SCOMM

#44:31

GOLDEN VALLEY ELECTRIC ASSOCIATION INC. Box 1249, Fairbanks, Alaska 99707, Phone 907-452-1151

March 6, 1979

Representative
Alaska State House
Pouch V
Juneau, Alaska 99811

Dear

Following are a few comments and observations relative to capture of Alyeska Waste Heat:

At the present time only Pump Stations 7 through 12, due to their favorable geographical locations, offer practical opportunities to utilize waste heat for generation purposes. GVEA would be interested in developing 7 through 10. Copper Valley Electric Association may be interested in 11 and 12.

Pump Station 7 is a phase-3 station not completed at the present time. Others are running either one or two pumps depending on desired thru put.

Based on the exhaust temperature and volume data available to us, each Alyeska turbine driven pump is capable of producing about 5,000 kW following capture and processing in a waste heat recovery steam generator. These potential increments of generation additions are extremely attractive to GVEA.

As mentioned previously, Pump 7 has not been completed and therefore may be an easier nut to crack. However, we have no idea as to when Alyeska plans to commission that station.

The actual capture of exhaust from existing stations can be accomplished with no interruption to the Alyeska system. This is due to the built in redundancy of existing pumps and drive turbines. We would intend to finance the entire installation and purchase exhaust BTUs from Alyeska.

Thank

Relative to proposed legislation that would perhaps "force" Alyeska to accommodate capture of their waste heat, I would suggest the following:

That the State by law prohibit the exhausting of waste heat from any source when it is determined that said exhaust would definitely be utilized for electrical generation and/or agricultural purposes.

Other stipulations suggested are as follows:

1. Such prohibition would apply only to those sources exhausting volumes exceeding 250,000 lbs. per hour at a temperature of 450°F or more and operating in excess of 3,500 hours per year.

2. The exhaust heat recovery system must be designed, installed and operated in such a manner as to avoid loss of efficiency of the exhausting units and insure non-degradation of service continuity.

3. A public notice indicating waste heat availability must be published annually. Said notice will include geographical location, nominal volume and temperatures available, and anticipated annual hours of operation. Notice must also include a statement of willingness to negotiate a contract to accommodate capture and purchase of exhaust heat. Those parties interested in waste heat must notify owners within 30 days from date of published notice. In the event notice is not received in a timely manner, owner has no further obligation under this act until the next annual notice is published the following year.

4. Failure to issue public notice and comply with contract negotiation requirements will result in a fine equal to the total estimated energy wasted on an annual basis multiplied by .05¢ per million BTU increments.

there may be some problems regarding certain stipulations contained in the Right-of-Way Leasing Act. Alyeska contends that any physical connection with their facilities must be owned and operated by Alyeska. This is so even though paid for by others.

I hope to see you in Juneau next week. At that time we can discuss this subject in further detail.

Best wishes,

Bob Hufman

R. L. Hufman
General Manager

cc: M. Kelly
W. Baker

STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION

JAY S. HAMMOND, GOVERNOR

POUCH O — JUNEAU 99811

December 11, 1978

RECEIVED
DEC 13 1978
GOLDEN VALLEY
ELECTRIC ASSN., INC.

Mr. Bob Hufman
General Manager
Golden Valley Electric Assoc., Inc.
Box 1249
Fairbanks, AK 99707

Dear Mr. Hufman:

After reviewing your question on whether a permit to operate would be necessary if heat recovery devices were put on an already existing combustion facility, the Department has concluded that no additional permitting would be necessary. This would be the case in any situation where the additional equipment to be added to an existing facility did not change the amount of combustion products emitted.

Your question specifically concerned the possibility of adding heat recovery equipment on the exhaust stacks of some of the Trans-Alaska Pipeline pump stations. Our understanding is that this equipment addition would only change the temperature of the exhaust gases and would have no effect whatsoever on the air contaminant emissions. Consequently no change would be needed on the Alyeska permits.

The only thing we would need from you would be a description of the equipment and how it will be used, as well as notification of when it starts up, its schedule of operation, and the anticipated exhaust gas temperature. This information is needed for our statewide air quality emission inventory.

Please let me know if you have need of any further verification of the air quality permit requirements as they effect your power generation plans.

Sincerely yours,

Thomas R Hanna

Thomas R. Hanna
Supervisor
Air Quality Control

please return this letter to me, along with the original letter on waste heat be sent

3-22-79

GOLDEN VALLEY ELECTRIC ASSOCIATION INC. Box 1249, Fairbanks, Alaska 99707, Phone 907-452-1151

March 16, 1979

Mr. Dave Hutchens
ARECA
Baranof Hotel - Room 501
Juneau, AK 99811

Dear Dave:

Following are comments on H.B. 364 re Energy Policy:

Sec 2, 3, 4	Low grade heat and small volumes should be exempted entirely. I doubt the capabilities of the Commissioner of Commerce to determine feasibility in any event.
Sec 5, 6	No comment.
Sec 8	The Department of Commerce should stay out of electrical power development plans. We do not need another agency to become involved. FERC, APA State and APA Federal, REA Power Requirements, etc., are more than sufficient. Same thought applies relative to social and environmental impacts.
Sec 9	Add to the Alaska Power Authority budget, do not create another agency.
Sec 10	OK
Sec 11	OK
Title 46.	I believe that the suggestions contained in my letter to Brian Rogers are much more practical and workable than that suggested in this bill. A copy of said letter is enclosed.
Sec 46.11.020	OK
Sec 46.11.025	OK

Sec 46.11.030 We strenously object to another layer of regulation covering issues already under jurisdiction of numerous agencies. Even though mention is made as to avoidance of duplication, it is a lead pipe cinch that further delay would result from double standards and we would be caught in the middle as the respective agencies fought for jurisdiction to justify their existence.

Best regards,

Bob Hufman

R. L. Hufman
General Manager

Enclosure
cc: Rep Bill Miles (w/Encl)
Rep Brian Rogers

Bill aims at use of waste heat

JUNEAU (AP)—Pump and compressor stations for new oil or natural gas pipelines in Alaska would have to be designed to use waste heat for farm production or to generate electricity, under a measure approved by the Senate.

Gas or oil pipelines for in-state processing would be exempt from the law, unless contracts for the purchase of wste heat are negotiated before the lines' construction.

The measure, SB68, as originally introduced by Sen. Jay Kerttula, D-Palmer, would have applied to use of waste heat for agricultural purposes only.

A substitute offered by the Rules Committee and sent to the House on a unanimous vote today adds the provision that waste heat be used to generate power.

The cost of design and construction of the stations so waste heat can be used could be passed along to the purchasers of the heat, under the subsitute measure.

Such design would not have to be incorporated if it is not technologically or economically feasible.

GOLDEN VALLEY ELECTRIC ASSOCIATION INC. Box 1249, Fairbanks, Alaska 99707, Phone 907-452-1151

April 9, 1979

Representative Brian Rogers
Alaska State House
Pouch V
Juneau, AK 99811

Dear Brian:

It appears evident that Northwest Alcan desperately needs State financial assistance if the Gas Pipeline is to fly. I for one would encourage the State to assume an equity position and to further assist with a tax exempt revenue bond issue.

However, in doing so, the State should have no hesitancy in requesting further commitments from Northwest. (Enclosed is a list of acknowledged commitments.)

Here are a few suggestions and comments:

Three of their proposed compressor stations fall within or are in close proximity to our existing service area. The waste exhaust heat from these three stations is of interest to GVEA. From information available we believe from 5,000 to 7,000 KW could be generated from turbine exhaust at each site. To accomplish this efficiently with wast heat recovery boilers we need relatively high temperatures re 700°F and above. Gas turbine driven compressors are ideal for such a system and usually produce temperatures between 850°F and 950°F at base load. I am quite sure that Northwest will use these for compressor drives.

Financing Authority

Following capture of the hi temp heat, we would discharge exhaust from our Recovery Steam Generator at about 250°F to 350°F. The volumes of exhaust would remain the same and lower temperatures would still be sufficient for most all agricultural purposes.

What I am saying is that the best and most efficient first use of the exhaust heat is the generation of electricity from these stations. Therefore, the State should request Northwest to expand its "Commitments to Alaska" through a written agreement to make waste heat available for the generation of electricity from at least the three compressor stations closest to the Fairbanks/Big Delta areas.

Of further interest to us is the refrigeration process planned to cool the gas at each compressor station. At the present time I understand Northwest intends to install propane or natural gas fired units. We assume that the gas pipeline will have built in redundancy similar to Alyeska. In that case probably two refrigeration plants will be installed at each site to provide 100% contingency in the event of a plant failure. We would propose to install one electric operated refrigeration plant and one gas fired plant. The electric plant to be scheduled for operation during the six summer months and gas fired for winter. This of course would greatly improve our annual load factor and thereby reduce the average annual cost per KWH. Summertime load is hard to come by in Alaska while winter peaks are horrendous and costly. The additional summertime load could easily be handled by existing units that are sized to cover wintertime peaks; greatly improving operating efficiency.

As you will see from the two letters enclosed, we suggested this approach to Northwest over one year ago. No formal response was received to either my letter or the one written by Bob LeResche. We are in hopes that further commitments will be made to accommodate the refrigeration scheme or at least grant it serious consideration.

I will appreciate your consideration and assistance in this important matter. It is environmentally sound and utilizes a waste product that would otherwise be exhausted to atmosphere and lost forever.

Thanks and best wishes.

Bob Hufman

R. L. Hufman
General Manager

Enclosures
cc: D. Hutchens, ARECA

Copied from Brochure published by Northwest Alaskan Pipeline Company entitled "The Alaska Highway Gas Pipeline - how Alaska can participate."

Our Commitments to Alaska

In return for Alaska's support we have made a number of commitments which will further enhance employment and economic opportunities in the state. Among them:

Local Hire: We intend to work with the state to implement Alaska's local hire policy to ensure that all qualified Alaskans have an opportunity to be hired for pipeline construction jobs and that local community residents will be given first preference for permanent pipeline operation and maintenance jobs.

Business Opportunities: Alaskan businesses and organizations will be given the opportunity to compete for contracts for goods and services required by the pipeline.

Petrochemical Development: We will actively support the state's efforts to develop an economically viable in-state industry based upon Prudhoe Bay natural gas and associated liquids.

Other In-State Uses: Subject to federal approval, we will pay for the installation of pipeline taps to provide access to Alaska's gas for use as desired by the state and local communities. We've even agreed to make the waste heat from one of our compressor stations near Delta available for drying grain.

Through commitments like these, we pledge to build the best possible pipeline for Alaska — one that will provide the greatest long-term benefits, while keeping to a minimum any adverse impact on communities and the environment along the pipeline route.

GOLDEN VALLEY ELECTRIC ASSOCIATION INC. Box 1249, Fairbanks, Alaska 99707, Phone 907-452-1151

April 4, 1978

Mr. Morris Thompson, Vice President
Alaska HIghway Pipeline Project
310 "K" Street, Suite 504
Anchorage, AK 99501

Dear Morrie:

GVEA is interested in exploring opportunities to provide electric service for your project compressor/refrigeration stations that may ultimately be located within our certified service area.

Your refrigeration requirements are of particular interest. We understand that present plans call for chilling by a propane refrigeration plant. However, in the event you plan on 100% redundancy in these installations, perhaps one propane refrigeration plant and one electric refrigeration plant could be attractive and at the same time provide 100% back up in the event either unit failed for any reason.

At any rate in this event we would propose that the propane plant run as the prime refrigeration unit for the six winter months, i.e., October thru March, and the electric unit assume prime running responsibility for the remaining six summer months.

Such an arrangement would be extremely beneficial to us. Therefore I feel certain we could offer an attractive special rate covering this specific application.

Please be advised that we are not proposing electric drives for your compressor requirements. This conceptual proposal deals only with refrig ration as set forth herein.

I would appreciate an pportunity to meet with you and your project design personnel at your earliest convenience.

Very truly yours,

R. L. Hufman
General Manager

cc: J. Killion
W. Baker
M. Kelly

May 22, 1978

Mr. R. R. "Andy" Myer
President
Northwest Alaska Pipeline
P. O. Box 1527
Salt Lake City, Utah 84110

Dear Andy:

The Governor and I have recently been approached by Golden Valley Electric Association, who would very much like to explore with your firm the possibility of providing some power for gasline operation from their generating facilities. They hope that this might make it possible to expand their winter margin more so than would otherwise be the case.

We would appreciate it very much if you could arrange to have your technical people discuss this with Mr. Hufman of GVEA at your earliest convenience. It might well be possible to work out an arrangement beneficial to both parties.

Best personal regards,

Robert E. LeResche
Commissioner

cc: Jay S. Hammond
R. L. Hufman

bcc: Larry Holmstrom
Jessie Dodson

REL:cb

Offered: 4/2/79

Original sponsor: Kerttula

IN THE SENATE BY THE RULES COMMITTEE

CS FOR SENATE BILL NO. 68

IN THE LEGISLATURE OF THE STATE OF ALASKA

ELEVENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act relating to the use of waste heat produced by certain pipeline facilities; and providing for an effective date."

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

* Section 1. AS 38.35 is amended by adding a new section to read:

Sec. 38.35.226. DESIGN AND CONSTRUCTION OF PUMP AND COMPRESSOR STATIONS. (a) To the extent technologically possible and economically feasible, pump or compressor stations designed and constructed after January 1, 1980 for an oil or natural gas pipeline on state land leased under this chapter shall be designed and constructed so that waste heat produced by the pump or compressor station may be used for agricultural production and for the generation of electricity.

(b) The lessee may charge to users of the waste heat the additional cost of designing and constructing a pump or compressor stations for use of waste heat as required by (a) of this section.

(c) The amount of money to be paid for waste heat generated by pump or compressor stations shall be determined under terms of a contract negotiated between the lessee and the users of the waste heat.

(d) Waste heat facilities are not required under this section unless they are compatible with pipeline facilities and do not interfere with the operation of the pipeline or create safety or environmental hazards.

(e) This section does not apply to a pipeline used to gather gas or oil for processing, treatment or liquefaction by a facility located

in the state, unless an agreement for the purchase of the waste heat for agricultural production or for the generation of electricity is executed before the lessee designs or constructs the pump or compressor station.

* Sec. 2. This Act takes effect January 1, 1980.

Introduced: 1/23/79
Referred: Resources

IN THE SENATE BY KERTTULA

SENATE BILL NO. 68

IN THE LEGISLATURE OF THE STATE OF ALASKA

ELEVENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act relating to the use of waste heat produced by certain pipeline facilities; and providing for an effective date."

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

* Section 1. AS 38.35.120(a) is amended by adding a new paragraph to read:

(15) to the extent technologically possible, pump or compressor stations constructed after January 1, 1980 shall be designed, located, and constructed so that waste heat generated by those facilities may be used for agricultural production.

* Sec. 2. This Act takes effect January 1, 1980.

FISCAL NOTE

I. REQUEST (HJR 68 and HJR 72)

SJ [redacted] Resolution No. 46 Title: Relating to the Alaska Power Authority and the incurring [redacted] of revenue bond indebtedness of the Alaska Power Authority for the Golden Valley [redacted] Electric Association waste heat power generation project near Fairbanks. Date 2/18/80

Requested by State Affairs Committee in the Senate (HJR 68 and HJR 72 are the same bill requested by 6 House Members)

II. FISCAL DETAIL

Agency Affected Department of Commerce and Economic Development

Program Category Affected Economic Development

BRU, Program, or Subprogram(s) Affected Alaska Power Authority

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

EXPENDITURES (Thousands of Dollars)

	FY 80	FY 81	FY 82	FY 83	FY 84	FY 85
100 PERSONAL SERVICES		---				
200 TRAVEL						
300 CONTRACTUAL						
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL		---				

FUNDING (Thousands of Dollars)

GENERAL FUND		---				
FEDERAL FUNDS		---				
OTHER (Specify Fund Source)		---				

POSITIONS

FULL TIME		---				
PART TIME						
TEMPORARY		---				

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

The Alaska Power Authority intends to finance the project by issuing revenue bonds guaranteed by the National Rural Electric Utilities Cooperative Finance Corporation. No state assistance will be required to finance the Project due to the strong economic merits of the project.

BRU; Program; or Subprogram(s) Affected Alaska Power Authority

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

EXPENDITURES (Thousands of Dollars)

	FY 80	FY 81	FY 82	FY 83	FY 84	FY 85
100 PERSONAL SERVICES		---				
200 TRAVEL						
300 CONTRACTUAL						
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL		---				

FUNDING (Thousands of Dollars)

GENERAL FUND		---				
FEDERAL FUNDS		---				
OTHER (Specify Fund Source)		---				

POSITIONS

FULL TIME		---				
PART TIME						
TEMPORARY		---				

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

The Alaska Power Authority intends to finance the project by issuing revenue bonds guaranteed by the National Rural Electric Utilities Cooperative Finance Corporation. No state assistance will be required to finance the Project due to the strong economic merits of the project.

IV. DATE 2/21/80 PREPARED BY Terry J. McGuire

AGENCY Alaska Power Authority

PHONE 276-2715

Original: Legislative Finance

cc: Budget and Management

Prime Sponsor (First Legislator Named)

33-001 (Rev. 12/79)

Section 1. The Alaska Power Authority has previously submitted to the governor and the legislature a statement of its recommendations for financing certain power projects and a statement outlining the general design, demonstration of financial feasibility and maximum amount of revenue bonds and appropriations necessary for the projects, together with a statement as to the design, acquisition, construction and financing of the projects by the authority or another person, which statements satisfy the conditions of AS44.56.180. The legislature has adopted joint resolutions approving the general design and maximum amount of bonds to be issued for several of the projects and those actions are hereby confirmed. Similar joint resolutions affecting the other projects have been introduced in the legislature but have not been finally passed.

APA

Introduced: 3/21/80
Referred: Resources and Finance

IN THE HOUSE BY THE RULES COMMITTEE

HOUSE BILL NO. 967

IN THE LEGISLATURE OF THE STATE OF ALASKA

ELEVENTH LEGISLATURE - SECOND SESSION

A BILL

For an Act entitled: "An Act relating to the Alaska Power Authority and approving the general design and maximum amount of bonds for power projects; and providing for an effective date."

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

* Section 1. ~~Actions taken by the legislature before the effective date of this Act to approve~~ The general design and maximum amount of bonds for the following power projects ~~are confirmed~~ is approved and the Alaska Power Authority is authorized to issue its bonds for the ~~following~~ power projects in the maximum principal amount set out after each:

(1) Solomon Gulch, $20,000,000;

(2) Terror Lake, $120,000,000;

(3) Golden Valley Electric Association waste heat, $110,000,000;

(4) Tyee Lake, $70,000,000;

(5) Swan Lake, $120,000,000;

(6) Glacier Highway Electric Association, $800,000;

(7) Cordova Electric Cooperative, $6,500,000;

(8) Matanuska Electric Association, $2,500,000;

(9) Homer Electric Association, $3,360,000; and

(10) Naknek Electric Association, $730,000.

* Sec. 2. This Act takes effect immediately in accordance with AS 01.10.-070(c).

APA (Nuiyak EA) 15m

Introduced: 3/21/80
Referred: (Resources and Finance

IN THE HOUSE BY THE RULES COMMITTEE

HOUSE BILL NO. 967

IN THE LEGISLATURE OF THE STATE OF ALASKA

ELEVENTH LEGISLATURE - SECOND SESSION

A BILL

For an Act entitled: "An Act relating to the Alaska Power Authority and approving the general design and maximum amount of bonds for power projects; and providing for an effective date."

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

* Section 1. Actions taken by the legislature before the effective date of this Act to approve the general design and maximum amount of bonds for power projects are confirmed and the Alaska Power Authority is authorized to issue its bonds for the following power projects in the maximum principal amount set out after each:

(1) Solomon Gulch, $20,000,000; passed

(2) Terror Lake, $120,000,000; passed

(3) Golden Valley Electric Association waste heat, $110,000,000;

(4) Tyee Lake, $70,000,000; passed H

(5) Swan Lake, $120,000,000; passed H

(6) Glacier Highway Electric Association, $800,000;

(7) Cordova Electric Cooperative, $6,500,000;

(8) Matanuska Electric Association, $2,500,000;

(9) Homer Electric Association, $3,360,000; and

(10) Naknek Electric Association, $730,000.

* Sec. 2. This Act takes effect immediately in accordance with AS 01.10.-070(c).

(11) Lake Elva (HJR 60) Nushagak REA

Introduced: 2/21/80
Referred: Resources and Finance

IN THE HOUSE BY THE RULES COMMITTEE

HOUSE JOINT RESOLUTION NO. 79

IN THE LEGISLATURE OF THE STATE OF ALASKA

ELEVENTH LEGISLATURE - SECOND SESSION

Relating to the Alaska Power Authority, and the incurring of revenue bond indebtedness of the Alaska Power Authority for the Cordova Electric Cooperative, Inc., to finance the relocation of the present main diesel power generation plant, acquisition and installation of a new diesel power generator, acquisition of general equipment, acquisition and installation of feeder and distribution line improvements and construction of a new headquarters building, to be located in and near Cordova.

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

WHEREAS the Cordova Electric Cooperative, Inc., a Rural Electric Association cooperative, plans to relocate the present main diesel power generation plant, acquire and install a new diesel power generator, acquire general equipment, acquire and install feeder and distribution line improvements and construct a new headquarters building, in and near Cordova; and

WHEREAS the Cordova Electric Cooperative, Inc., has submitted an application to the Alaska Power Authority for assistance in financing these projects, and the Alaska Power Authority has by resolution determined to sell its bonds to finance the projects; and

WHEREAS the Alaska Power Authority, under AS 44.56.180, has submitted to the governor and to the legislature a statement of its recommendations for financing the Cordova Electric Cooperative projects and a statement outlining the general design, demonstration of financial feasibility, and maximum amount of revenue bonds and appropriations necessary for the projects; and

WHEREAS, the statements of the Alaska Power Authority submitted to the governor and to the legislature fully satisfy the requirements contained in AS 44.56.180(b) and the statements required by AS 44.56.180(c); and

WHEREAS, according to the statements of the Alaska Power Authority, the authority intends, through the issuance of revenue bonds, to finance the Cordova Electric Cooperative projects only and not to construct, acquire or own the projects; and

WHEREAS the statements of the Alaska Power Authority provide that the projects are to be designed, acquired and constructed by the Cordova Electric Cooperative, Inc., under an agreement with the Alaska Power Authority which will provide that the Alaska Power Authority has ownership rights in the projects only as may be necessary to secure the payment of the revenue bond indebtedness; and

WHEREAS the costs to be incurred in financing the project will require the issuance of revenue bonds of the Alaska Power Authority in a maximum estimated amount not to exceed $6,500,000; and

WHEREAS it is in the best interests of the state that revenue bonds of the Alaska Power Authority be issued to finance the cost of the projects;

BE IT RESOLVED by the Alaska State Legislature that the general design of the Cordova Electric Cooperative, Inc. projects in and near Cordova, and the incurring of revenue bond indebtedness by the Alaska Power Authority in a maximum amount not to exceed $6,500,000 to pay the costs of the projects are approved; and be it

FURTHER RESOLVED that the $6,500,000 may be combined in one bond issue

with the amount needed to finance other Rural Electric Association cooperative projects approved by the legislature in accordance with AS 44.56.180.

Introduced: 2/21/80
Referred: Resources and Finance

IN THE HOUSE BY THE RULES COMMITTEE

HOUSE JOINT RESOLUTION NO. 75

IN THE LEGISLATURE OF THE STATE OF ALASKA

ELEVENTH LEGISLATURE - SECOND SESSION

Relating to the Alaska Power Authority, and the incurring of revenue bond indebtedness of the Alaska Power Authority for the Homer Electric Association for the financing of acquisition and installation of new consumer connections and electric power distribution lines in the area served by the Homer Electric Association.

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

WHEREAS the Homer Electric Association, Inc., a Rural Electric Association cooperative, plans to construct, acquire and install approximately 3,750 new consumer connections and approximately 250 miles of electric power distribution lines; and

WHEREAS the Homer Electric Association, Inc., has submitted an application to the Alaska Power Authority for assistance in financing the consumer connections and distribution lines project, and the Alaska Power Authority has by resolution determined to sell its bonds to finance the project; and

WHEREAS the Alaska Power Authority, under AS 44.56.180, has submitted to the governor and to the legislature a statement of its recommendations for financing the Homer Electric Association project and a statement outlining the general design, demonstration of financial feasibility, and maximum amount of revenue bonds and appropriations necessary for the project; and

WHEREAS, the statements of the Alaska Power Authority submitted to the

governor and to the legislature fully satisfy the requirements contained in AS 44.56.180(b) and the statements required by AS 44.56.180(c); and

WHEREAS according to the statements of the Alaska Power Authority, the authority intends, through the issuance of revenue bonds, to finance the Homer Electric Association project only and not to construct, acquire or own the project; and

WHEREAS the statements of the Alaska Power Authority provide that the project is to be designed, acquired and constructed by the Homer Electric Association, Inc., under an agreement with the Alaska Power Authority which will provide that the Alaska Power Authority has ownership rights in the project only as may be necessary to secure the payment of the revenue bond indebtedness; and

WHEREAS the costs to be incurred in financing the project will require the issuance of revenue bonds of the Alaska Power Authority in a maximum estimated amount not to exceed $3,360,000; and

WHEREAS it is in the best interests of the state that revenue bonds of the Alaska Power Authority be issued to finance the cost of the project;

BE IT RESOLVED by the Alaska State Legislature that the general design of the Homer Electric Association, Inc. project to construct, acquire and install consumer connections and electric power distribution lines, and the incurring of revenue bond indebtedness by the Alaska Power Authority in a maximum amount not to exceed $3,360,000 to pay the costs of the project are approved; and be it

FURTHER RESOLVED that the $3,360,000 may be combined in one bond issue with the amount needed to finance other Rural Electric Association cooperative projects approved by the legislature in accordance with AS 44.56.180.

Introduced: 2/21/80
Referred: Resources and Finance

IN THE HOUSE BY THE RULES COMMITTEE

HOUSE JOINT RESOLUTION NO. 76

IN THE LEGISLATURE OF THE STATE OF ALASKA

ELEVENTH LEGISLATURE - SECOND SESSION

Relating to the Alaska Power Authority, and the incurring of revenue bond indebtedness of the Alaska Power Authority for the Naknek Electric Association for the financing of acquisition and installation of a new diesel-powered electric power generator in Naknek.

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

WHEREAS the Naknek Electric Association, a Rural Electric Association cooperative, plans to construct, acquire and install a 1,000 kilowatt capacity diesel-powered electric power generator in Naknek; and

WHEREAS the Naknek Electric Association has submitted an application to the Alaska Power Authority for assistance in financing the generator project, and the Alaska Power Authority has by resolution determined to sell its bonds to finance the project; and

WHEREAS the Alaska Power Authority, under AS 44.56.180, has submitted to the governor and to the legislature a statement of its recommendations for financing the generator project and a statement outlining the general design, demonstration of financial feasibility, and maximum amount of revenue bonds and appropriations necessary for the project; and

WHEREAS, the statements of the Alaska Power Authority submitted to the governor and to the legislature fully satisfy the requirements contained in AS 44.56.180(b) and the statements required by AS 44.56.180(c); and

WHEREAS, according to the statements of the Alaska Power Authority, the

authority intends, through the issuance of revenue bonds, to finance the generator project only and not to construct, acquire or own the project; and

WHEREAS the statements of the Alaska Power Authority provide that the project is to be designed, acquired and constructed by the Naknek Electric Association under an agreement with the Alaska Power Authority which will provide that the Alaska Power Authority has ownership rights in the project only as may be necessary to secure the payment of the revenue bond indebtedness; and

WHEREAS the costs to be incurred in financing the generator project will require the issuance of revenue bonds of the Alaska Power Authority in a maximum estimated amount not to exceed $730,000; and

WHEREAS it is in the best interests of the state that revenue bonds of the Alaska Power Authority be issued to finance the cost of the generator project;

BE IT RESOLVED by the Alaska State Legislature that the general design of the Naknek Electric Association project to construct, acquire and install a diesel-powered electric power generator, and the incurring of revenue bond indebtedness by the Alaska Power Authority in a maximum amount not to exceed $730,000 to pay the costs of the project are approved; and be it

FURTHER RESOLVED that the $730,000 may be combined in one bond issue with the amount needed to finance other Rural Electric Association cooperative projects approved by the legislature in accordance with AS 44.56.180.

Introduced: 2/18/80
Referred: Resources and Finance

IN THE HOUSE BY ROGERS,MOSS,PARR AND SMITH

HOUSE JOINT RESOLUTION NO. 68

IN THE LEGISLATURE OF THE STATE OF ALASKA

ELEVENTH LEGISLATURE - SECOND SESSION

Relating to the Alaska Power Authority and the incurring of revenue bond indebtedness of the Alaska Power Authority for the Golden Valley Electric Association waste heat power generation project near Fairbanks.

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

WHEREAS the Golden Valley Electric Associaton, Inc., plans to construct, acquire and operate a waste heat power generating project located at pump stations 7, 8, 9 and 10 of the trans-Alaska pipeline near Fairbanks; and

WHEREAS the project will provide an additional 27,500 kilowatts of generating capacity through the utilization of BTU's which are now being exhausted into the atmosphere and the project will thereby displace oil now in short supply; and

WHEREAS the Golden Valley Electric Association, Inc., has submitted an application to the Alaska Power Authority for assistance in financing the waste heat power generation project and the Alaska Power Authority has by its resolution determined to sell its bonds for the project; and

WHEREAS the Alaska Power Authority, under AS 44.56.180, has submitted to the governor and to the legislature a statement of its recommendations for financing the waste heat power generation project and a statement outlining the general design, demonstration of financial feasibility, and maximum amount of revenue bonds and appropriations necessary for the project; and

WHEREAS the statements of the Alaska Power Authority submitted to the

governor and to the legislature fully satisfy the requirements contained in AS 44.56.180(b) and the statements required by AS 44.56.180(c); and

WHEREAS the statements of the Alaska Power Authority provide that through the issuance of revenue bonds the authority is to finance the waste heat power generation project only and is not to construct, acquire or own the project; and

WHEREAS, the statements of the Alaska Power Authority provide that the project is to be designed, acquired and constructed by the Golden Valley Electric Association, Inc., under an agreement with the Alaska Power Authority which will provide that the Alaska Power Authority has ownership rights in the project only as may be necessary to secure the payment of the revenue bond indebtedness; and

WHEREAS the costs to be incurred in financing the waste heat power generation project will require the issuance of revenue bonds of the Alaska Power Authority in a maximum estimated amount not to exceed $110,000,000; and

WHEREAS it is in the best interests of the state that revenue bonds of the Alaska Power Authority be issued to finance the cost of the waste heat power generation project;

BE IT RESOLVED by the Alaska State Legislature that the general design of the Golden Valley Electric Association, Inc., waste heat power generation project near Fairbanks, and the incurring of revenue bond indebtedness by the Alaska Power Authority in a maximum amount not to exceed $110,000,000 to pay the costs of the project are approved.

Introduced: 2/21/80
Referred: Resources and Finance

IN THE HOUSE BY THE RULES COMMITTEE

HOUSE JOINT RESOLUTION NO. 77

IN THE LEGISLATURE OF THE STATE OF ALASKA

ELEVENTH LEGISLATURE - SECOND SESSION

Relating to the Alaska Power Authority, and the incurring of revenue bond indebtedness of the Alaska Power Authority for the Matanuska Electric Association for the financing of acquisition and installation of new consumer connections and acquisition and installation of electric power distribution lines in the area served by the Matanuska Electric Association.

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

WHEREAS the Matanuska Electric Association, Inc., a Rural Electric Association cooperative, plans to construct, acquire and install approximately 800 new consumer connections and approximately 200 miles of electric power distribution lines; and

WHEREAS the Matanuska Electric Association, Inc., has submitted an application to the Alaska Power Authority for assistance in financing the consumer connections and distribution lines project, and the Alaska Power Authority has by resolution determined to sell its bonds to finance the project; and

WHEREAS the Alaska Power Authority, under AS 44.56.180, has submitted to the governor and to the legislature a statement of its recommendations for financing the Matanuska Electric Association project and a statement outlining the general design, demonstration of financial feasibility, and maximum amount of revenue bonds and appropriations necessary for the project; and

WHEREAS, the statements of the Alaska Power Authority submitted to the governor and to the legislature fully satisfy the requirements contained in AS 44.56.180(b) and the statements required by AS 44.56.180(c); and

WHEREAS according to the statements of the Alaska Power Authority, the authority intends, through the issuance of revenue bonds, to finance the Matanuska Electric Association project only and not to construct, acquire or own the project; and

WHEREAS the statements of the Alaska Power Authority provide that the project is to be designed, acquired and constructed by the Matanuska Electric Association, Inc., under an agreement with the Alaska Power Authority which will provide that the Alaska Power Authority has ownership rights in the project only as may be necessary to secure the payment of the revenue bond indebtedness; and

WHEREAS the costs to be incurred in financing the project will require the issuance of revenue bonds of the Alaska Power Authority in a maximum estimated amount not to exceed $2,500,000; and

WHEREAS it is in the best interests of the state that revenue bonds of the Alaska Power Authority be issued to finance the cost of the project;

BE IT RESOLVED by the Alaska State Legislature that the general design of the Matanuska Electric Association, Inc. project to construct, acquire and install consumer connections and electric power distribution lines, and the incurring of revenue bond indebtedness by the Alaska Power Authority in a maximum amount not to exceed $2,500,000 to pay the costs of the project are approved; and be it

FURTHER RESOLVED that the $2,500,000 may be combined in one bond issue with the amount needed to finance other Rural Electric Association cooperative projects approved by the legislature in accordance with AS 44.56.180.

Introduced: 2/21/80
Referred: Resources and Finance

IN THE HOUSE BY THE RULES COMMITTEE

HOUSE JOINT RESOLUTION NO. 78

IN THE LEGISLATURE OF THE STATE OF ALASKA

ELEVENTH LEGISLATURE - SECOND SESSION

Relating to the Alaska Power Authority, and the incurring of revenue bond indebtedness of the Alaska Power Authority for the Glacier Highway Electric Association for the financing of acquisition and installation of electric power transmission and distribution lines and new consumer connection in the City and Borough of Juneau.

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

WHEREAS the Glacier Highway Electric Association, Inc., a Rural Electric Association cooperative, plans to construct, acquire and install seven miles of electric power transmission lines, 15 miles of electric power distribution lines, and approximately 150 new consumer connections, to be located in the City and Borough of Juneau ; and

WHEREAS the Glacier Highway Electric Association, Inc., has submitted an application to the Alaska Power Authority for assistance in financing the transmission and distribution lines and consumer connections project, and the Alaska Power Authority has by resolution determined to sell its bonds to finance the project; and

WHEREAS the Alaska Power Authority, under AS 44.56.180, has submitted to the governor and to the legislature a statement of its recommendations for financing the Glacier Highway Electric Association project and a statement outlining the general design, demonstration of financial feasibility, and

maximum amount of revenue bonds and appropriations necessary for the project; and

WHEREAS, the statements of the Alaska Power Authority submitted to the governor and to the legislature fully satisfy the requirements contained in AS 44.56.180(b) and the statements required by AS 44.56.180(c); and

WHEREAS, according to the statements of the Alaska Power Authority, the authority intends, through the issuance of revenue bonds, to finance the Glacier Highway Electric Association project only and not to construct, acquire or own the project; and

WHEREAS the statements of the Alaska Power Authority provide that the project is to be designed, acquired and constructed by the Glacier Highway Electric Association, Inc., under an agreement with the Alaska Power Authority which will provide that the Alaska Power Authority has ownership rights in the project only as may be necessary to secure the payment of the revenue bond indebtedness; and

WHEREAS the costs to be incurred in financing the project will require the issuance of revenue bonds of the Alaska Power Authority in a maximum estimated amount not to exceed $800,000; and

WHEREAS it is in the best interests of the state that revenue bonds of the Alaska Power Authority be issued to finance the cost of the project;

BE IT RESOLVED by the Alaska State Legislature that the general design of the Glacier Highway Electric Association, Inc., project to construct, acquire and install electric power transmission and distribution lines and consumer connections in the City and Borough of Juneau and the incurring of revenue bond indebtedness by the Alaska Power Authority in a maximum amount not to exceed $800,000 to pay the costs of the project are approved; and be it

FURTHER RESOLVED that the $800,000 may be combined in one bond issue with the amount needed to finance other Rural Electric Association coopera-

tive projects approved by the legislature in accordance with AS 44.56.180.

ALASKA POWER AUTHORITY

GVEA-ALYESKA WASTE HEAT POWER

GENERATION PROJECT

PROJECT SUMMARY AND

FINANCING PLAN STATEMENT

This report summarizes key characteristics of the GVEA-Alyeska Waste Heat Power Generation Project for the purpose of satisfying requirements of Section 180 of Alaska Statute 44.56. Information to prepare this summary was furnished by the Golden Valley Electric Association (GVEA).

CONTENTS

ALASKA POWER AUTHORITY

INTRODUCTION

The Golden Valley Electric Association, Incorporated (GVEA) intends to construct and operate waste heat recovery systems on four pump stations of the Alyeska pipeline. The 1980 Project construction cost is approximately $53.9 million. GVEA desires to finance the entire cost of the Project with revenue bonds issued by the Alaska Power Authority with security provided by the National Rural Electric Utilities Cooperative Finance Corporation (CFC). The State of Alaska will not have to commit any funds or provide assistance in any form to achieve the Project financing. The maximum amount of bonds necessary to finance the Project over a 4-year construction schedule is $110 million.

The waste heat boiler would receive the exhaust from each of the pump station gas turbines through a damper system. An induced draft fan would be provided to control pressure at the point of intersection with the pump station gas turbine stacks to prevent excessive back pressures at the exhaust of the gas turbines. Means would be provided to rapidly maneuver the damper system during periods of steam plant difficultly so that pump station operation would not be affected by steam plant problems.

The steam turbine would be a conventional type unit which would exhaust to an air-cooled condenser preferably mounted on the roof of the steam plant building. No extraction points would be considered for the turbine. Condensed steam would be pumped from the condenser "hot well" through suitable regulating equipment to the waste heat boiler.

Water make up to this plant would be added to the system in the de-aerating section of the condenser. Due to the lack of waste disposal system around the pump station, make up water treatment would probably be off-site. The only "on site" make up facility would be a storage tank to accommodate a number of days' operations, which would periodically be filled.

Included in this scheme would be a small oil fired steam boiler to provide heat for the building and for the waste heat boiler during periods of pump station difficulty. Also included in the scheme would be some type of radiator to accommodate generator and bearing cooling.

GVEA's concept of plant operation would be to pass all of the pump station gas turbine exhaust through the waste heat boiler and let the power generation float with waste heat availability. Parameters which must be monitored would be done with a data logging system. Data so acquired would be collected on a periodic basis while the more important data would be transmitted to a control center in Fairbanks.

This concept of waste heat power generation would provide the pump station with an additional electric power supply and supply the members of GVEA with a less expensive supply of electric power. Inconvenience to pump station operation would be minimal and energy that is now wasted would be utilized to the benefit of the community.

The proposed transmission line additions appear appropriately sized to transmit power from the pump station systems toward Fairbanks. They also will provide sufficient voltage for power transfer in the opposite direction when the demand for power increases along the transmission line routes.

Project Costs and Financing

As stated in the introduction, the Power Authority desires to issue revenue bonds guaranteed by CFC to finance the GVEA-Alyeska Waste Heat Power Generation Project. The estimated cost in 1980 dollars is as follows:

ALASKA POWER AUTHORITY

1. Generation consisting of 7,500 KW units installed at P.S. 8, 9 and 10 and 5,000 KW at P.S. 7 = 27,500 KW @ $1,000.00 per KW = $27,500,000.

2. Transmission line to P.S. 7, 40 miles of 69 KV at $100,000/mile = $4,000,000. 46 miles of 138 KV to P.S. 10 at $150,000/mile = $6,900,000. Total transmission = $10,900,000.

3. Engineering, Design, Project Management, RW Acquisition $5,000,000.

4. Substations, Breakers, Controls, Communications $5,500,000.

5. Contingencies $5,000,000.

6. Inflation @ 10%/year applied to estimated construction expenditure schedule, $24,600,000.

7. Capitalized Interest During Construction, @ 7.5%/year, $24,100,000.

TOTAL $104,500,000

The total capital requirements could be reduced if the Project is financed in two phases corresponding to the phases of construction. A firm Plan of Finance will be prepared based upon completion of a detailed engineers report to minimize the ultimate cost of power to GVEA consumers.

The Project will not require any form of state assistance to be financed. The estimated busbar cost of power from the Project is approximately 60 mills/kwh if financed at 7.5% over 20 years compared to the current cost of approximately 70 mills/kwh today for the cost of the diesel fuel alone for the diesel generation which will be displaced. The Project financing will again be secured by guarantees of the CFC which may result in a lower interest rate than actually presented.

PROJECT DESCRIPTION

The Waste Heat Power Generation Project is designed to utilize the waste heat of Alyeska pipeline pump station generation to generate additional power utilizing waste heat for steam electric generation. The Project consists of two phases. Phase I includes a 7,500 KW generation system at both Pump Station (P.S.) 8 and P.S. 9. Phase II includes a 5,000 KW generation system at P.S. 7, a 40 mile 69 KV transmission line to P.S. 7, a 7,500 KW generation system at P.S. 10, and a 46 mile 138 KV transmission line to P.S. 10. Construction will commence on Phase I by 1981 and be completed by early 1983. Phase II will commence in 1983 and be completed by 1985. The 27,500 KW in combination of installed capacity is capable of producing 177 million kwh's of annual energy. All energy produced with the waste heat system will be used to displace more expensive energy that would otherwise be generated by oil fired units.

Existing Capabilities and Expected Demand

The GVEA system is an REA borrower serving the Fairbanks North Star Borough, approximately 3,000 customers in the City of Fairbanks, and a portion of the Unorganized Borough extending South on the Parks Highway to Summit and South on the Richardson Highway to a point 35 miles South of Delta Junction. Existing capacity consists of 25 MW's of coal fired steam generation and 200 MW's of diesel and gas turbine generation. Peak demand in 1979 was 70 MW and consumption was 340 million kwh's of energy.

Demand for power in the GVEA service area increased rapidly from 1970-1976 due to the increased population and industrial activity associated with construction of the Trans-Alaska Pipeline. Since 1976, the energy demand in the service area has leveled and actually decreased slightly due to decline in economic activity associated with pipeline completion. Energy demand in the 1980's is forecast to increase again at more moderate rates than in the early 1970's due to new construction of the proposed natural gas pipeline.

The purpose of the Project is not to increase available generation capacity. The purpose is to displace existing diesel and/or gas turbine generation in the most economical manner. The Project decreases reliance on non-renewable fuels by utilizing available waste heat from existing pipeline pump station generation which would otherwise be inefficiently dispersed to the atmosphere. Existing diesel and gas turbine generation units will be retained for emergency standby and reserve capacity.

Alternatives Considered

Alternatives considered are No Action, a new coal fired steam combustion generation plant, and hydroelectric development. No Action requires continued

dependence on non-renewable fuels with their associated rapidly rising cost. This alternative is considered economically unattractive.

A new coal plant was analyzed in 1978 for GVEA by Stanley Consultants. A 104 MW mine mouth plant near Healy was proposed and disregarded due to high capital costs associated with air quality emission controls.

Hydroelectric options in Interior Alaska principally consist of large capital intensive projects which far exceed the capacity and energy needs of the Fairbanks area. The long term desirable solution for electric energy generation for GVEA is the Susitna Hydroelectric Project which could be developed to supply renewable energy to both Interior and Southcentral Alaska.

The proposed waste heat Project appears to be the best alternative in the short run to decrease dependence on non-renewable fuel for electric power generation.

Environmental Impacts

The major environmental impacts of the Project are associated with the actual construction activity itself and the visual impact of the proposed 86 miles of transmission line in Phase II. All construction will take place within the existing boundaries of the pump stations and within the transportation/pipeline corridor between the pump stations. No impact is expected upon the existing ecosystems of the area. Operation of the Project will not degrade air quality. However, some temporary impacts on air quality may be experienced during construction due to exhaust and crankcase emissions from vehicles and construction equipment and the dust generated by movement of equipment. Noise levels will increase due to machinery operation, and other construction activities. Project operation may result in a small decrease in noise, since pump station generation exhaust will be controlled to capture waste heat. Project construction will result in beneficial social and economic impacts associated with increased economic activity and control of electric power costs.

Engineering Considerations

GVEA's concept for utilizing waste heat from the gas turbine prime movers in oil pipeline pump stations is a very simple steam cycle as illustrated in the attached conceptual design. Such a cycle would consist of a waste heat boiler producing steam at approximately 250 psi, a 7.5 MW steam turbine generator set, an air-cooled condenser, pumping equipment to return condensed steam to the waste heat boiler and the necessary auxiliaries to make this cycle operate properly. Power so produced would be delivered directly to the Pump Station Power Buss and the excess would be delivered to GVEA's transmission system. Frequency relays would monitor the connection to GVEA's system and would isolate the pump station from GVEA's system during periods of GVEA difficulty.

CONCLUSION

This executive summary and financing plan statement was prepared by the staff of the Alaska Power Authority to comply with Section 44.56.180 of the enabling statutes of the Power Authority. The maximum amount of bonds estimated to be necessary to finance the GVEA-Alyeska Waste Heat Power Generation Project is $110,000,000. The Power Authority desires to assist the GVEA to finance the Project with the National Rural Electric Utilities Cooperative Finance Corporation guarantee. The Power Authority does not intend to design or construct the Project itself. The Project will be designed, constructed, owned and operated by the Golden Valley Electric Association, Incorporated, and rights to the capacity of the Project will remain with the Golden Valley Electric Association. The general design and financial feasibility of the Project is acceptable, and the Project should proceed to construction. The Power Authority recommends that the Legislature adopt a joint resolution approving the general design and financial feasibility of the GVEA-Alyeska Waste Heat Power Generation Project, and approve action of the Power Authority to assist in financing the Project in cooperation with the Cooperative Finance Corporation by issuing bonds in an amount not to exceed $110,000,000 for the Project.