \$20,000 over a period of 3-1/2 months, commencing on 1 December 1979 and concluding on 15 March 1980.

BACKGROUND

Since you are already fully familiar with the background of the Susitna project itself, and the factors that caused the legislature to request a Study of Alternatives, we will discuss these matters only briefly.

Although questions remain concerning the railbelt electricity demand projected for the next decade and beyond, existing studies by the region's utilities and others anticipate average annual growth rates of 10% or more.

The Susitna project is being held out by its proponents as a means of meeting this growing demand, and simultaneously insulating power consumers from the repetitive cycle of energy cost increases that have marked the past seven years. Whatever the promise of the Susitna Project may be, however, a judgment of its appropriateness must be made in the context of the various alternatives that are available to it. One of these alternatives is clearly an electrical economy based on natural gas. Such a development path would be an extension of what has already occurred in the Anchorage area, where natural gas has come to completely dominate the generation picture. A similar scenario may be plausibly constructed for the interior, commencing with the completion of the Northwest Alaska Gas Pipeline.

Even if the Susitna Project is constructed, service reliability standards will require that new generation capacity be developed in the Anchorage/Kenai and Fairbanks intertie areas to handle both the load growth occurring between now and the time Susitna comes into service, and to serve as backup to Susitna once it

(2)

is built. Almost all of this interim and "backup" generation capacity is expected to be either gas fired or easily convertible to natural gas.

Given these expectations it is reasonable to review in depth the question of whether Alaska might be able -- or more importantly, well advised -- to dispense with Susitna entirely. An important component of the information necessary to answer this question will be elucidated in the study outlined below.

STUDY DESIGN

1. **Historical Background:** The choices raised by the Susitna project are not totally unprecedented, even in Alaska. For example, the decision to construct a NINE mouth power plant at Healy added, in the context of the Fairbanks power demand of that day, a comparable increment of capacity. The Rampart and Eklutna experiences also provide important insights to the kinds of issues posed by Susitna. We contemplate conducting this part of the project in association with an academic historian who has already written on and studied this particular sub-area of Alaska history.
2. **Institutional Factors:** Recent federal legislation (the power plant and industrial fuel use of 1978) sharply restricts the extent to which natural gas (and oil) may be used to fire new electrical generation facilities. A central part of this project will be an evaluation of whether this and other potential end use regulations effectively eliminate the natural gas alternative.

At first blush, it would seem unwise for Alaska to pursue a power strategy that so clearly flies in the face of congressionally enunciated national policy. Nevertheless, several factors argue for careful consideration of whether this policy will pertain in the future, and -- if it does -- whether exceptions might be made for Alaska. For example, it is possible that a transfer of Alaska's royalty gas might be structured in a way that avoids the act's restrictions; a legal analysis of the act directed at this issue will be a part of this project.

If the act cannot be circumvented, it is still possible that economic factors unique to Alaska or general to the nation will result in some sort of "amendment" of the current "policy." This has already happened to some extent in response to the administration's recent realization of a potential "near term" surplus of natural gas. Environmental protection factors or "unique hardship" arguments may also be possible.

3

In any event, even if Susitna is approved it seems certain that some sort of relief from the Act's restriction will have to be sought, since the demand growth expected between now and the earliest date Susitna could come on line can not realistically be met by coal fired generation (oil fired generation is also restricted).

3. **Economic Factors:** The major economic hazard associated with expanded reliance on natural gas for power generation is that Alaska gas prices will continue to rise in response to world oil price increases. If world energy prices continue to rise, it is likely that the phasing out of federal regulation of natural gas prices would make those prices even more responsive to market forces than they have in the past.

On the other hand, major discoveries of new gas in the state or pipeline investments which make existing reserves accessible to Alaska markets may restrain the rate of price increase. An analysis of these and related issues is essential to assessing the "natural gas option."

4. **Engineering Factors:** The efficiency of gas fired generation facilities will be examined in order to move from expected gas prices to expected "bus BAR" power costs. although not directly related to the question of a gas based electric economy, we would also propose to evaluate in substantial detail (at \$5,000 additional cost) the potential for substitution of natural gas for electricity in direct consumer applications as a means of moderating the growth of electrical demand. There is obviously great potential for this sort of substitution in the interior, but quantitative data, and data on the extent of natural gas market saturation in southcentral would need to be obtained.

5. **The Decision Making Structure:** The decision to build Susitna is effectively a government decision, although one in which the utilities and others will be extensively consulted. If Susitna is not built, the decision as to what alternatives are to be pursued may be taken in a much more decentralized context, a context in which the individual utilities would be expected to play a more leading role. If a decision was reached by the legislature to opt for natural gas fired generation, the means of implementing that decision would need to be carefully considered. We intend to ADDRESS this matter carefully, with particular attention to ~~the~~ institutional structures (such as the Alaska Power Authority) which might be used or fashioned to implement it.

October 13, 1979

Mr. Mark Wittow, c/o
Representatives Hugh Malone and Brian Rogers
Alaska State Legislature
727 N Street
Anchorage, Alaska 99501

Dear Mark:

In response to your request last week, this letter describes the report I would submit to Representatives Malone and Rogers on alternatives to the Susitna project.

SCOPE OF WORK.

Arlon R. Tussing will submit a report to Representatives Hugh Malone and Brian Rogers, on the technical, economic, financial, legal, and policy issues that Alaskans should consider in connection with the Susitna hydroelectric project or alternative measures for meeting the anticipated demand for electric power. This report will be brief and pointed, in plain English with a minimum of technical jargon. The report will:

1. Survey and relate the policy issues that concern Alaskans with regard to the Susitna project or possible alternatives. The issues to be considered include but need not be limited to:

a. The availability, reliability, and cost of electricity to meet projected residential, commercial, and industrial demand;

b. Opportunities to substitute electricity in residential, commercial, and industrial energy applications that would otherwise require more costly, less reliable, or environmentally inferior fossil fuels;

c. Opportunities to use the availability of electrical power to attract new industry to Alaska; and

 d. The cost and risks to the state treasury, demands on the administrative capabilities of state government, the effectiveness, and the economic impact, of various forms of state support for construction and operation of electrical generating facilities (or for alternative measures such as conservation).

2. Identify the different technologies available to meet the expected growth of demand for electricity in the market area that would be served by the proposed Susitna hydroelectric project. The technologies and measures considered will include but need not be limited to:

a. Major hydro plants;

b. Small hydro plants;

 c. Nuclear, coal, oil, gas, and biomass-fired steam generation plants;

d. Oil, gas, and biomass-fired combustion turbines (including combined-cycle plants);

 e. Unconventional electrical generation technologies, including solar, geothermal, tidal, and wind power;

f. Conservation by load management;

g. Conservation by rate design; and

h. Conservation by other means, including regulation and growth management.

3. Describe and relate the factors and principles that govern the planning of electrical generation and distribution systems, including the choice of generation technologies, and relate them to the market area that would be served by the proposed Susitna hydroelectric project. Factors to be considered include but need not be limited to:

- ★ a. Expected growth of demand, and the degree of uncertainty in projections of demand growth;
- ★ b. Current and expected load profiles (peaking, etc.);
- c. Scale and nature of existing plant;
- d. Scale, capital costs, and fuel requirements for different generating technologies;
- ★ e. Expected availability and prices for different fuels;
- f. Likelihood of adverse engineering or environmental surprises, licensing and permitting difficulties, litigation, and other causes of delay, cost overruns, or non-completion, for different generating technologies; and
- g. Operational reliability of different generating technologies.

4. Describe and relate the factors and principles governing the organization and financing of electrical generation and distribution systems, with particular reference to options for the Alaska Power Authority and the utilities currently serving the areas that would be served by the Susitna project. Factors to be considered include but need not be limited to:

- ★ a. Characteristics, advantages and disadvantages of various forms of business organization (investor-owned utilities, cooperatives, government agencies, government-owned corporations, etc.);
- b. Characteristics, advantages and disadvantages of various financing arrangements (conventional balance sheet financing, project financing, leveraged leasing, joint ventures, etc.);
- c. Capital structure (proportions of various forms of debt and equity), and the cost of capital;

↓
d. Tax liabilities, if any;

e. Accounting practices (treatment of depreciation, taxes, and earnings, etc.);

f. Implications for rates and rate structures;

④
g. Costs and risks to the state treasury; demands on the policy-making and administrative capabilities of state government, the Alaska Power Authority, or existing utilities; the effectiveness, and the economic implications, of various forms of state assistance to construction or operation of electrical generation facilities;

h. Relevance to current deliberations over institutions for the distribution or management of surplus state revenues (Alaska, Inc., AGSOC, the Permanent Fund, etc); and

i. Relation to energy credit proposals and other proposals for energy subsidies.

The topics will not necessarily be presented in the organization or order set out above.

This report will be submitted to Representatives Malone and Rogers as a review draft not later than December 31, 1979, and a final version ready for publication will be submitted by January 31, 1980.

I suggest that a contract be drawn up between the appropriate agency of the Legislature and Arlon R. Tussing and Associates, Inc., Suite 208, 880 H Street, Anchorage, Alaska 99501, with an effective date of October 15, 1979, and a termination date of June 30, 1980, providing for:

1. The report described above;
2. General consulting services to Representatives Malone and Rogers, concerning electrical facilities planning and related topics; and
3. Appearances at the request of Representatives Malone or Rogers before appropriate bodies of the Legislature, concerning the report and related topics.

Mr. Mark Wittow
Page Five

This arrangement will permit any follow-up desired during the 1980 Session, without the necessity of a new contract. Payment for my time will be at the rate of \$85 per hour; at this rate I absorb all clerical and research assistance expenses, and all office and other overhead; travel expenses are additional. The total billings over the period are not to exceed \$12,500. At your request I would be happy to draft a formal contract incorporating these terms, in a general form that has been approved in the past by the Legislative Affairs Agency and by Legislative Audit.

The proposal above is tentative; please let me know if you wish any additions or amendments.

I shall be in the Seattle office Monday through Wednesday (October 15-17), in Edmonton at the Four Seasons Thursday and Friday (October 18-19), and in Anchorage Saturday through Monday (October 20-22).

Sincerely,

A handwritten signature in cursive script, reading "Arlon R. Tussing". The signature is written in dark ink and is positioned above the typed name.

Arlon R. Tussing



UNIVERSITY OF ALASKA

October 18, 1979

Mr. Mark Wittow
c/o Representative Hugh Malone
and Representative Brian Rogers
Alaska State Legislature
727 N Street
Anchorage, Alaska 99501

Dear Mr. Wittow:

In response to your request, this letter describes the report AEIDC would submit to Representatives Malone and Rogers on the long-range socio-cultural impacts of the proposed Susitna Hydropower project.

SCOPE OF WORK

AEIDC will submit a report to Representatives Hugh Malone and Brian Rogers on the long-range socio-cultural factors which should be considered in connection with the Susitna hydropower project as presently proposed. The report will analytically survey, within the constraints of time and funding, the policy and planning issues which should be taken into account.

Relevant considerations include, but need not be limited to, the impacts on:

Human occupancy patterns in the affected region:

- Population trends
- Housing and attendant services
- Land ownership patterns

Infrastructure:

- Energy
- Transportation
- Communication
- Other public facilities

Employment opportunity patterns

- Government, corporate, private

Economic developments in:

- Manufacturing and commerce
- Mining and real estate
- Recreation and tourism
- Agriculture and fishing
- Other

*Expenditures
require
more
state \$
than
federal taxes
in on
jobs*

Mr. Mark Wittow
Page 2
October 18, 1979

Political developments in:

Governmental jurisdictions
Regional voting patterns and political strength
Land use planning and regulation
Taxation

Environmental impacts and cultural change

The cultural past

 Attitudinal developments:

Value framework
The cultural mix: way of life/lifestyle

While the focus of this report will be on the long-term, appropriate attention will be paid to developments and trends in all phases of the proposed project: pre-construction, construction, post-construction. The underlying emphasis of the study will be on the effort to portray the interacting interrelationships between developments in the above noted areas which come together to form the cultural whole.

Time and funding permitting, an attempt will be made to find and research experiences with similar hydropower projects in other northern regions of the United States, Canada and Scandinavia.

It is anticipated that the costs of this study will amount to \$8,500, with the report to be submitted by March 1, 1980.

Sincerely,


Charles Konigsberg
Research Associate

CK/bsm

Another energy related issue concerns a study of alternative energy sources for the Anchorage and railbelt area. A multi-billion dollar dam is planned for the Susitna area. Environmentalists oppose the project, and the legislature has appropriated some money to study alternative sources of energy. Our area of concentration will be conservation, solar, and perhaps natural gas. Much has already been written on the efficiency of conservation in providing needed energy, and the off-the-shelf feasibility of solar technologies. We will not be attempting to recreate this research, but rather to apply existing research to the specific facts of the Anchorage and railbelt areas. On one level we will determine which technologies work best in Alaska, given our different geographic and climatic situation. On another level, we will address the management system which is necessary to deliver conservation or solar power to significant numbers of the population.

This management system will include a complete review of statutory, regulatory, financial, and tax considerations, in addition to more traditional management considerations. The dilemma with conservation and solar energy programs is its decentralized nature. While this is an attractive feature to many (myself included), it requires a different approach than a conventional energy alternative. Instead of dealing with a few utilities or large corporations, solar and conservation programs depend upon the actions of hundreds of thousands of individual consumers, many of whom lack technical or financial knowledge which is necessary to make informed decisions.

Thus, market considerations are not as important for the so-called "soft" technologies, as for the hard. Community education, training, and marketing are necessary to achieve widespread acceptance of solar or conservation technologies that are already available at a competitive price. Moreover, consumers may lack the financial ability to finance solar or conservation investments, while utilities are better able to raise equity and debt capital. Other problems need to be addressed also. Pricing strategies by electric or gas utilities can either encourage or discourage conservation or solar efforts. Zoning policies can provide assurances to solar investors that sunlight will be available, and building codes can require higher insulation standards.

These ideas are not particularly new, of course. Our job is to adopt these concepts to Alaska, in the most specific, practical, and compelling way. We want to identify political problems in adopting certain policies, and to discuss the constituencies that would support a good energy program. The impact on employment will be quantified and compared to that of the dam project. Our goal is to avoid dealing in the abstract, and to design a program that is ready to implement.



**The Montana Energy and MHD Research
and Development Institute, Inc.**

Post Office Box 3809
Butte, Montana 59701
(406) 494-6100
FTS 587-6100

September 21, 1979

Mr. Mark Wittow
ALASKA LEGISLATURE
727 N. Street
Anchorage, Alaska 99501

Dear Mr. Wittow:

It was indeed a pleasure talking with you relative to the energy demand study that you are about to commence. The impact of renewable energy utilization and market penetration and its impact on conventional energy delivery sources and systems is an area of great interest to Montana.

Enclosed are several items that relate to MERDI and the types of work that we undertake. It is possible that John Orth and I would be available to assist you in your studies even though our schedules are quite full. However, John & I always seem to be able to schedule a bit more work here or there.

I appreciate your interest and if you are in this area please plan to drop by and visit the Institute.

Sincerely,

Jerry D. Plunkett
Managing Director

JDP:pf

- Enclosures (1) CFI Information
(2) MERDI Brochure
(3) Montana Renewable Energy Program (Proposed)
(4) Montana Energy Conservation Plan (under separate cover to follow)

Tentative Outline -- Power Alternatives Study, Conservation and Renewable Energy
Sources Section

I. Develop a detailed plan of study.

Responsibility--Center for Policy Studies, in conjunction with the Federation,
Seifert and other consultants.

Completion--first draft by November 9, 1979, revision by November 15; final plan
should become scope of work for the final contract, due by November
30.

II. General Tasks

- A. End Use Structure. Establish the general end uses of energy by category for
the power planning regions of the Railbelt: Anchorage-Cook Inlet (inc. Mat-Su)
Fairbanks-Tanana Valley

~~Glenallen Valdez (?)~~

Responsibility--Federation, with assistance from ISER, Seifert.
Completion--February 1, 1980.

*evaluate
need for
log for
economic
technical
feasibility*

- B. Potential for Energy Conservation. Establish good numbers for possible levels
of conservation. What efficiencies will result from positive actions from
consumers, businesses, government, utilities? The numbers from this portion
of the study will be used in the second half of the ISER demand analysis to
determine future electric demand at various levels of conservation.

Responsibility--Federation and Center, with appropriate technical advice (engineering,
architectural and economic).
Completion--March 1, 1980 (firm)

- C. Potential for Renewable Energy Sources. What contribution can the various sources
make in the next 25 years? Again, numbers used here will be used in the ISER
forecast.

Possible sources include active and passive solar, ^{Seifert} [wind] [geothermal], [tidal] [small
hydro], fuel cells, hydrogen, biomass, wave, marine thermal and heat pumps.

Responsibility--Center overall, with Seifert, Council on Science and Technology,
various consultants as needed.

Completion--March 1, 1980 for estimates of potential contribution.

*evaluate economic
+ technical
feasibility*

- D. Policy Development and Implementation for Delivery of Conservation and Renewable
Energy Sources. This section would discuss how to accomplish Parts B & C in
practice. It would include work on legislation for the 1980 and 1981 sessions,
and would consider education efforts and market incentives as well as legal
standards or mandates. Ideas such as cogeneration, loan programs, labelling
of life-cycle energy costs would be discussed. The responsibilities of the
pertinent state agencies, such as the Alaska Power Authority and the Division of
Energy and Power Development would be reviewed, with an eye for needed changes.

A proposal for a Solar/Conservation Retrofit Assistance Program (SCRAP)?

Responsibility--Center, with assistance from Federation and consultants.

Completion--1980 legislative package by January 7, 1980, final report by April 1,
1980.

+ employment effects

The final product of each part should be a report, written for a knowledgeable but
general audience.

(10-12-79)

68,500

Principal Invest. cost

Phase I
~~economic~~
~~study~~

54,500

13 - Demand

(5 mty)

125

5000 SVD

5000 Trans.
10000 MEVCL

5000 Exp
5000 Unknt

15,000 ME

20,000 GE

60,000 ISK

10,000 - alternative

10,000 - Outside
5000
MEROI, DASH

15,000 - ALPICO

~~ALPICO~~

2500 - Fryer
2000 - Ray

5000 Seifert

10,000 - Fed

rough breakdown of figures

10-12-79

Loe, Myers, Fischer, Seifert, Baumgartner, Rogers, Wittow, Stronke

Fairbanks

① end use structure

(ISER - Federation)

project end use out into the future

② Potential for Energy Conservation (Fed - engineer - architect)
estimate

③ Potential from Renewable Sources (Seifert, ALPIRG, Fed)
solar, wind, small hydro, geothermal, tidal, fuel cells

Seifert

experts:
Energy Policy

④ Given potential, how is it delivered (ALPIRG, Fed)
what proposals will achieve this?

coal
natural gas

Given demands & supplies, what are the cheapest ways of satisfying demand?
Where can investments best be made?

Fri, Nov. 9th - meeting of all consultants in Anchorage

Brown -
(How to tie ~~the~~ this into a whole?)

[Fischer] (Center for Policy Studies) - Center has no staff, wants to provide medium for sponsoring progressive ideas, contracting to individuals to do the work. Center can function as coordinator for the effort

BL - want to encourage contact between activist groups in Fairbanks and Anchorage.

Only way to discourage Switzer is with hard proof.

Feasibility studies will take 3 years

Should implement policies, can have effect on decision in 1982+3.

Council on S + T - would like to do seminar with experts on various alternative forms of generation

[Fischer] - have initial phase of designing study - Nov 9/15)
Draft of Phase One by Nov. 9

Seifert - who's responsible?

Fischer - bring advisors in, discuss components as outlined by Committee on role + come up with coordinated research plan
+ me → general coordination with study

Individuals

Seifert - course & a renewable resource assessment for the state
done in general manner

regional variation - detail needed for good analysis

course study will have some quantifiable information

assumed flat $3\frac{1}{2}\%$ growth per year

matching end use requirements to need

→ Transportation primary sector of consumption

main interest in solar energy

passive space heating → need new construction rates for housing

would like to work through the Institute

Budgartner - Federation again in 78. "Home doctor" program
telling people where they can conserve.

Skaggs just attended Lovins conference on soft energy paths

will look at end use structure for Reibel. FNSB study provides
good basis for area-wide study.

Love (~~Center for Policy Studies~~) - previous work - utility, tariff cases, oil & gas
housing, finance, banking
policies

aim -
Designing pragmatic solutions to problems - social benefits viewpoint

Want to work with people who have knowledge on conservation, solar energy,

synthesizing report on possibilities for delivering existing systems to consumers

Want to take $\rightarrow$ s, review economics, management systems, legal, market
incentives

Seifert - ^{UA} program for renewable resource development, alternative energy
2nd priority

(BR - renewable resource institute) -
unresolved mandate by President

(BR - have leadership interested in creating Inst. at UA
large financial commitment)

Process - Council ^{SPT} + Pres of UA app for planning
Fl & Auch branches

could be done through existing Inst. - but need visible
work in renewable energy
+ UA Innovation Center)

Seifert - will need economist to work over data

Costs of study -

To do - coordinate with V/L

- ① list of tasks, ^{break down} coordination
- ② timetable - work products, deadlines
- ③ available experts, areas of concern

(draw up as many contracts as possible)

coordination
of
study section
+
section with
whole

Talk to BR

- JSER contract
- other contracts
- Conway?
- 12/16 meeting on assumptions
new date?
- my hiring -

Call Energy Probe
Jerry Plunkett, MERDI

→ Scott Goldsmith - cooperation with this study
when can we get data
on population, housing starts

Seifert
→ need economist to put solar work, etc. into proper
terms, comparisons

Fed → need engineer, ~~and~~ can probably find people at A&E.
Bob Seitz - electrical motor efficiency
need to know what Goldsmith/ISER is doing on this

need to get California distributive energy system study]

Have Nancy send stack of leaflets to Glenda
to Leg 610F Greening

→ Scott Goldsmith, ISER, should have extra \$ written
in for consulting with Center for Policy Studies.

Thurs. - ISER - ~~317~~ Call Glenda Monday
L Sam &

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.

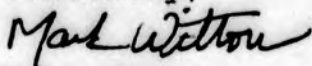
WE have asked you to come to Anchorage on November 9th to meet with the other participants in the Power Alternatives Study, and participate in the Alternative Energy Conference (brochure attached.) You will be able to arrange meetings with Institute personnel on Monday and Tuesday, at your convenience,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

billing -

{ man-hours - fixed
travel, etc. - variable



Energy Probe / Enquête Energie

Mr. Mark Wittow,
Research Co-ordinator,
Alaska State Legislature,
727 N Street,
Anchorage, Alaska,
99501.

21 September, 1979

Dear Mr. Wittow,

Further to our telephone discussion, I would like to outline our understanding of the research your agency would like performed, and provide information about our organization.

During our conversation, we identified three study areas that might contribute to Alaska state energy policy objectives and your particular study program:

(a) an analysis of the electricity demand forecasts being used by the Alaska Power Administration and the Institute for Social and Economic Research;

(b) an examination of the options that could be undertaken at the state and local level to achieve certain conservation objectives;

(c) the development of an energy end-use data base for the state that would provide information on the potential for conservation and alternative energy supply strategies.

After discussions with my staff, we agreed that option (c) - the end-use data base - could not be developed within the time frame of your agency's present activities. Because an end-use data base requires extensive research (usually at the primary level), we could not foresee our undertaking the task within the time available. I would urge, however, that your agency examine at some future point in time, the possibility of developing such a data base.

cont'd.....

Energy Probe
43 Queens Park Cres. E.
Toronto, Ontario M5S 2C3
(416) 978-7014

A project of the Pollution Probe Foundation
This paper contains recycled post-consumer waste.

Home #
633-5805

Mr. Mark Wittow

....2/

Energy Probe remains interested, however, in participating in the other two study areas. I have enclosed a brief description of how I see each study developing, though I have not at this point assessed the costs of the research. As a ball park figure, I would estimate the first to require approximately \$10,000. Costs for the second would vary directly with the scale of our involvement. On this point, I would require a fuller understanding of the project details and your objectives.

I have also enclosed the following, all contained within the blue folder:

(a) information about Energy Probe and its parent organization, The Pollution Probe Foundation;

(b) personnel profiles for those individuals who would be involved in the research.

The attached reports are samples of the research that Energy Probe has performed over the last few years.

If your agency is interested in having this research performed by Energy Probe, or if some related research is required, I would be happy to submit a detailed research proposal and budget for each of the studies. If you have any further questions, please feel free to call me at Energy Probe or at Ryerson Polytechnical Institute, (416) 595-5165. I look forward to hearing from you soon.

Sincerely,

Chris Conway

Chris Conway,
Policy Researcher
Enclosures

When can they come up?

load forecasts
for the 12th

DB

Glenda -
pay good attention,
because you're going to
end up handling a lot of
important details, such as
contracts, etc.

POST OFFICE BOX 158
HAINEs, ALASKA 99827



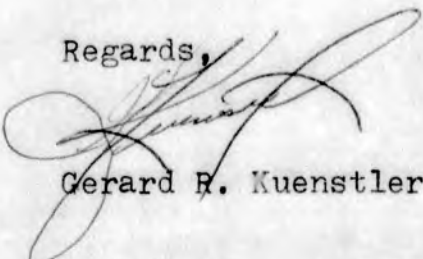
HILMA & CLARENCE MATTSON
TELEPHONE (907) 766-2641

"Gateway to the Interior"

Mark Wittow,

We discussed legislation for the appropriation of funds for research on synthetic energy. I'am sending resume to show involvement in solar hydrogen economy research. The research I have completed to date is not technical. The research was[^]determine whether or not there is an economic base for the production of synthetic fuel in southeastern Alaska. Other involvments include lecturing and published articles about same. I personally feel that any legislation or necessary steps taken now concerning future energy sources will ultimately benefit future Americans. I would and have made this an objective, I am not aware of the means for completely involving myself politically in this issue, if you can in any way direct me to a group of people who are involved in this type of endeavor, or if I can be of any assistance to you, I would be helpful and would devote myself to syathetic fuel program.

Regards,



Gerard R. Kuenstler

Gerard R. Kuenstler
P.O. Box 72862 Fairbanks, A.K.
99707

Energy Planner

Occupational Goal

To participate in an energy related program, which will provide workable solutions to help alleviate increasing energy costs.

Educational Background

1970..... Metropolitan State College, concurrent enrollment Opportunity School completed one year Philosophy requirement for liberal arts degree, one semester fundamental electronics.

1971..... University of Mexico @ Mexico city, attended two week seminar in Epistemology and Epiphenomenalism.

1972..... Community College (Colorado) Completed one year Civil Engineering (Surveying) requirements, used Colorado School of Mines engineering and research facilities.

1973..... University of Northern Colorado, completed one years research work in Direct Energy Conversion, one year senior level electronics (electives).

1974..... Colorado State University, enrollment in Engineering Science program.

EXPERIENCE

1958..... Photovoltaic exhibition for community science fair. Lectured on density driven (thermosiphon circulation). Exhibited transistorized radio that operated on an array of photo-voltaic cells.

1972..... Attended energy conferences @ C.S.M., D.U, C.S.U. Worked on committee for Solar rights in Colorado. Helped perpetuate Solar oriented programs throughout Colorado. Lectured on residential applications of Solar at Real Estate Seminar.

1973..... Designed, constructed, monitored several prototype Solar Collectors while attending U.N.C. Designed and monitored a prototype system that functioned on the concept of forced convection. The system operated at an overall higher efficiency as a result of integrating forced air and fluid circulation. The system minimized the problem of extreme temperature differential exhibited by some Solar systems commercially available at that time. This system is now operational and used for heating in Denver Colorado. Although no patents were applied for, this system was incorporated into several commercial and residential designs.

1974..... Guest lecturer University Northern Colorado. Discussed Sun Spot activity and economic prosperity.

1975..... Worked as research assistant @ Solar house one C.S.U. Our research efforts focused on development and monitoring of various heat exchangers to be used with Solar assisted agricultural equipment.

1976..... Organized a consulting firm, HELIO-TECH SYSTEMS DESIGN a non-profit organization. Completed a Solar feasibility study in Dec. of 76 for two locations in Alaska. Evacuated tubular collector was used for space heating program, thermal efficiency values exhibited by conventional hot water collector were used for D.H.W. study. Responsibilities included design recommendations, (residential and commercial) study of building and zoning codes, as well as coordinating comprehensive energy planning.

1977..... Worked as an instructor for Tanana Valley Community College @ Fairbanks. The program offered consisted of Solar engineering-design applications in urban and rural Alaska.

1978..... Photovoltaics and Lunar mining. Discussion of Boeings proposed photovoltaic project, environmental considerations, ultimate project costs to the tax payer, brief public lecture on the economics of Lunar mining.

1978..... Discussed the International Space Program with emphasis on the Solar Hydrogen Economy, applications in space transport, space shuttle, residential cooking and heating, air conditioning, automobiles.

PERSONAL INTERESTS

1977..... Research efforts, in the interest of perpetuating space technology, research efforts were concentrated on establishing an economic base for the electrolytical production of hydrogen at one of two prime locations in southeastern Alaska. The study is the result of the hearings of The Committee On Science And Technology, U.S. House Of Representatives, 1976.

Age-32

Marital status- Single

Hobbies- Back packing in wilderness areas, astrophysical theory.

Military- FEB 20, 1964----DEC 13, 1967---- AIRMAN U.S. NAVY

2 years-H.T. 8 USNAS Helicopter Squadron Pensacola, Florida

1.8 years- Administration, USNAS Guantanamo Bay, Cuba.

Honorable Discharge



Box 158 - Port Chilkoot
Haines, Alaska 99827

Gerard Kuenstler
P.O. Box 72862
Fairbanks, Alaska

Mark Wittow
727 N
Suite No. 2
Anchorage, Alaska
• 99501





POUCH V
JUNEAU, ALASKA 99811
OFFICIAL BUSINESS

Alaska State Legislature
POWER ALTERNATIVES STUDY COMMITTEE

REPLY TO:

Rep. Brian Rogers
Box K -- College
Fairbanks, Alaska 99708
907-479-7692

October 29, 1979

Jerry Plunkett
Montana Energy Research and Development Institute
PO Box 3808
Butte, Montana 59701

Dear Dr. Plunkett:

Thank you for taking the time to explain the guiding philosophy and operations of MERDI. I very much enjoyed every minute of my time in Butte. I was extremely impressed with the range and quality of the issues that the Institute and its offshoots are tackling. Alaskans have much to learn from your efforts in Montana. I hope I can help establish a relationship between those engaged in energy-related work in our two states.

I will be describing the work of the Institute in detail to Representative Brian Rogers. He and fellow DEMocrats in the State House are interested in establishing some sort of Alaskan institute to work on energy issues. I will pass along the substance of your thoughts on this, and encourage interested legislators to use MERDI expertise to help shape our ideas and plans. As we discussed, something like your Center for Innovation would be particularly valuable as a bridge between our northern technology grants program and the Alaska Renewable Resources Corporation.

The plans that MERDI has completed for renewable energy development and energy conservation in Montana are the best state-wide plans I have seen. Again, here we have much to learn from your work. I would expect that we will want to seek your advice as our own studies progress. Your participation in the November 9th meeting in Anchorage will be ~~the~~ ~~xxxxxx~~ of great help in designing our study.

Representative Rogers is looking forward to talking with you. He will be ~~xxxxxx~~ trying to arrange meetings with you and Rep. Russ Meekins, House Finance chairman; Rep. Hugh Malone, co-chairman of the committee; and Phil Hubbard, a trustee of the Alaska Renewable Resources Corporation. Rep. Rogers would like you to try to contact him at the above number so that he can work out the details of your visit. You may also consult my previous letter for further details of your trip to Anchorage.

Again, thank you for your hospitality. Please thank John Orth, Ed O'Hair, Frank Fogarty, Terry Kirkland and all the other MERDI staff I talked with during my all-too-short stay. I hope to see all of you again, for there is much to learn. Take care.

Sincerely,

Mark Wittow
Mark Wittow, Study Coordinator

my address until 1/80: 5443 Sampson Dr.
Girard, OH 44420
216-757-0433



POUCH V
JUNEAU, ALASKA 99811
OFFICIAL BUSINESS

Alaska State Legislature
POWER ALTERNATIVES STUDY COMMITTEE

reply to:

Rep. Brian Rogers
Box K -- College
Fairbanks, Alaska 99708
907-479-7692

October 29, 1979

John McRide & Sherry Eisenbart
National Center for Appropriate Technology
PO Box 21 3838
Butte, Montana 59701

Dear John and Sherry:

Thank you for taking the time to talk with me about the Center and your work. I hope to make people in Alaska more aware of the services that the Center can provide. The amount of information and personal contacts that NCAT has developed should be of great help to anyone in Alaska working on solar technologies, weatherization and conservation, or agriculture.

I apologize for the limits of my quick visit. Please thank Toby Benson, Suzanne Merriam, Bill Wadsworth and Larry Palmiter for the time they spent with me.

Hope to see you again -- keep up the good work.

Sincerely,

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

Mark Wittow
Study Coordinator

HOUSE POWER ALTERNATIVES
STUDY COMMITTEE
610F GRUENING BUILDING
UNIVERSITY OF ALASKA
FAIRBANKS, ALASKA 99701

November 26, 1979

Chris Conway
Energy Probe
43 Queens Park Cres. E.
Toronto, Ontario M5S 2C3

Dear Chris:

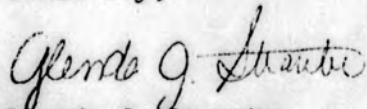
Don't let your heart fail you on this, but enclosed is the contract between Energy Probe and the Committee. Please sign and date it and forward it to Juneau in the enclosed envelope.

You should have received my latest memo by now which explains all the deadlines involved in the study. Another interesting proposal has come from Arlon Tussing and if we decide to fund it, then I'll send you a copy. The proposal involves a report on the electric utility industry currently serving the Railbelt area; the state and federal governmental agencies that promote, plan, and regulate the generation and distribution of electricity here; the history and status of the proposed Susitna project and other related topics.

We quite possibly will be contracting with you separately, at a later date, for the cost-effectiveness study that we had discussed during your stay here.

Give my regards to Bob. I hope to see you all on your other visits to Alaska. And remember, stay away from Chicago.

Sincerely,



Glenda J. Straube
Administrative Aide

HOUSE POWER ALTERNATIVES
STUDY COMMITTEE
610 F Gruening Building
University of Alaska
Fairbanks, Alaska 99701

November 2, 1979

Mr. Bradford Tuck
1822 Cindylee Lane
Anchorage, Alaska 99507

Dear Mr. Tuck:

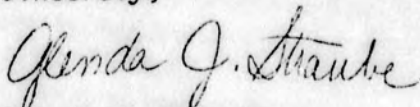
Enclosed is the contract between yourself and the House Power Alternatives Study Committee. If you are agreeable to the terms, please sign and forward to Myrton Charney as soon as possible.

The Committee will be holding a work plan meeting in Anchorage on Friday, November 9 at the meeting room in the University Student Center at UAA. It will begin promptly at 8:30 A.M. and should not go beyond noon. I hope that you'll be able to attend.

Rep. Rogers would like to bring together as many of the consultants as possible for this meeting so that we might work out a detailed plan of study. Chris Conway and Bob Crow from Energy Probe will be there. They too are involved in the demand critique.

If you are unable to attend, please call me at 479-7692.

Sincerely,



Glenda J. Straube
Administrative Aide

HOUSE POWER ALTERNATIVES
STUDY COMMITTEE
610F Gruening Building
University of Alaska
Fairbanks, Alaska 99701

November 5, 1979

Mark Wittow
5493 Sampson Drive
Girard, Ohio 44200

Dear Mark,

Brian received your 5 page memo concerning MERDI. However, page 2 was missing. Could you please send it to us soon. I haven't seen the memo yet, but Brian said that it's extremely interesting.

The committee meeting on the 9th is set up and the following people will be there, Seifert, Baumgartner, Goldsmith, Jamie and Eric, Vic, Marc Fryer, Chris Conway and Bob Crow, Tussing, Tuck, Van der Ryn, Plunkett, Brian and myself. Apparently noone had called Sim back, so it was nip&tuck as to getting him here. Everything is OK now, though. He's going to speak at the Conference on energy conservation emphasizing the potential of state and local government involvement to encourage conservation. He'll speak about the Farrallones Rural Center and hopefully show some slides. He's agreed to do a 2 hour workshop Saturday morning on waste disposal issues.

We miss you!!!!!! There are many things in life that I feel confident with, but this is not one of them. ha. Technically, I know very little about alternative energy and conservation but I am interested in it. Oh--- never fear, though ----I am keeping on top of the organizational end of the study.

Here's the rundown on the status of the contracts: Tuck (BR signed and forwarded to Brad), TUSSING (AT & BR signed, sent to LAA), VAN DER RYN (BR signed, sent to Sim), ISER (Signed and sent to LAA), CENTER (signed and sent to LAA), ENERGY PROBE (being drafted with final draft being completed upon meeting with Conway in Anchorage), PLUNKETT (have seen no paper work concerning contract for his consultation services and cannot reach him -- he's in D.C. Can deal with that when we meet in Anchorage).

Mark, if there's anything else you might want to keep informed about, don't hesitate to let me know. I'll send you a memo after next weekend's meeting and Conference.

Glenda Straube

I sent Malone a letter concerning 11/9 meeting.

HOUSE POWER ALTERNATIVES
STUDY COMMITTEE
610F Gruening Building
University of Alaska
Fairbanks, Alaska 99701

November 2, 1979

Mr. Sim van der Ryn
Van der Ryn and Calthorpe
Drawer F
Inverness, California 94936

Dear Mr. Van der Ryn:

I spoke with Ms. Laurie Thompson from your office today concerning the possibility of your professional consulting services for the Alaska State Legislature's House Power Alternatives Study Committee. We feel that information and suggestions provided by you concerning energy conservation would be quite beneficial to our studies.

The Committee will hold a meeting on Friday, November 9 at 8:30 A.M. in the meeting room of the University Student Center at the University of Alaska/Anchorage campus. This Center is reached by going through the gymnasium complex, the Sports Center. On Saturday, November 10 at 9 A.M. we would like you to make a 20-25 minute presentation at the 1st Alaska Alternative Energy Conference. This will be held at the Cuddy Center at the University campus.

If possible, we would like this presentation to include energy conservation with particular emphasis on the potential of state and local government involvement to encourage conservation. You might use examples of the kinds of local conservation applications for rural self-sufficient projects such as the Farrallones Rural Center. Any slides you may want to show would be helpful also.

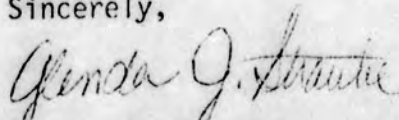
You might address waste disposal issues followed by a 10:30-12:30 pm workshop on Saturday on these issues.

Enclosed is a contract covering two days' work and travel expenses. If you find this agreeable, please sign it and forward in the enclosed envelope.

I apologize for the late notice. Mark Wittow, the Study Coordinator, recently left town and we have been extremely busy and at times have been slow in reaching everyone. I certainly hope that we will have the benefit of your knowledge and can find ways to adapt certain ideas to a sometimes unique Alaskan environment.

If you have any questions, please call me at (907) 479-7692.

Sincerely,



Glenda J. Straube
Administrative Aide

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

November 5, 1979

Rep. Hugh Malone
House Power Alternatives
Study Committee
727 N. State, Suite 2
Anchorage, Alaska 99501

Dear Rep. Malone:

Brian Rogers has asked that I write you concerning the recent memo Mark Wittow sent regarding the Montana Energy Research and Development Institute. Brian is missing page 2 of the 5 page memo and he was wondering if Mark included page 2 in your copy. If so, could you please forward a copy to him soon?

The Power Alternatives Committee will be holding a work session with a large number of the consultants on Friday, November 9 in the meeting room at the University Student Center in the UAA/ACC building. This meeting will begin at 8:30 A.M. and should be over by noon at the latest.

I realize that you are working and might be unable to attend. However, if you can make it, I think you'll find it quite interesting as Jerry Plunkett from MERDI, Chris Conway of Energy Probe-Canada, Sim van der Ryn from the Farrallones Institute, and the Alaskans who are working on the study will be attending.

Sincerely,

Glenda J. Straube

Glenda J. Straube
Aide

Original sponsor: Rules/Governor

Offered: 4/30/79

Referred: Rules

Funding Information

General Fund \$8,528,000

Other Funds -0-

\$8,528,000

1 IN THE SENATE

BY THE FINANCE COMMITTEE

2 HOUSE CS FOR SENATE BILL NO. 63 (Finance) am H

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 ELEVENTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act making appropriations to the Office of the
7 Governor, to the Alaska Power Authority for feasibility
8 studies for the Susitna hydroelectric project, and to
9 the Legislative Affairs Agency; and providing for an
10 effective date."

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

12 * Section 1. (a) The sum of \$8,178,000 is appropriated from the general
13 fund to the Office of the Governor for the purpose of paying costs of a
14 portion of the Phase I feasibility studies of the Susitna hydroelectric
15 project. The governor may not spend or obligate the sum appropriated in this
16 section unless either

17 (1) federal legislation is enacted providing in substance for an agree-
18 ment to repay the sum appropriated

19 (A) if the report issued as a result of the studies demon-
20 strates that the Susitna hydroelectric project is not feasible; or

21 (B) if the report demonstrates the project is feasible and
22 the Alaska Power Authority is not able to borrow money to pay construc-
23 tion costs of the project, including the costs of the report, based on
24 the security of the project or its revenue within three years of the
25 completion of the report; or

26 (2) a plan is developed that the Alaska Power Authority considers
27 a reasonable alternative program for accomplishing the work required to
28 produce a complete application to the Federal Energy Regulatory Commission
29 for a license to construct the project.