S B 449

DATE: 2/7/90

FURTHER: Labor & Commerce
Finance

Date of 5-Day Notice: 3-8-90
(in accordance with Uniform Rule 23)

DATE TURNED INTO OFFICE: 3-16-90

Resources Committee considered SB 449

"An Act relating to authorization for the issuance of bonds and procurement for certain research projects; and providing for an effective date."

and recommended:

[ ] replace with _____ CS _____ [ ] same title [ ] new title

[ ] attached amendment(s)

[ ] _____ letter of intent adopted

[✓] do pass

[ ] do not pass

[ ] no recommendation

[ ] individual recommendations

[ ] further referral to _____

ATTACHES NEW FISCAL NOTE(S):

Department(s)/Date:

[✓] fiscal note(s) Commerce + Econ. Dev. - AIDEA

[ ] appropriation-no fiscal note

Department(s)/Date:

[ ] zero fiscal note(s) _____

[ ] Governor's bill w/fiscal note

SIGNING DO PASS:

OTHER RECOMMENDATIONS:

Fahrenkamp No Rec

Chair: Signature and Recommendation

0402B-1/31290

STATE OF ALASKA
1990 LEGISLATIVE SESSION

BILL VERSION: SB 449
PUBLISH DATE:

FISCAL NOTE

REQUEST:

Revision Date:
Title: Act relating to issuance of bonds and procurement for certain development projects
Sponsor: Senate Resources
Requestor: Senate Resources

Agency Affected: Commerce & Econ. Dev.
BRU: Alaska Industrial Development and Export Authority
Components:

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	122,000.0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS	92,000.0					
OTHER	30,000.0					
TOTAL	122,000.0	0	0	0	0	0

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

Analysis is attached as page 2.

Prepared by: Bertram L. Wagnon, Executive Director
Division: Alaska Industrial Development & Export Authority
Phone: (907) 561-8050
Date: 3/12/90

Approved by Commissioner: Larry Merculieff
Agency: Department of Commerce & Economic Development
Date: 3-13-90

Distribution (by preparer):
Legislative Finance
Legislative Sponsor
Requestor
Office of Management and Budget
Impacted Agency(ies)

6402D-1/31290c

ANALYSIS - FISCAL NOTE - SB 449

Section 1 of this bill would give AIDEA the authority to issue up to $85 million in bonds for the Healy cogeneration project.

The estimated construction cost of the project is $192 million. It is estimated that up to $70 million in bonded debt will be required. The $85 million figure contained in the bill provides a cushion for cost overruns that may exceed the current estimate. The actual amount of bonds will most likely be less. In addition to the AIDEA bond authorization, capital appropriations of $92 million in federal funds and $30 million in state funds will be required.

The state funds are shown under "other" in the fiscal note as the exact source is undetermined. The fiscal note shows all appropriations for the project in FY 91 since all appropriations will be required before AIDEA can issue bonds for the project. We anticipate that the project will be completed in FY 96 and that the expenditure by fiscal year will be as follows:

FY 91	$ 8,000.0
FY 92	11,000.0
FY 93	46,000.0
FY 94	52,000.0
FY 95	58,000.0
FY 96	17,000.0
Total	$192,000.0

FNSB Support HB 520

By: Hank Hove
Introduced: 03/08/90

ADOPTED MAR 0 0 1990

RESOLUTION NO. 90- 030

A RESOLUTION URGING PASSAGE OF HB 520 AUTHORIZING THE ISSUANCE OF BONDS AND PROCUREMENT FOR CERTAIN DEMONSTRATION PROJECTS

WHEREAS, the Federal Government has approved a grant for $92.3 million for federal funding of the Healy cogeneration project and the state has encumbered but not appropriated $30 million: and

WHEREAS, approximately $85 million is required to complete the project; and

WHEREAS, the construction of the plant along with the improvements to the Healy-Fairbanks electrical power line will result in better and less expensive power costs to the residents of Fairbanks.

NOW, THEREFORE, BE IT RESOLVED, that the Fairbanks North Star Borough Assembly urges the passage of HB 520.

BE IT FURTHER RESOLVED, that copies of this resolution shall be sent to the Honorable Steve Cowper, Governor, State of Alaska, Larry Merculieff, Commissioner, Department of Commerce and Economic Development, the Honorable David Donley, Chairman of the House Labor and Commerce Committee, the Honorable Lyman F. Hoffman and the Honorable Ronald L. "Ron" Larson Co-Chairs of the House Finance Committee and all members of the Interior Delegation.

PASSED AND APPROVED THIS 8th DAY OF March, 1990.

Paul a Clyn
Presiding Officer

ATTEST:

Mona Lee Shelden
Clerk of the Assembly

Alaska State Legislature

REPRESENTATIVE
MARK BOYER

VICE-CHAIRMAN, HOUSE
HEALTH, EDUCATION AND
SOCIAL SERVICES COMMITTEE

MEMBER, HOUSE LABOR AND
COMMERCE COMMITTEE

CHAIR, CHILDREN'S CAUCUS

House of Representatives

FAIRBANKS

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FAIRBANKS, ALASKA 99701
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JUNEAU

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STATE CAPITOL
JUNEAU, ALASKA 99811
(907) 465-3466

TO: Senator Bettye Fahrenkamp

FROM: Representative Mark Boyer MB

RE: HB 520, providing AIDEA authority to bond for the construction of the Healy Cogeneration Project, and HB 237, providing for an appropriation of $30 million from the Railbelt Energy Fund for the Healy Project.

DATE: March 6, 1990

As you will recall, during the last legislative session we segregated $30 million within the Railbelt Energy Fund as a contingent appropriation for the construction of a coal cogeneration power plant at Healy.

The contingencies to that appropriation were: that draft power sales agreements be in place before the effective date of the actual appropriation; that other funds, especially federal funds would be available to the project of at least $30 million; and that a financial plan for the project be available to the legislature.

Since that time, the federal Department of Energy priorities have refocused on clean coal burning and power generating processes which resulted in a revised Healy project and the allocation of $92.3 million for that project from the Clean Coal Technology grant program. The federal allocation would go to the Alaska Industrial Development and Export Authority which is currently developing a full financial plan to be presented to the legislature early next week. Additionally, AIDEA and the Alaska Energy Authority are working with the Golden Valley Electric Association and the Usibelli Coal Company to develop draft power sales agreements.

Attached are two important information pieces pertaining to the new Healy project. Some supporters of last year's $30 million contingent appropriation have expressed concern that the project they supported has changed and is no longer supportable. It is my hope that you will review the attached information and come to the same conclusion as I; the Healy Cogeneration Project has changed its initial focus in favor of a greater and more specific federal interest but maintains its

original coal beneficiation (coal drying) thrust and continues to be the premier RBEF energy project. As envisioned, the demonstration project will move ahead and the coal drying technology will be pursued without state funds after construction of the project and its federal demonstration perioc..

Because of the importance of this project to the Railbelt and potentially to the United States, the Senate and House Resources Committee will meet in joint session to review the AIDEA authorization and the new technology and its potential application on Tuesday, March 13.

I remain steadfast in my commitment to the project. It remains the only project which once on-line will result in stable electric rates for railbelt consumers and is the only project being considered for construction from the Railbelt Energy Fund which leverages federal and other funds with such a small state commitment.

The federal government is committed and the rate payers in the Northern railbelt remain committed. It is my hope that the legislative commitment is equally firm.

The following questions and answers are from a state-wide poll that was conducted for the Usibelli Coal Mine. I think that you will agree the consensus is overwhelming public support for this project.

"Under its clean coal technology program,the U.S. Department of Energy has offered to pay approximately half the total cost of building a new, coal-fired power plant at Healy, Alaska, which is about halfway between Anchorage and Fairbanks. The Healy project was selected because it will use clean-burning technology and low sulphur coal, and may become the cleanest coal-burning plant in the world.

Do you basically support or oppose <u>the idea</u> of developing a high-technology, clean-burning, coal-fired power plant?"

	Support.....	81%
	Oppose.....	11%
	Unsure.....	8%

"If constructed, the Healy project could bring world-wide attention to clean-burning coal technology and Alaska's large reserves of clean coal. How important is this to Alaska?"

	Very important.....	61%
	Somewhat important.....	28%
	Not too important.....	5%
or	Not at all important...	3%
	Unsure.....	3%

"While electricity generated by the proposed Healy plant will be mainly used in the northern railbelt region, the plant

could also provide power to the Anchorage area and Kenai Peninsula communities during power outages and other emergencies. How important is this to you?"

Very important.....	33%
Somewhat important.....	32%
Not too important.....	21%
Not at all important...	11%
Unsure.....	3%

"The 230 million dollar Railbelt Energy Fund was created by the Alaska Legislature to help provide low-cost power to railbelt communities from Kenai to Fairbanks. Last year the state legislature reserved 30 million dollars from the Railbelt Energy Fund for the Healy project if it was selected for the clean coal program. Now that Healy has been selected, do you feel the legislature should or should not grant the 30 million dollars that was set aside for the project?"

Should.....	79%
Should not.....	9%
Unsure.....	12%

enclosure (2)

February 1, 1990

Healy Cogeneration Project

The combination of new coal-burning technologies and low-sulfur Alaska coal will result in one of the cleanest coal-burning power plants in the world

Healy Cogeneration Project Selected

In August 1989 the Alaska Industrial Development and Export Authority (AIDEA) submitted a proposal for the Healy Cogeneration Project (HCP) to the U.S. Department of Energy (DoE) under the DoE's Clean Coal Technology Program. In December 1989, the HCP proposal was selected from among 48 other projects for grant funding of up to $93.2 million. The grant will finance nearly half of the design, capital and initial operating costs of the HCP plant. The project schedule calls for plant construction to be complete in 1995 with a one-year start-up and test program to follow.

The HCP project will construct a state-of-the-art coal-fired power plant at Healy, Alaska. The power plant will provide 50 megawatts of competitively priced electricity to satisfy increasing railbelt demand; will demonstrate innovative coal burning technologies; and may provide energy for the future development of a pilot-scale plant to beneficiate high-moisture Alaska coals. The combination of new coal-burning technologies and low-sulfur Alaska coal will result in one of the cleanest coal-burning plants in the world.

Alaska Benefits

The Healy Cogeneration Project will draw national and international attention to the demonstration of leading-edge technologies and provide a variety of benefits to the state's economy. The project will employ approximately 200 workers during a two year construction period and create about 50 year-round jobs in Healy once the plant is fully operational. In addition to employment, several other long-term economic benefits will contribute to the future well-being of Alaska's railbelt.

Satisfying Growing Railbelt Energy Needs

The addition of a new, efficient 50 megawatt power plant will provide power to satisfy increasing railbelt energy demands and will help diversify the fuel base of the railbelt power grid. Between 1984 and 1989, kilowatt-hour sales by GVEA increased nearly 24 percent. By the mid to late 1990's, additional base load generating capacity will be needed. While primarily serving northern railbelt customers, the strategically located generating plant would also be available for transmitting power to the southern railbelt.

Technology for New and Existing Power Plants

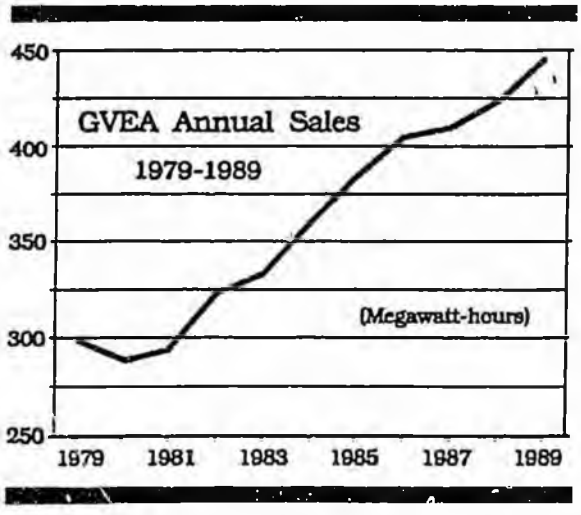
The HCP will demonstrate a clean-burning technology that can be used to retrofit or repower existing power plants in Alaska, the nation, and the Pacific Rim.

Most coal-fired power plants in Alaska and other states will require life extension work within the next 10 to 15 years. EPA's stringent New

The addition of a new, efficient 50 megawatt power plant will provide competitively priced power to satisfy increasing railbelt energy demands.

Source Performance Standards will be applied to these plants and HCP technology may be the lowest-cost solution for meeting these standards.

In addition to environmental advantages, the use of HCP technology to retrofit coal-fired power plants in the Pacific Rim will open new markets for Alaskan coal. Currently, few Pacific Rim plants are designed to use Alaska's high-moisture low-energy coal. HCP technology will allow Alaskan coal to be burned in these plants without the need for extensive boiler modifications.



The project may also demonstrate the feasibility of new power plants in other areas of Alaska. The reduced size of HCP technology relative to conventional coal plants will make the use of modular construction possible. This may result in lower construction costs for small sized plants which heretofore have not been economically feasible.

Beneficiation of Alaska Coal

A future component of the project may be the use of energy from HCP in a proposed pilot plant which will test methods to increase the quality of Alaskan subbituminous coal by reducing its moisture content or by producing entirely new fuel products. Alaska subbituminous coal has superior environmental qualities compared to coal from virtually all other states and countries. However, its low energy value -- due primarily to its high-moisture content -- makes the coal costly to transport and puts it at an economic disadvantage in international markets. The value and competitiveness of Alaska coal could be increased through drying, gasification, liquefaction or a combination of these processes. The excellent environmental qualities and high energy value of beneficiated Alaska coal would result in a premium fuel for export markets.

Focus on Alaska's Coal Resources

Alaska has enormous resources of coal and could become a major energy supplier to the Pacific Rim. The HCP project will be a showcase for leading-edge coal-burning technology and will bring national and international attention to Alaska's low-sulfur coal resources. The project will also send a clear signal to industry that Alaska is serious about using new and environmentally superior technologies to utilize the state's enormous natural resources.

Clean Coal Technology Program

The Clean Coal Technology program (CCT) was created by the U.S. Congress in response to concerns about acid rain. The program is administered by the DoE and focuses on the reduction of air pollutants considered to be precursors of acid rain. Five rounds of funding totaling over $2.5 billion have been planned. The first two rounds made $973 million available while the third and current round has $540 million available to support qualifying projects. The $93.2 million granted to HCP represented over 17 percent of the total funding available in round three.

The objectives of the current round of CCT funding are to promote, through demonstration projects, the commercialization of innovative technologies which are capable of significantly reducing emissions of sulfur dioxide and nitrogen oxides in existing coal burning facilities and/or providing for future energy needs in an environmentally acceptable manner.

The DoE may match up to 50 percent of the costs for the design, construction and initial operation of selected projects. Project owners are responsible for financing the re-

The project will employ approximately 200 workers during a two year construction period and create about 50 year-round jobs when complete

mainder of the cost. Under the terms of the program, AIDEA and DoE must negotiate an agreement during 1990 for the design, construction, demonstration and financing of the HCP project before federal funding may be awarded.

Project Description

The Healy Cogeneration Project involves six participants. These include the Alaska Industrial Development and Export Authority (AIDEA), which will own the project and be assisted by the Alaska Energy Authority; Golden Valley Electric Association (GVEA) which will operate, maintain and purchase power from the project; Usibelli Coal Mine, Inc. (UCM) which will supply coal and has offered a project location site; Stone & Webster Engineering Corporation, which will act as project design and management engineer; TRW Combustion Business Unit, which will provide proprietary combustion technology; and Joy Technologies Inc. which will provide proprietary emission control technology.

The HCP power plant will use an innovative design integrating advanced combustion, heat recovery, and emission control technologies. The environmental emissions from the HCP plant, including sulfur dioxide and nitrogen oxides, may be lower than any other coal-based power system in the world.

The HCP plant will use approximately 300,000 tons per year of low-sulfur subbituminous coal and will produce 50 megawatts of competitively priced electrical power. The plant will contribute to energy resource conservation by burning both run-of-mine coal and high-ash waste coal that could not be normally utilized. In the project's demonstration phase, various Alaska coals will be tested and the plant will be made available for testing coals from other states.

The estimated cost of the project is $192 million. The HCP was selected for up to $93.2 million of cost-sharing by DoE. Additionally, in the 1989 legislative session, the Alaska legislature reserved $30 million from the Railbelt Energy Fund for potential appropriation to the HCP project. The appropriation of the reserve was to be contingent upon the selection of the project by DoE, the preparation by AIDEA of an acceptable financial plan, and the drafting of power sales agreements. The HCP participants are requesting that the reserved funds be appropriated to the project during the 1990 legislative session. The balance of the project costs will be secured by AIDEA through the sale of revenue bonds.

Project Participants

Six participants cooperated in the preparation of the HCP proposal and will participate in the performance of the project.

1. The Alaska Industrial Development and Export Authority (AIDEA) supervised the preparation and submittal of the HCP proposal to DoE and will:
   - be the HCP project owner and coordinate the functions of the Alaska Energy Authority;
   - prepare a financial plan for submittal to the Alaska legislature; and
   - issue revenue bonds to finance project costs not covered by federal or state grants.
2. Golden Valley Electric Association (GVEA) will:
   - oversee the project's design and construction;
   - operate and maintain the HCP power plant;
   - purchase electricity produced by the project;
   - manage the training of operator personnel; and
   - perform power plant start-up activities.
3. Usibelli Coal Mine, Inc. (UCM) initiated, oversaw and funded the costs of preparing the HCP proposal and will:
   - make land owned or leased by UCM available for the siting of the HCP project;
   - supply coal to HCP and dispose of plant ash; and
   - review project design and construction activities.
4. Stone and Webster Engineering Corporation acted as consulting engineer and prepared the HCP proposal under contract to UCM and will:
   - act as design engineer and supply key members to the project management and design team; and
   - provide construction and management services to AIDEA.

The project will draw international attention to the demonstration of leading-edge technology and provide a variety of benefits to Alaska's economy.

5. TRW Combustion Business Unit assisted in the preparation of the HCP proposal and will:
   - provide proprietary combustion technology to the project;
   - participate in the project design; and
   - provide warranties and guarantees covering the design and performance of TRW equipment.
6. Joy Technologies Inc. assisted in the preparation of the HCP proposal and will:
   - provide proprietary technology for the sulfur and ash removal;
   - participate in the project design; and
   - provide warranties and guarantees covering the design and performance of Joy Technologies equipment.

New Technologies

The Healy project will integrate entrained coal combustion (ECC) technology developed by TRW Combustion Business Unit and spray dryer absorber (SDA) technology developed by Joy Technologies Inc.

Entrained Coal Combustion

In ECC technology, pulverized coal is injected into a precombustion chamber where it is entrained in swirling air and partially burned. The ash contained in the coal is converted to molten slag which is collected and drained off the chamber walls. The removal of over 80 percent of the ash before reaching the boiler minimizes conventional maintenance problems and allows the combustion technology to be used with boilers originally designed for other fuels.

Additional air is added in a secondary burner where further combustion of the hot gases takes place before entering the boiler. At the entrance to the boiler, limestone is injected into the combustion gases to react with and provide first-stage removal of sulfur dioxide. The temperatures and oxygen levels throughout the combustion stages are carefully controlled to both minimize the formation of nitrogen oxides and maximize sulfur removal.

Pilot tests of ECC have demonstrated its reliability and high energy efficiencies, while emissions of sulfur dioxide and nitrogen oxides have been shown to be equal to or lower than those from other new technologies. Additionally, the size of ECC combustion units are relatively small compared with other new technologies. Therefore, they can be more easily adapted to existing boilers and may make smaller-scale coal plants feasible.

Spray Dryer Absorber

In addition to sulfur reductions in the ECC combustion system, Joy Technologies' SDA emission control system further reduces sulfur dioxide levels in the flue gases. A recycled ash product, produced by the limestone injected during combustion, is mixed with water and sprayed into the flue gases. Sulfur dioxide reacts with the spray and is removed along with the remaining ash in filter bags. The second-stage removal of sulfur dioxide and the reduced costs of limestone recycling contribute to the environmental and operational efficiencies of the HCP design.

Project Contacts

For further information on the Healy Cogeneration Project, contact the personnel listed below.

Alaska Industrial Development and Export Autority
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Vayla Colonell, Member Services
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Usibelli Coal Mine, Inc.
John Sims, Vice President Marketing
Steve Denton, Consulting Engineer
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A Summary of the
Usibelli Coal Beneficiation Project

Contents

I. Summary of Project Investigations

Introduction

The process of upgrading raw coal to increase its quality is referred to as beneficiation. As with other raw materials or products, any process that upgrades the quality of the coal also increases its value in the marketplace.

In addition to simple coal beneficiation methods such as crushing, screening, and washing, there are a variety of processes being developed that use high temperatures and pressures to reduce the moisture content of coal, increase its quality, and, in some cases, transform it into completely different energy forms.

Usibelli Coal Mine, Inc. (UCM) currently beneficiates its coal by crushing to a size of 2 inches or less. But though simple crushing adequately prepares UCM coal for its current markets, the coal contains a high moisture content typical of subbituminous coals. While the ultra-low sulfur content of UCM coal suggests that it could become a premium product in the Pacific Rim, its high moisture content and resulting low heat value presently make it incompatible with most existing coal plants in the Pacific Rim.

Summary of investigations

The goal of the Usibelli coal beneficiation project is to identify a process and develop a commercial scale plant that will upgrade Alaskan subbituminous coal into a product (or products) that will have expanded opportunities in domestic and export markets.

Over the last four years, UCM has committed over $100,000 investigating thermal drying processes and doing preliminary research into more advanced processes. Thermal drying of UCM coal received the greatest emphasis because the existing coal handling and transportation systems appeared suitable for handling a dried coal product. It was also felt that a thermal drying plant would be an appropriate candidate for funding under the U.S. Department of Energy's Clean Coal Technology program.

While simple thermal drying techniques are widely used to heat and dry the surface of washed or naturally wet coal, the moisture in subbituminous coal is chemically bound and more intense heating processes are required to drive it out. Testing has shown that subbituminous coal may fragment as it dries, which complicates handling. Furthermore, the dried coal may reabsorb moisture during subsequent storage and transportation.

Between 1986 and Spring 1989, samples of UCM coal were shipped to beneficiation pilot plants in the United States and Canada. The resulting products were tested at the University of Alaska Fairbanks' Mineral Industry Research Laboratory (MIRL). UCM purchased laboratory autoclave equipment for MIRL which was used to test advanced high pressure drying processes. Additionally, consultants were retained to evaluate test results and to advise on project design and scope.

In January 1989, UCM contracted with Stone & Webster Engineering Corporation (Stone & Webster) to analyze test results, to review the economic and technical aspects of the various thermal drying processes, and to make recommendations to UCM for future work.

The Stone & Webster report was completed in June 1989 and found that thermal drying technologies for subbituminous coal had not been sufficiently developed, tested and refined to meet the requirements of the current round of the Clean Coal Technology program. As a result, it was concluded that the inclusion of a coal drying process into the Healy Cogeneration Project (HCP) would significantly weaken the proposal.

Prior to developing a commercially sized drying plant, the report recommended that a pilot scale plant be built and bulk samples of dried coal be produced and shipped to prospective markets. A bulk pilot test would accomplish two things. It would determine moisture reabsorption rates under actual conditions and, equally important, demonstrate the performance of the dried coal product -- a necessary step before a new fuel product can expect to gain market acceptance.

The report also concluded that other processes, including mild gasification and mechanical drying, might provide better market opportunities by producing higher value products. However, while these processes are technically viable, further research would be needed to be sure market economics were favorable.

Future plans

Having largely completed preliminary tests and research into thermal and mechanical coal drying processes, UCM will next investigate the technical performance and economics of mild gasification. This will include analyzing the markets for mild gasification products, reviewing existing mild gasification technologies, and testing the performance of UCM coal in bench scale tests. If the results are positive, a feasibility analysis of mild gasification will be performed and the results compared with analyses for thermal and mechanical drying.

A final review of thermal drying, mechanical drying and mild gasification will be made and the most promising technology selected. If the technology is insufficiently developed, the construction of a pilot-scale test facility will be necessary. If the technology is sufficiently developed, a full scale commercial plant could be built.

It is very probable that future rounds of the Clean Coal Technology program will make cost sharing available for coal beneficiation projects such as UCM's. In fact, it is likely that a well prepared Alaska coal beneficiation project will be as attractive to the objectives of the program as was the HCP project. However, with the exception of possible research funding from the Alaska Science and Technology Foundation, state public funds are not anticipated to be needed for the development of either a pilot scale or commercial size beneficiation plant.

UCM foresees construction of the pilot and/or commercial plant adjacent to the HCP plant which, depending upon existing demand, could provide energy for the a pilot plant in the form of either process heat or electrical power.

II. Potential Markets for Value-Added Products

Potential export markets

There are several export market areas for value-added products created from Alaskan subbituminous coal.

- Power plant fuel: Though this is a highly competitive market, a low-moisture, low-sulfur coal with the high combustion reactivity of UCM coal would command a top price at electrical utility plants.
- Industrial fuel: The same considerations for power plants would apply to industrial processes, such as cement making, which require large amounts of process heat for manufacturing.
- Steel making: Coal char, a high-value product of mild gasification, is receiving increased attention as a substitute for coke in steel making.
- Transportation fuels: Pulverized coal-and-water mixtures and coal liquids both have the potential to replace petroleum products for internal combustion engines, especially for low speed diesels, such as large marine engines.
- Heating fuels: Japanese and Korean homeowners commonly heat with smokeless, high cost, coal briquettes produced from imported and domestic coals.
- Chemicals: Common chemicals that can be produced from coal such as benzene, tar, and pitch have high value and are currently imported by Pacific Rim countries.

Alaska subbituminous coal and products derived from it will enjoy advantages over competing sources.

- Alaska subbituminous coal has an extremely low sulfur content and a low ash content that will result in environmentally superior products and reduced ash handling costs.
- Alaska subbituminous coal has a high combustion reactivity.
- Due to Alaska's proximity to potential customers, Alaska products will enjoy lower ocean-freight costs.
- Alaska products may enjoy an additional market advantage by helping to reduce customer trade imbalances with the U.S.

Potential domestic markets

The potential in-state market for value-added coal products is probably much smaller than the potential export market, but there may be similar needs.

- Power plant fuel: Reduced transportation costs and increased power output possible from a higher energy coal fuel could be attractive.
- Industrial fuel: The availability of high energy solid or liquid fuels derived from in-state coal may become attractive for larger Alaska industrial users.
- Transportation fuel: The production of coal liquids or coal-water-mixtures may be useful for fuel additives or substitutes.
- Chemicals: Coal liquids such as methanol may be useful for oil-field operations, while tar and pitch may be useful for briquetting coal for home heating.

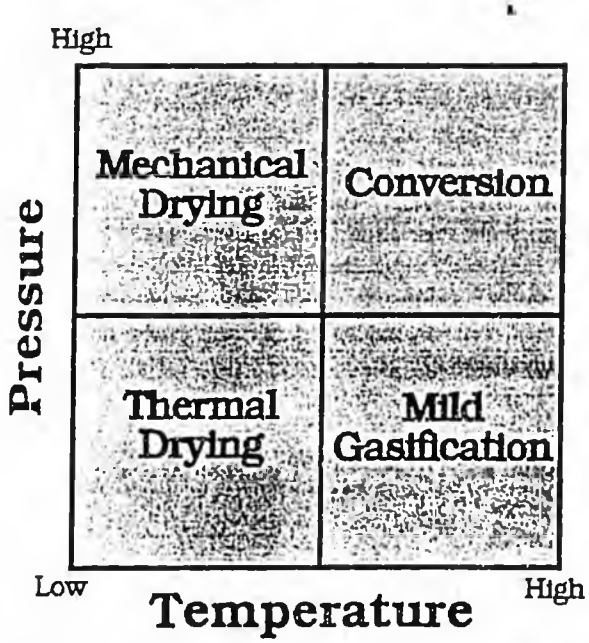


Figure 1. Advanced beneficiation processes classified by operating temperature and pressure.

III. Overview of Advanced Beneficiation Technologies

The beneficiation of coal spans a spectrum of processes. Conventional techniques include crushing, sizing, washing, surface drying and briquetting. There are a variety of advanced beneficiation technologies of which some are still in the early stages of research.

Advanced beneficiation technologies

There are four general types of advanced beneficiation processes and they may be classified by the level of heat and pressure used in each process (figure 1). The type and form of end-products vary with each process. In general, operating and capital costs increase with increasing process temperatures and pressures.

- Thermal drying: Raw coal is heated at relatively low temperature and pressure, which results in a short to moderate term moisture reduction. Thermal drying preserves the reactive nature of the coal (which contributes to its rapid and thorough combustion) and minimizes the loss of volatile gases (which contributes to its total energy content). However, dried coals are subject to fragmentation (breaking into fine particles) and to the reabsorption of moisture during storage and transportation.
- Mechanical drying: Raw coal is heated to moderate temperatures at high pressure to squeeze out moisture. This results in a low moisture product with longer term stability than simple thermal drying. However, there is often significant loss of volatile gases and briquetting is frequently required because of fragmentation.
-Mild gasification: Also referred to as pyrolysis, raw coal is heated to high temperatures at low pressure. The process produces low volatile carbon (char), water, liquids (oil), and volatiles (gas). These products may require further refinement to meet market specifications.
- Conversion: Using high pressure and high temperature, the coal is converted into liquids (liquefaction) and/or gas (gasification). As with mild gasification, these products generally require further refinement to meet market specifications.

Products of advanced coal beneficiation

There are five basic products resulting from the four types of advanced coal beneficiation: dried coal, low moisture solid fuel, char, oil, and gas. Figure 2 shows the types and comparative value of products generated from each of the four advanced processes.

-Dried coal: Dried subbituminous coal could be substituted for higher rank bituminous coal in power and industrial plants. The cost per million Btu to transport the dried coal would be lowered and the heat output at the end-user's plant could be maintained or increased. Any reabsorption of moisture during handling, transportation and storage would reduce processing gains.

- Low moisture solid fuel: Like dried coal, this product could be substituted for bituminous coal but would have a higher energy value (Btu/lb), higher carbon content and lower rate of moisture reabsorption than dried coal.

-Char: Char is primarily carbon with a very low volatile (gas) content. Char is a potential substitute for coke in steel making and could also be used as a clean, smokeless fuel for residential heating in Pacific Rim countries.

- Oil: Liquefaction of coal produces a product similar to crude oil. It can be refined, like crude oil, to yield a variety of high value products that are used as feedstocks for manufacturing a variety of chemicals or liquid fuels.

- Gas: Coal gasification produces a gas, similar to natural gas but with lower heating value, that can be used for generating process heat or electricity.

* Value of oil assumed at $18 per barrel

Figure 2. Types of advanced coal beneficiation processes and the comparative value of their products in SU.S. per million Btu's (MMBtu) and SU.S. per ton of feed coal.

IV. Chronology of UCM Coal Beneficiation Efforts

October 1986: A two ton bulk sample of UCM coal was shipped to Butte, Montana for thermal drying tests at Western Energy Company's pilot plant.

July 1987: UCM, through consultant Brown & Root USA, Inc., began investigating the potential for a cogeneration plant at Healy which would produce 150 megawatts of electricity and 500,000 tons per year of beneficiated coal.

April 1988: Consultants Brown & Root completed a report for the "Usibelli Cogeneration and Beneficiation Project" that provided conceptual designs and estimated costs for a 150 megawatt/ 500,000 ton per year cogeneration plant.

September 1988: UCM purchased an autoclave for the UAF Mineral Industry Research Laboratory to perform high-pressure beneficiation tests on UCM and other Alaska coals.

November 1988: UCM completed an internal evaluation on the market potential of thermally dried coal. The evaluation found that while potentially large sales at premium prices could be expected due to the low sulfur content of thermally dried Alaska coal, the potential for moisture reabsorption was a key factor in the technical and economic viability of the process.

January 1989: Stone & Webster Engineering Corporation was selected to review work done to date and prepare a report analyzing the technical and economic feasibility of coal beneficiation processes suitable for UCM coal.

January 1989: Coal samples were shipped for bench testing to several firms developing coal beneficiation technologies including K-Fuels in Gillette, Wyoming; Carbontec in Bismark, North Dakota; Western Energy in Butte, Montana; Coal Mining Research Center in Devon, Alberta; Hazen Research Laboratory in Golden, Colorado; and Synfuels Genesis in La Jolla, California.

May 1989: The products resulting from the January 1989 tests were returned to the UAF Mineral Industry Research Laboratory (MIRL) for analysis. The product quality results of the MIRL analyses were forwarded to Stone & Webster for use in their report.

June 1989: Stone & Webster Engineering Corporation reviewed the thermal drying test work done for UCM and recommended that the inclusion of a thermal drying process into the HCP project would significantly weaken the proposal, and that prior to developing a commercially sized thermal drying plant, a pilot scale plant should be built and a bulk sample of dried coal be produced and shipped to market. The report also found that a combination of thermal drying and mild gasification may prove to be economically attractive. Stone & Webster recommended that further testing and market analyses should be done before UCM selects a beneficiation technology for development.

July 1989: A 2 1/2 ton bulk sample of UCM coal was shipped to the Japanese New Energy Development Organization (NEDO) for gasification testing.

October 1989: A 1 1/2 ton bulk sample of UCM coal was shipped to the Western Research Institute (WRI) in Laramie, Wyoming for testing in a 100 lb/ hr pilot plant using an inclined fluid-bed dryer. WRI is currently preparing a proposal to perform work using the inclined fluid-bed dryer to test mild gasification.

HEALY COGENERATION PROJECT

PROJECT HISTORY

1988

* 150 MEGAWATT CONCEPT
  -TECHNICAL EVALUATION
* MARKET ANALYSIS
  -POWER & COAL
* 50 MEGAWATT CONCEPT
  -PRELIM. FEASIBILITY

1989

* PROJECT RESERVE BY
  STATE LEGISLATURE
* PROPOSAL TO DOE

PROJECT PARTICIPANTS
HEALY POWER PROJECT

M0290113

- Alaska Industrial Development and Export Authority — AIDEA
- Golden Valley Electric Association, Inc. — GVEA
- Joy Technologies, Inc. and Niro Atomizer — JOY
- Stone & Webster Engineering Corporation — SWEC
- TRW Combustion Business Unit — TRW
- Usibelli Coal Mine, Inc. — UCM

DOE CLEAN COAL III

OBJECTIVES

* REDUCE ACID RAIN PRECURSORS (SO_x & NO_x)
* REDUCE U.S. - CANADA AIR POLLUTION
* COMMERCIALIZE CCT's
  - RETROFIT
  - REPOWER
  - NEW COAL-BASED ELECT. GENERATION

DOE CLEAN COAL III

FUNDING

ROUNDS I & II	$973 MILLION
ROUND III	$575 MILLION
ROUNDS IV & V	$1,200 MILLION
	$2,748 MILLION

TECHNOLOGIES

PRECOMBUSTION
- COAL CLEANING, GASIFICATION

COMBUSTION
- ENTRAINED COMB., AFB, PFB

POST COMBUSTION
- FLUE GAS DESULFURIZATION

Clean Coal III - Competition

DOE Received 48 Proposals

$3.9 billion Total Value

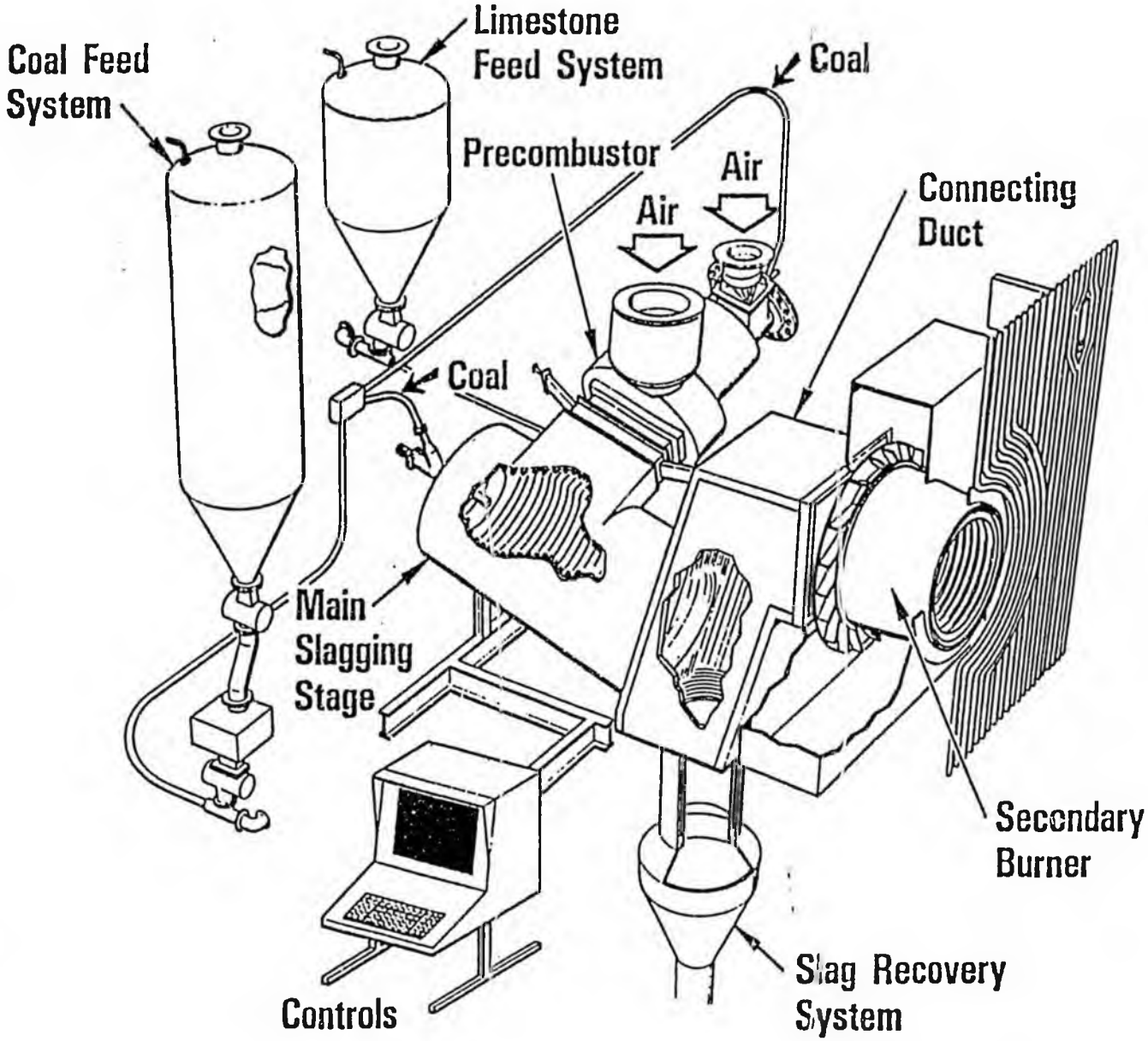
DOE Selected 13 Proposals

$1.3 billion Total Value

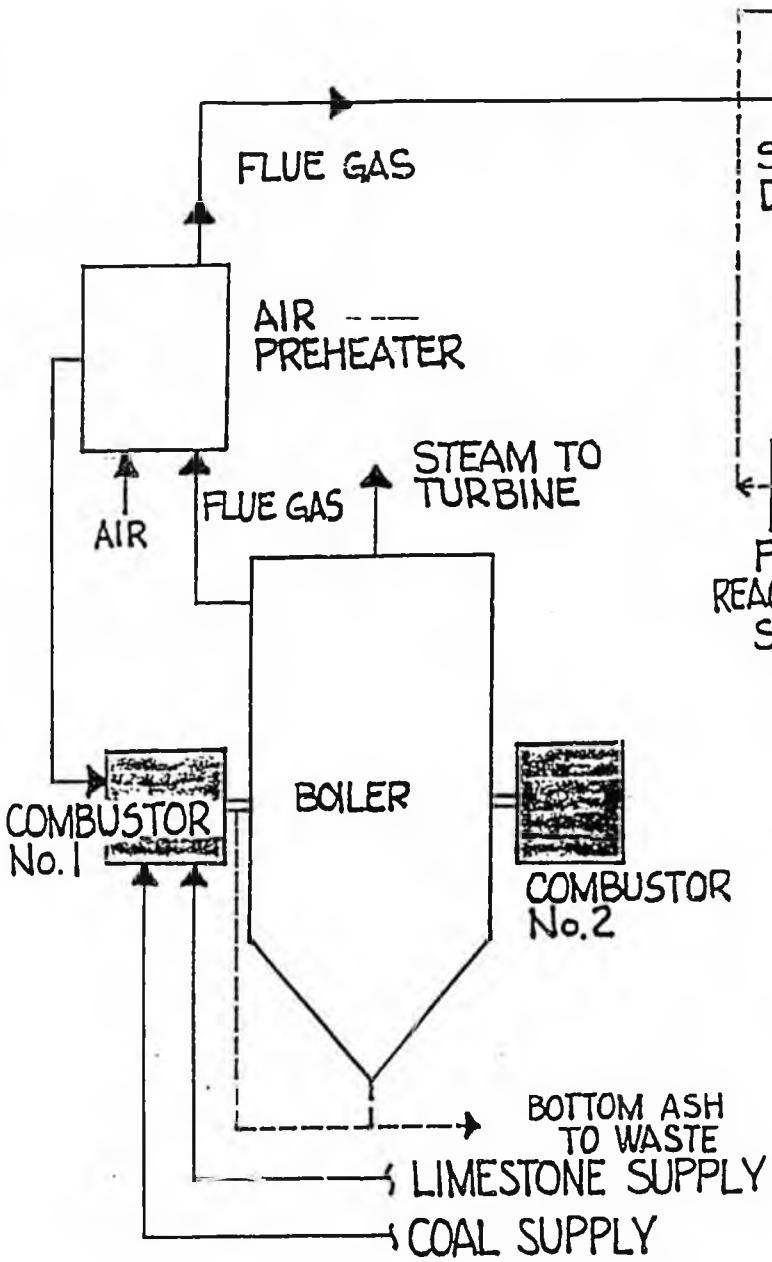
$540 million DOE

$770 million Private & State

Pre - Award activities must be completed by December 22, 1990



TRW ENTRAINED COMBUSTION SYSTEM
Alaska Industrial Development and Export Authority



ADVANCED TECHNOLOGIES

1. ENTRAINED COMBUSTORS

2. FLUE GAS DESULFURIZATION

HCP BENEFITS

* LOW COST, COAL-BASED POWER
* CLEAN COAL TECHNOLOGY - LOW PLANT EMISSIONS
* FUEL DIVERSIFICATION FOR POWER GENERATION
* WASTE COAL UTILIZED
* ENHANCED COAL EXPORT
* USEFUL BYPRODUCTS

SOURCES OF FUNDS

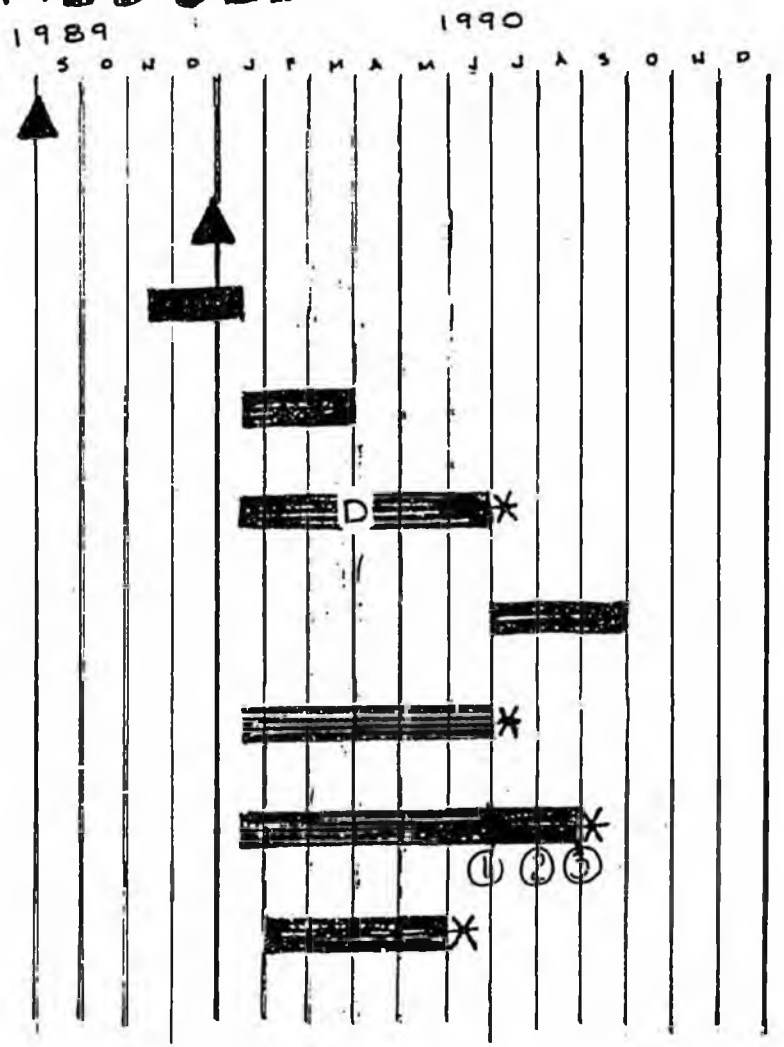
* CCT PROGRAM	$93,186,000
* RAILBELT FUND	30,000,000
* AIDEA BONDS	68,532,000
	$191,718,000

USES OF FUNDS

* DESIGN & PERMITS	$ 26,721,000
* CONSTRUCTION	134,197,000
* DEMONSTRATION	30,800,000
	$ 191,718,000

HCP NEAR-TERM SCHEDULE

DOE PROPOSAL
DOE SELECTION
FIN. CONSULT. SELECT.
FINANCIAL PLAN
POWER SALES AGMT.
APUC REVIEW P.S. AGMT.
COAL SALES AGMT.
DOE COOP. AGMT.
SECURE LEG. APPRN.



DOE COOP. AGMT.
① FINAL REPAYMENT PLAN
② HOST SITE AGREEMENT
③ DEMONSTRATE FINANCIAL CAPABILITY

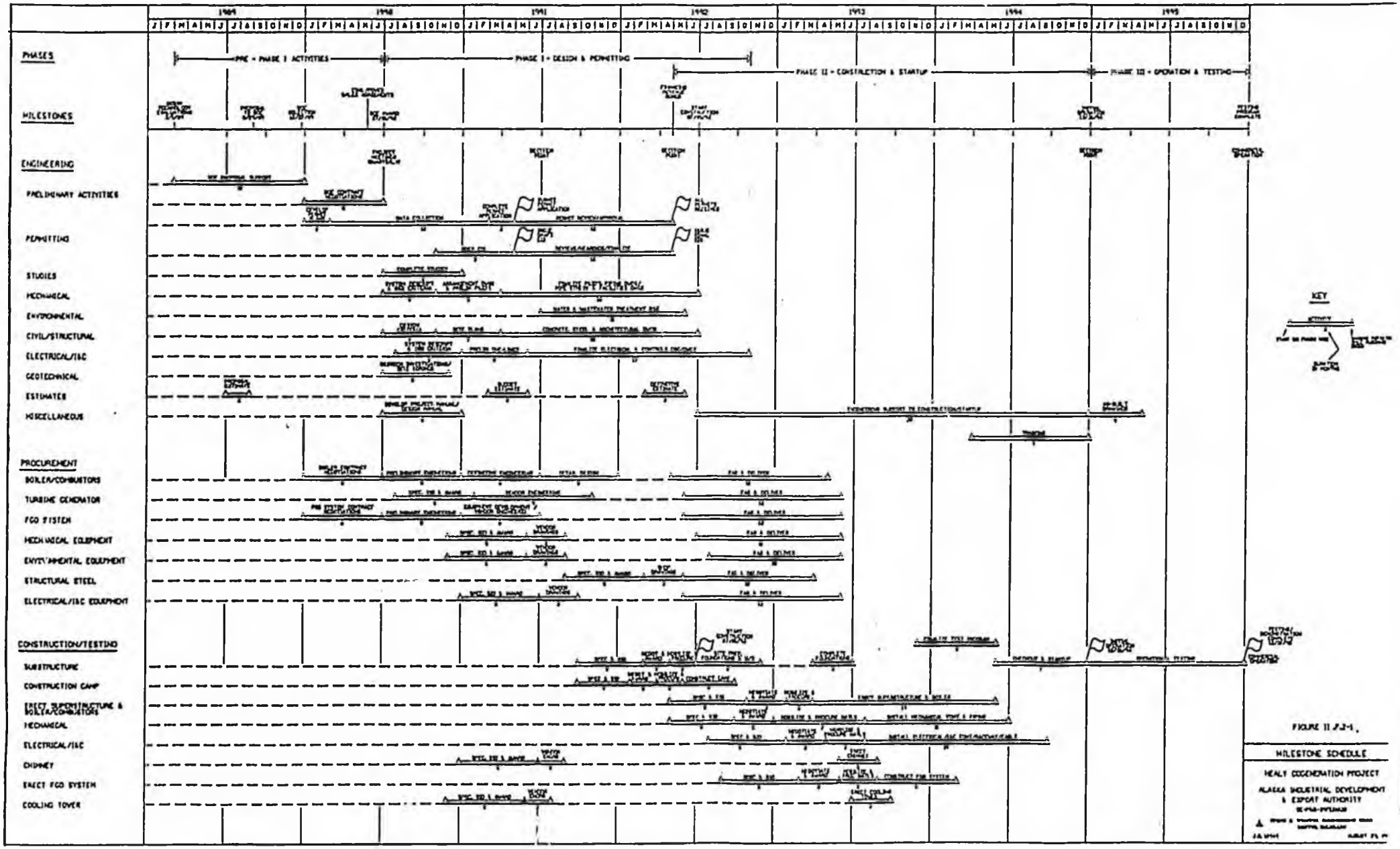
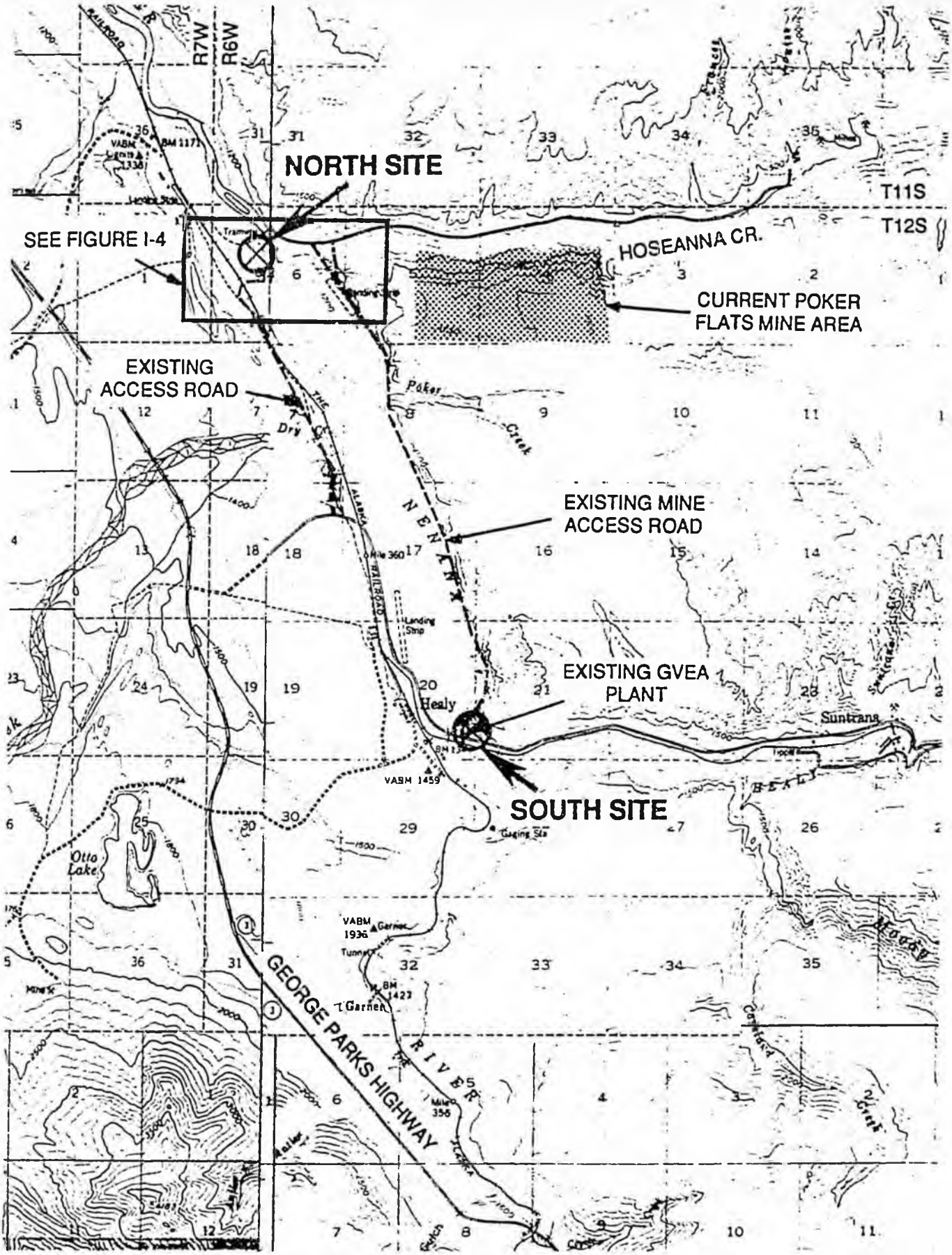


FIGURE II.J.2-1.

MILESTONE SCHEDULE

HEALY COGENERATION PROJECT

ALASKA INDUSTRIAL DEVELOPMENT & EXPORT AUTHORITY



PROJECT AREA
HEALY POWER PROJECT
Alaska Industrial Development and Export Authority

A0290002A

CONSTRUCTION EMPLOYMENT

Mid - 1992 through 1994

$134,197,000 Budget

Construction Employment - 200 Workers

OPERATIONAL EMPLOYMENT

GVEA/UCM - Power Generation
50 to 60 workers

UCM - Coal Beneficiation (Potential)
Additional Workers

Financial Feasibility - Major Factors

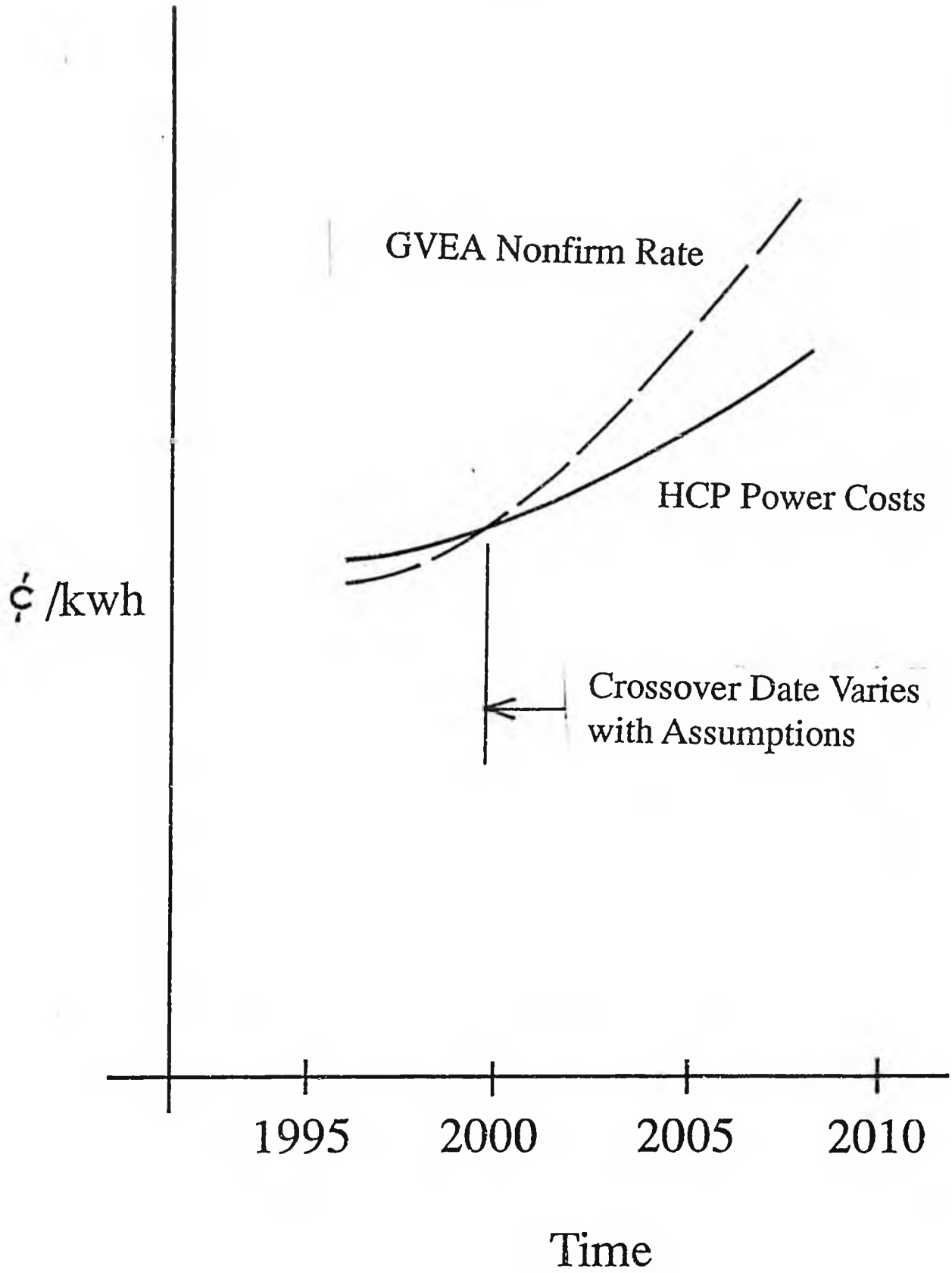
Federal & State Financial Contributions

Tax - Exempt Financing

Construction Costs
- Conservative to Test Feasibility
- Estimates Reviewed
- Contingency Reserved

Operating Costs
- 2 Alternative Sites
- Fixed & Variable Costs

Comparison Power Prices
- Other Generating Sources
- Based on Model of GVEA System


GVEA Nonfirm Rate
HCP Power Costs
¢/kwh
Crossover Date Varies
with Assumptions
1995
2000
2005
2010
Time

KENT DAWSON COMPANY

V. Kent Dawson

P.O. Box 20790
Juneau, Alaska 99802

Phone: (907) 463-2533
FAX: (907) 586-8338

Offices located at 311 North Franklin Street

February 1, 1990

Healy Cogeneration Project

The combination of new coal-burning technologies and low-sulfur Alaska coal will result in one of the cleanest coal-burning power plants in the world

Healy Cogeneration Project Selected

In August 1989 the Alaska Industrial Development and Export Authority (AIDEA) submitted a proposal for the Healy Cogeneration Project (HCP) to the U.S. Department of Energy (DoE) under the DoE's Clean Coal Technology Program. In December 1989, the HCP proposal was selected from among 48 other projects for grant funding of up to $93.2 million. The grant will finance nearly half of the design, capital and initial operating costs of the HCP plant. The project schedule calls for plant construction to be complete in 1995 with a one-year start-up and test program to follow.

The HCP project will construct a state-of-the-art coal-fired power plant at Healy, Alaska. The power plant will provide 50 megawatts of competitively priced electricity to satisfy increasing railbelt demand; will demonstrate innovative coal burning technologies; and may provide energy for the future development of a pilot-scale plant to beneficiate high-moisture Alaska coals. The combination of new coal-burning technologies and low-sulfur Alaska coal will result in one of the cleanest coal-burning plants in the world.

Alaska Benefits

The Healy Cogeneration Project will draw national and international attention to the demonstration of leading-edge technologies and provide a variety of benefits to the state's economy. The project will employ approximately 200 workers during a two year construction period and create about 50 year-round jobs in Healy once the plant is fully operational. In addition to employment, several other long-term economic benefits will contribute to the future well-being of Alaska's railbelt.

Satisfying Growing Railbelt Energy Needs

The addition of a new, efficient 50 megawatt power plant will provide power to satisfy increasing railbelt energy demands and will help diversify the fuel base of the railbelt power grid. Between 1984 and 1989, kilowatt-hour sales by GVEA increased nearly 24 percent. By the mid to late 1990's, additional base load generating capacity will be needed. While primarily serving northern railbelt customers, the strategically located generating plant would also be available for transmitting power to the southern railbelt.

Technology for New and Existing Power Plants

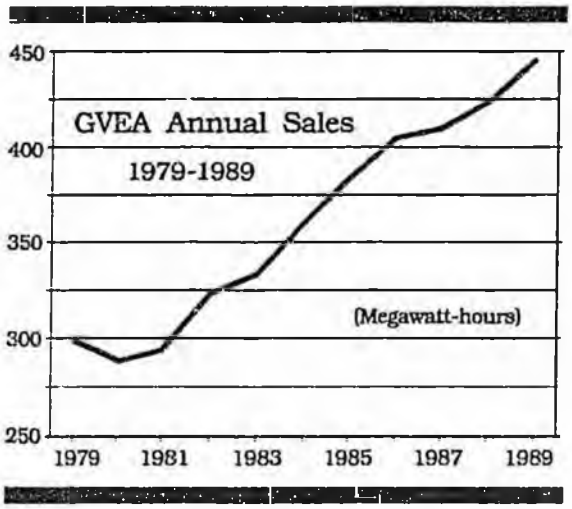
The HCP will demonstrate a clean-burning technology that can be used to retrofit or repower existing power plants in Alaska, the nation, and the Pacific Rim.

Most coal-fired power plants in Alaska and other states will require life extension work within the next 10 to 15 years. EPA's stringent New

The addition of a new, efficient 50 megawatt power plant will provide competitively priced power to satisfy increasing railbelt energy demands.

Source Performance Standards will be applied to these plants and HCP technology may be the lowest-cost solution for meeting these standards.

In addition to environmental advantages, the use of HCP technology to retrofit coal-fired power plants in the Pacific Rim will open new markets for Alaskan coal. Currently, few Pacific Rim plants are designed to use Alaska's high-moisture low-energy coal. HCP technology will allow Alaskan coal to be burned in these plants without the need for extensive boiler modifications.



The project may also demonstrate the feasibility of new power plants in other areas of Alaska. The reduced size of HCP technology relative to conventional coal plants will make the use of modular construction possible. This may result in lower construction costs for small sized plants which heretofore have not been economically feasible.

Beneficiation of Alaska Coal

A future component of the project may be the use of energy from HCP in a proposed pilot plant which will test methods to increase the quality of Alaskan subbituminous coal by reducing its moisture content or by producing entirely new fuel products. Alaska subbituminous coal has superior environmental qualities compared to coal from virtually all other states and countries. However, its low energy value -- due primarily to its high-moisture content -- makes the coal costly to transport and puts it at an economic disadvantage in international markets. The value and competitiveness of Alaska coal could be increased through drying, gasification, liquefaction or a combination of these processes. The excellent environmental qualities and high energy value of beneficiated Alaska coal would result in a premium fuel for export markets.

Focus on Alaska's Coal Resources

Alaska has enormous resources of coal and could become a major energy supplier to the Pacific Rim. The HCP project will be a showcase for leading-edge coal-burning technology and will bring national and international attention to Alaska's low-sulfur coal resources. The project will also send a clear signal to industry that Alaska is serious about using new and environmentally superior technologies to utilize the state's enormous natural resources.

Clean Coal Technology Program

The Clean Coal Technology program (CCT) was created by the U.S. Congress in response to concerns about acid rain. The program is administered by the DoE and focuses on the reduction of air pollutants considered to be precursors of acid rain. Five rounds of funding totaling over $2.5 billion have been planned. The first two rounds made $973 million available while the third and current round has $540 million available to support qualifying projects. The $93.2 million granted to HCP represented over 17 percent of the total funding available in round three.

The objectives of the current round of CCT funding are to promote, through demonstration projects, the commercialization of innovative technologies which are capable of significantly reducing emissions of sulfur dioxide and nitrogen oxides in existing coal burning facilities and/or providing for future energy needs in an environmentally acceptable manner.

The DoE may match up to 50 percent of the costs for the design, construction and initial operation of selected projects. Project owners are responsible for financing the re-

The project will employ approximately 200 workers during a two year construction period and create about 50 year-round jobs when complete

mainder of the cost. Under the terms of the program, AIDEA and DoE must negotiate an agreement during 1990 for the design, construction, demonstration and financing of the HCP project before federal funding may be awarded.

Project Description

The Healy Cogeneration Project involves six participants. These include the Alaska Industrial Development and Export Authority (AIDEA), which will own the project and be assisted by the Alaska Energy Authority; Golden Valley Electric Association (GVEA) which will operate, maintain and purchase power from the project; Usibelli Coal Mine, Inc. (UCM) which will supply coal and has offered a project location site; Stone & Webster Engineering Corporation, which will act as project design and management engineer; TRW Combustion Business Unit, which will provide proprietary combustion technology; and Joy Technologies Inc. which will provide proprietary emission control technology.

The HCP power plant will use an innovative design integrating advanced combustion, heat recovery, and emission control technologies. The environmental emissions from the HCP plant, including sulfur dioxide and nitrogen oxides, may be lower than any other coal-based power system in the world.

The HCP plant will use approximately 300,000 tons per year of low-sulfur subbituminous coal and will produce 50 megawatts of competitively priced electrical power. The plant will contribute to energy resource conservation by burning both run-of-mine coal and high-ash waste coal that could not be normally utilized. In the project's demonstration phase, various Alaska coals will be tested and the plant will be made available for testing coals from other states.

The estimated cost of the project is $192 million. The HCP was selected for up to $93.2 million of cost-sharing by DoE. Additionally, in the 1989 legislative session, the Alaska legislature reserved $30 million from the Railbelt Energy Fund for potential appropriation to the HCP project. The appropriation of the reserve was to be contingent upon the selection of the project by DoE, the preparation by AIDEA of an acceptable financial plan, and the drafting of power sales agreements. The HCP participants are requesting that the reserved funds be appropriated to the project during the 1990 legislative session. The balance of the project costs will be secured by AIDEA through the sale of revenue bonds.

Project Participants

Six participants cooperated in the preparation of the HCP proposal and will participate in the performance of the project.

1. The Alaska Industrial Development and Export Authority (AIDEA) supervised the preparation and submittal of the HCP proposal to DoE and will:
   - be the HCP project owner and coordinate the functions of the Alaska Energy Authority;
   - prepare a financial plan for submittal to the Alaska legislature; and
   - issue revenue bonds to finance project costs not covered by federal or state grants.

2. Golden Valley Electric Association (GVEA) will:
   - oversee the project's design and construction;
   - operate and maintain the HCP power plant;
   - purchase electricity produced by the project;
   - manage the training of operator personnel; and
   - perform power plant start-up activities.

3. Usibelli Coal Mine, Inc. (UCM) initiated, oversaw and funded the costs of preparing the HCP proposal and will:
   - make land owned or leased by UCM available for the siting of the HCP project;
   - supply coal to HCP and dispose of plant ash; and
   - review project design and construction activities.

4. Stone and Webster Engineering Corporation acted as consulting engineer and prepared the HCP proposal under contract to UCM and will:
   - act as design engineer and supply key members to the project management and design team; and
   - provide construction and management services to AIDEA.

The project will draw international attention to the demonstration of leading-edge technology and provide a variety of benefits to Alaska's economy.

5. TRW Combustion Business Unit assisted in the preparation of the HCP proposal and will:
   - provide proprietary combustion technology to the project;
   - participate in the project design; and
   - provide warranties and guarantees covering the design and performance of TRW equipment.
6. Joy Technologies Inc. assisted in the preparation of the HCP proposal and will:
   - provide proprietary technology for the sulfur and ash removal;
   - participate in the project design; and
   - provide warranties and guarantees covering the design and performance of Joy Technologies equipment.

New Technologies

The Healy project will integrate entrained coal combustion (ECC) technology developed by TRW Combustion Business Unit and spray dryer absorber (SDA) technology developed by Joy Technologies Inc.

Entrained Coal Combustion

In ECC technology, pulverized coal is injected into a precombustion chamber where it is entrained in swirling air and partially burned. The ash contained in the coal is converted to molten slag which is collected and drained off the chamber walls. The removal of over 80 percent of the ash before reaching the boiler minimizes conventional maintenance problems and allows the combustion technology to be used with boilers originally designed for other fuels.

Additional air is added in a secondary burner where further combustion of the hot gases takes place before entering the boiler. At the entrance to the boiler, limestone is injected into the combustion gases to react with and provide first-stage removal of sulfur dioxide. The temperatures and oxygen levels throughout the combustion stages are carefully controlled to both minimize the formation of nitrogen oxides and maximize sulfur removal.

Pilot tests of ECC have demonstrated its reliability and high energy efficiencies, while emissions of sulfur dioxide and nitrogen oxides have been shown to be equal to or lower than those from other new technologies. Additionally, the size of ECC combustion units are relatively small compared with other new technologies. Therefore, they can be more easily adapted to existing boilers and may make smaller-scale coal plants feasible.

Spray Dryer Absorber

In addition to sulfur reductions in the ECC combustion system, Joy Technologies' SDA emission control system further reduces sulfur dioxide levels in the flue gases. A recycled ash product, produced by the limestone injected during combustion, is mixed with water and sprayed into the flue gases. Sulfur dioxide reacts with the spray and is removed along with the remaining ash in filter bags. The second-stage removal of sulfur dioxide and the reduced costs of limestone recycling contribute to the environmental and operational efficiencies of the HCP design.

Project Contacts

For further information on the Healy Cogeneration Project, contact the personnel listed below.

Alaska Industrial Development and Export Autority
John Olson, Project Manager
480 W. Tudor Road
Anchorage, AK 99503
Tel. (907) 561-8050
Fax. (907) 561-8998

Golden Valley Electric Association
Mike Kelly, General Manager
Vayla Colonell, Member Services
758 Illinois Street
P.O. Box 71249
Fairbanks, AK 99707-1249
Tel. (907) 452-1151
Fax. (907) 451-5633

Usibelli Coal Mine, Inc.
John Sims, Vice President Marketing
Steve Denton, Consulting Engineer
122 First Avenue, Ste. 302
Fairbanks, Ak 99701
Tel. (907) 452-2625
Fax. (907) 451-6543

APR 23 1990

ALASKA INDUSTRIAL DEVELOPMENT
AND EXPORT AUTHORITY

480 WEST TUDOR • ANCHORAGE, ALASKA 99503-6690 • (907) 561-8050 • FAX: (907) 561-8998

April 18, 1990

The Honorable Bettye Fahrenkamp
Alaska State Legislature
Room 125, Capitol
P.O. Box V
Juneau, Alaska 99811

Subject: Healy Power Project - Draft Power Sales Agreement

Dear Senator Fahrenkamp:

Enclosed for your review and consideration is a Draft Power Sales Agreement for the Healy Power Project.

The draft agreement (Attachment B) is intended to satisfy the requirement of SLA 1989, Chapter 117, Section 217(e)(2)(A), that the Alaska Industrial Development and Export Authority (AIDEA) and Golden Valley Electric Association (GVEA) record their intention to enter into a final power sales agreement.

Having completed the draft power sales agreement AIDEA has satisfied all requirements as outlined in SLA 1989, Chapter 117, Section 217 (Attachment A). Theses requirements included:

1. A draft power sales agreement for firm energy output from the plant. (See Attachment B).

2. A financial plan for the Healy Power Project. (See Attachment C)

3. A commitment from the federal Department of Energy, Clean Coal Technology Program, to the Healy Power Project for a grant in an amount that at least matches the state contribution.... (See Attachment D)

Should you have any questions or need additional information please do not hesitate to contact me.

Sincerely,

Bertram L. Wagnon
Executive Director

WRS/bjf
Enclosures

cc: Jack Jessie, Chairman, AIDEA Board of Directors
Mike Kelly, GVEA
Bob LeResche, Alaska Energy Authority

ATTACHMENT A

SLA 1989, Chapter 117, Section 217

* Sec. 217. (a) The sum of $30,000,000 is appropriated from the Railbelt energy fund (AS 37.05.520) to the general fund, contingent upon (b) of this section.

(b) The sum of $30,000,000 is appropriated from the general fund to the Railbelt energy fund (AS 37.05.520) for the Healy cogeneration project, contingent upon (a) of this section.

(c) Funds may not be expended from the Healy cogeneration project reserve until appropriated by the legislature..

(d) The unappropriated balance of the appropriation made in (b) of this section lapses into the Railbelt energy fund without restrictions June 30, 1990.

(e) It is the intent of the legislature that

(1) this appropriation is for a Railbelt energy need and is not specific to House District 17, or Senate District J, with respect to future reappropriation;

(2) before any legislative appropriation for the Healy cogeneration project, the project sponsors shall provide the legislature with:

(A) a draft power sales agreement for firm energy output from the plant;

(B) a financial plan for the Healy cogeneration project; and

(C) a commitment from the federal Department of Energy, Clean Coal Technology Program, to the Healy cogeneration project for a grant in an amount that at least matches the state contribution; and

(3) during the interim, the project sponsors shall work with the Alaska Industrial Development and Export Authority to evaluate ownership and financial options.

DRAFT POWER SALES AGREEMENT FOR THE HEALY CO-GENERATION PROJECT

To fulfill the requirements of Section 217(e)(2)(A), 1989 SLA Ch. 117, Alaska Industrial Development and Export Authority ("AIDEA") and Golden Valley Electric Association, Inc. ("GVEA") record their intention to enter into a final Power Sales Agreement ("Agreement") with respect to the Healy Co-Generation Project ("Project") containing the following provisions:

1. AIDEA will use its best efforts to issue bonds in an amount not to exceed $85 million to finance the Project and to design, construct and complete the Project according to a timetable to be agreed and attached to the Agreement. The Bonds will be payable from Project revenues or from sources other than the state, as identified in the Agreement.

2. GVEA will agree to purchase 100 percent of the energy output ("Project Capacity") of the Project. Amounts paid for Project Capacity ("Payments") in each year would be payable on a monthly basis in amounts equal to amounts that AIDEA is required to deposit in its various accounts under the bond resolution or bond indenture which will be attached to the Agreement; such amounts to include debt service on the bonds, operations and maintenance costs, insurance, and payments to repair and replacement reserve accounts agreed to by the parties. The actual debt service component payment amounts shall be agreed by the parties and will be fixed at the time of

issuance of bonds. GVEA will make its commitments irrevocable prior to the beginning of construction or the issuance of bonds. GVEA's obligation will also be contingent upon entering into appropriate coal purchase and steam sales agreements satisfactory to it. GVEA will also pay all costs of operation and maintenance of the Project and normal repairs and replacements. The parties will agree as to the means of financing major repairs and improvements which could include a covenant by AIDEA to use its best efforts to finance the costs of such major repairs and improvements.

3. The term of the Agreement will commence when the Agreement has been signed, when all necessary approvals, including approval by the Alaska Public Utilities Commission (APUC), have been obtained and when the state and federal appropriations, and grants and authorizations are made available. The grants include (a) grant from U.S. Department of Energy of $93.2 million, (b) State appropriation to AIDEA of $30 million in 1990 dollars with interest, and (c) State appropriation to AEA for the Northern Intertie totalling $66 million in 1990 dollars with interest. Further necessary approvals will be identified in the Agreement. The time within which the necessary approvals must be obtained and appropriations made available would be fixed prior to the financing date. The Agreement will extend 35 years from the date of commercial operation.

4. The obligation to make Payments by GVEA will begin on the date of commercial operation. The date of commercial operation will be the date on which the DOE completes all demonstration and testing of Project technology, the Project demonstrates full Project capability, and engineers retained for the purpose declare the Project to be fully able to be operated at not less than its design capacity on a sustained basis for its projected life of 35 years. The Agreement will contain a provision allowing its termination by either party if the date of commercial operation is not achieved prior to a fixed date.

5. Financing during construction will be credit enhanced under a letter of credit with the construction and project guarantys customary for this kind of financing. The agreement will be "Take or Pay" from the date of commercial operation. This means that GVEA will agree to make Payments notwithstanding a suspension or reduction in the mount of energy supplied by the Project. Other agreements with Project participants may provide for financial assistance to the Project and GVEA if the technology performs below that of conventional plants.

6. Prior to the issuance of Bonds, GVEA will agree to operate and maintain the Project under terms and conditions acceptable to both parties.

7. GVEA will have the right to make optional additions to the Project at its own expense. AIDEA and GVEA

will agree to accept an independent consultant's determination as to whether or not the proposed addition would have any adverse affect on GVEA's abilities to perform under the Agreement. The Agreement will contain covenants by GVEA to establish appropriate rates to meet its obligations under the Agreement, to maintain its system in good repair, and not to enter into contracts which limit its power to perform under the Agreement; provided, however, that GVEA's relationship with the Rural Electrification Administration will not be compromised by these covenants.

8. The Agreement will contain provisions permitting the assignment of payments to the Trustee under the bond resolution or indenture and provisions that additional bonds may be issued upon a joint finding that additions are necessary to provide for the economic and efficient operation of the Project.

9. The Agreement will provide that GVEA will maintain appropriate insurance.

10. GVEA will agree to consent to the adoption of supplemental resolutions or indentures for the issuance of bonds to either complete the Project or to finance additions and improvements in a form to be determined by the parties and attached to the Agreement. Appropriate permission for GVEA to assign the agreement as required by its other financing documents would be included.

11. The Agreement will permit GVEA, upon providing for payment of (a) the AIDEA bonds, (b) the $30 million AIDEA contribution, and (c) any other obligations AIDEA has incurred concerning the Project, to terminate the Agreement and end the Project or to purchase the Project.

12. AIDEA will have a right to bring suit immediately to enforce payments due under the Agreement and the right to terminate or suspend the delivery of energy. GVEA will have the right to bring any action, suit or proceeding as necessary to enforce its rights but will not have the right to suspend its payment obligations.

13. The Agreement will contain covenants to maintain the integrity of the Agreement, require GVEA and AIDEA to pursue all necessary administrative and judicial remedies, and to take necessary steps to comply with federal and state law and to comply with all lawful terms of applicable licenses.

14. The Agreement will contain all agreements necessary for tax exempt financing, if tax exempt financing can be secured.

15. The Agreement will make provision for potential use of unused heat from the Project by Usibelli Coal Mine, Inc. under conditions mutually acceptable to GVEA and Usibelli, and approved by AIDEA.

16. The Agreement will contain appropriate severability, a no-remedies cumulative provision and similar contract technical provisions.

17. The parties agree to negotiate in good faith to finalize a power sales agreement including the above terms, and to use their respective best efforts to complete such agreement and submit it to all appropriate bodies, for approval no later than September 30, 1990 (including, but not limited to, the governing bodies of both parties, the Alaska Public Utilities Commission and the U.S. Rural Electrification Administration).

Agreed, this 17th day of April, 1990;

Alaska Industrial Development and Export Authority

Bertram L. Wagnon
Executive Director

Golden Valley Electric Association

Michael P. Kelly
General Manager

17. The parties agree to negotiate in good faith to finalize a power sales agreement including the above terms, and to use their respective best efforts to complete such agreement and submit it to all appropriate bodies, for approval no later than September 30, 1990 (including, but not limited to, the governing bodies of both parties, the Alaska Public Utilities Commission and the U.S. Rural Electrification Administration).

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Bertram L. Wagnon
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ATTACHMENT C

Financial Plan and Feasibility Study dated March 30, 1990, previously sent under separate cover.

ATTACHMENT D

Department of Energy
Washington, DC 20585

Mr. Bert Wagnon
Executive Director
Alaska Industrial Development
and Export Authority
480 West Tudor
Anchorage, AK 99503-6690

Dear Mr. Wagnon:

I would like to add my congratulations to those which you have already received for being selected for negotiations in the Clean Coal Technology Program. I am looking forward to working with you for successful negotiations for award of a Cooperative Agreement and more importantly the successful completion of the project.

The Secretary of Energy has issued a directive that sets a 12 month deadline for negotiations and approval of all 13 projects selected. My first step to meet this objective is to have a senior management policy meeting with all 13 of the participants, the Directors of the DOE Energy Technology Centers at Morgantown and Pittsburgh and the Deputy Assistant Secretary for Coal Technology. I would like to take this opportunity to invite you or your designee to this meeting. The meeting is scheduled for 10:30 A.M. on January 3, 1990, in the Forrestal Building located at 1000 Independence Avenue, S.W., Washington, D.C. 20585.

I apologize for such short notice but every week is vital to meet the objectives and this meeting is viewed with a great deal of urgency and importance by myself and my staff.

Please call the office of Mr. Jack Siegel at 202/586-1650, with the name(s) of the individuals from your organization who will be attending. On the day of the meeting call this same number from the security desk at the Forrestal Building and you will be escorted to the meeting room.

I look forward to meeting with you.

Sincerely,

M R McElwrath

Michael R. McElwrath
Acting Assistant Secretary
Fossil Energy

OMB Approval No. 0348-0006

FEDERAL ASSISTANCE

1. TYPE OF SUBMISSION (Mark appropriate box)
- ☐ NOTICE OF INTENT (OPTIONAL)
- ☐ PREAPPLICATION
- ☐ APPLICATION

2. APPLICANT'S APPLICATION IDENTIFIER
a. NUMBER: 000-1
b. DATE (Year month day): 1989/8/29

3. STATE APPLICATION IDENTIFIER (NOTE: TO BE ASSIGNED BY STATE)
a. NUMBER: N/A
b. DATE ASSIGNED (Year month day): 19

Leave Blank

SECTION I—APPLICANT/RECIPIENT DATA

4. LEGAL APPLICANT/RECIPIENT
- a. Applicant Name: Alaska Industrial Development & Export Authority
- b. Organization Unit:
- c. Street/P.O. Box: 480 West Tudor Road
- d. City: Anchorage
- e. County: N/A
- f. State: Alaska
- g. ZIP Code: 99503
- h. Contact Person (Name & Telephone No.): William R. Snell (907) 561-8050

5. EMPLOYER IDENTIFICATION NUMBER (EIN): X 926001185

6. PROGRAM (From CFDA)
a. NUMBER: 1 0 0 . 4 4 6
MULTIPLE ☐
b. TITLE: Public Law Clean Coal Technology

7. TITLE OF APPLICANT'S PROJECT (Use section IV of this form to provide a summary description of the project.)
Healy Cogeneration Project demonstrating TRW's Entrained Combustion System with limestone injection and Joy Technologies' activated recycle SDA Systems.

8. TYPE OF APPLICANT/RECIPIENT
A—State; B—Interstate; C—Subdivision Organization; D—County; E—City; F—School District; G—Special Purpose District; H—Community Action Agency; I—Higher Educational Institution; J—Indian Tribe; K—Other (Specify):
Enter appropriate letter: A

9. AREA OF PROJECT IMPACT (Names of cities, counties, states, etc.)
Railbelt Communities

10. ESTIMATED NUMBER OF PERSONS BENEFITING: 350,000

11. TYPE OF ASSISTANCE
A—Basic Grant; B—Supplemental Grant; C—Loan; D—Insurance; E—Other
Enter appropriate letter(s): A

12. PROPOSED FUNDING

a. FEDERAL	$93,186,000.00
b. APPLICANT	68,532,000.00
c. STATE	30,000,000.00
d. LOCAL	---.00
e. OTHER	---.00
f. Total	$191,718,000.00

13. CONGRESSIONAL DISTRICTS OF:
a. APPLICANT:
b. PROJECT: Railbelt Anchorage to Fairbanks

14. TYPE OF APPLICATION
A—New; B—Revision; C—Revision; D—Construction; E—Augmentation
Enter appropriate letter: A

15. PROJECT START DATE (Year month day): 19 90/1/2

16. PROJECT DURATION: 72 Months

17. TYPE OF CHANGE (For 14c or 14e)
A—Increase Dollars; B—Decrease Dollars; C—Increase Duration; D—Decrease Duration; E—Cancellation; F—Other (Specify):
N/A
Enter appropriate letter(s):

18. DATE DUE TO FEDERAL AGENCY (Year month day): 1989/8/29

19. FEDERAL AGENCY TO RECEIVE REQUEST: Department of Energy

20. EXISTING FEDERAL GRANT IDENTIFICATION NUMBER: DE-PS01-89FE61825

a. ORGANIZATIONAL UNIT (IF APPROPRIATE): Office of Procurement Operations

b. ADMINISTRATIVE CONTACT (IF KNOWN): Herbert D. Watkins

c. ADDRESS: U.S. Dept. of Energy, Office of Procurement Operations, Forrestal Building, Room 1J-005 Attn:Document Control Spec; 100 Independence Ave SW, Washington D.C. 20585

21. REMARKS ADDED: ☐ Yes ☒ No

SECTION II—CERTIFICATION

22. THE APPLICANT CERTIFIES THAT: To the best of my knowledge and belief, data in this preapplication/application are true and correct, the document has been duly authorized by the governing body of the applicant and the applicant will comply with the attached assurances if the assistance is approved.

a. YES, THIS NOTICE OF INTENT/PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON: DATE _____

b. NO, PROGRAM IS NOT COVERED BY E.O. 12372 ☒
OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW ☐

23. CERTIFYING REPRESENTATIVE
a. TYPED NAME AND TITLE: William R. Snell, Deputy Director of Development
b. SIGNATURE: William R. Snell

SECTION III—FEDERAL AGENCY ACTION

24. APPLICATION RECEIVED (Year month day): 19

25. FEDERAL APPLICATION IDENTIFICATION NUMBER:

26. FEDERAL GRANT IDENTIFICATION:

27. ACTION TAKEN
- ☐ a. AWARDED
- ☐ b. REJECTED
- ☐ c. RETURNED FOR AMENDMENT
- ☐ d. RETURNED FOR E.O. 12372 SUBMISSION BY APPLICANT TO STATE
- ☐ e. DEFERRED
- ☐ f. WITHDRAWN

28. FUNDING

a. FEDERAL	$ .00
b. APPLICANT	.00
c. STATE	.00
d. LOCAL	.00
e. OTHER	.00
f. TOTAL	$ .00

29. ACTION DATE (Year month day): 19

30. STARTING DATE (Year month day): 19

31. CONTACT FOR ADDITIONAL INFORMATION (Name and telephone number)

32. ENDING DATE (Year month day): 19

33. REMARKS ADDED: ☐ Yes ☐ No