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218

COMMITTEE REPORT

HOUSE

6/4/81

FURTHER:

(11)

Date: 6/4/81

Mr. Speaker:

The Committee on RESOURCES has had CSSB 218(Res)

"An Act relating to waste heat produced by certain pipeline facilities; and providing for an effective date."

under consideration and reports it back as follows:

- do pass do not pass
- do pass with attached amendments(s)
- replace with HCS for CSSB 218 same title
 new title
- and recommends _____
- AND attaches a "Letter of Intent" New Fiscal Note
- reports it back without recommendation
- referred to the _____ Committee

MEMBERS SIGNING
DO PASS

MEMBERS HAVING
OTHER RECOMMENDATIONS:

CHAIRMAN

COMMITTEE REPORT

HOUSE

6/4

5/8/81

FURTHER: RESOURCES

(7)

Room 118

Date: 6/3/81

Mr. Speaker:

The Committee on SPECIAL GAS PIPELINE has had CSSB 218(Res)

"An Act relating to waste heat produced by certain pipeline facilities; and providing for an effective date."

under consideration and reports it back as follows:

do pass do not pass

do pass with attached amendments(s)

replace with CS for CS 218 (R.P.) same title

and recommends do pass new title

AND attaches a "Letter of Intent" New Fiscal Note

reports it back without recommendation

referred to the _____ Committee

MEMBERS SIGNING
DO PASS

Tommy Harding

MEMBERS HAVING
OTHER RECOMMENDATIONS:

None Reported No Rec

Tommy Harding

CHAIRMAN



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Agricultural Experiment Station
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309 O'Neill Resources Building
905 Koyukuk Avenue North
Fairbanks, Alaska 99701

M E M O R A N D U M

TO: Mr. Mark Wittow, House Special Gas Pipeline Committee,
State Capitol, Room 24, Juneau, AK 99811

FROM: James V. Drew, Dean and Director

DATE: June 1, 1981

RE: Support of CS for Senate Bill 218

Waste heat for power plants and pumping stations has been successfully utilized to warm greenhouses in northern climates. The Northern States Power Company, Minneapolis, Minnesota and the University of Minnesota with the benefit of a grant from the federal Environmental Protection Agency, began a cooperative venture to demonstrate the technical and economic feasibility of using power plant waste heat for the production of greenhouse crops in 1975. A 1/2-acre greenhouse was constructed in the fall of that year and began using waste heat from the newly constructed power plant in 1976. The project was highly successful and in 1977, two commercial greenhouse operators approached Northern States Power Company for waste heat and suitable sites to begin production. The greenhouse operators were leased sites and began purchasing waste heat in 1977. The original 1/2-acre greenhouse demonstration project was scheduled to terminate in 1977. Because the Environmental Protection Agency was interested in the technology and in the success demonstrated by the project, the termination date was extended to 1978. At that time, the operation of the demonstration greenhouse was taken over by one of the commercial growers already located at the site. This grower still uses the smaller greenhouse for research pertinent to his own operation which is currently being expanded with the eventual goal of five acres in production. (See enclosure A).

There are other examples of commercially successful waste-heat greenhouses. Two Canadian operations are doing quite well. The Canadian federal departments of Agriculture and Energy, Mines and Resources joined with BP-Canada at their refinery in the Montreal suburb of Ville d'Anjou,

June 1, 1981

Quebec. BP conducted its own research and is now in full production, with the capacity to expand to 25 acres. (See enclosure B). A second project is one undertaken by Alberta Gas Trunk Line at one of their compressor stations near Calgary, Alberta. The project was built by Alberta Gas and is operated by a subsidiary, Algas Resources, Limited. It will be operated as a demonstration project for two years to check out the economic and technical conditions under which it can be commercially operated. Its present size is approximately 3/4 of an acre. (See enclosure C).

The important aspect of each of these projects is that the initial research and demonstration greenhouses were converted after a short operating period to commercial facilities owned by private individuals or corporations. A plan similar to those initiated in Minnesota and Canada could become a reality in Alaska. It would provide an opportunity for state and private entities to cooperate to:

- 1) apply a new technology for energy conservation in Alaska,
- 2) expand the greenhouse industry in the state,
- 3) provide an increase in employment throughout the production and marketing sector,
- 4) develop a greenhouse building industry in Alaska,
- 5) ultimately reduce imports of flowers, ornamental plants, fruits, and vegetables.

JVD:cw

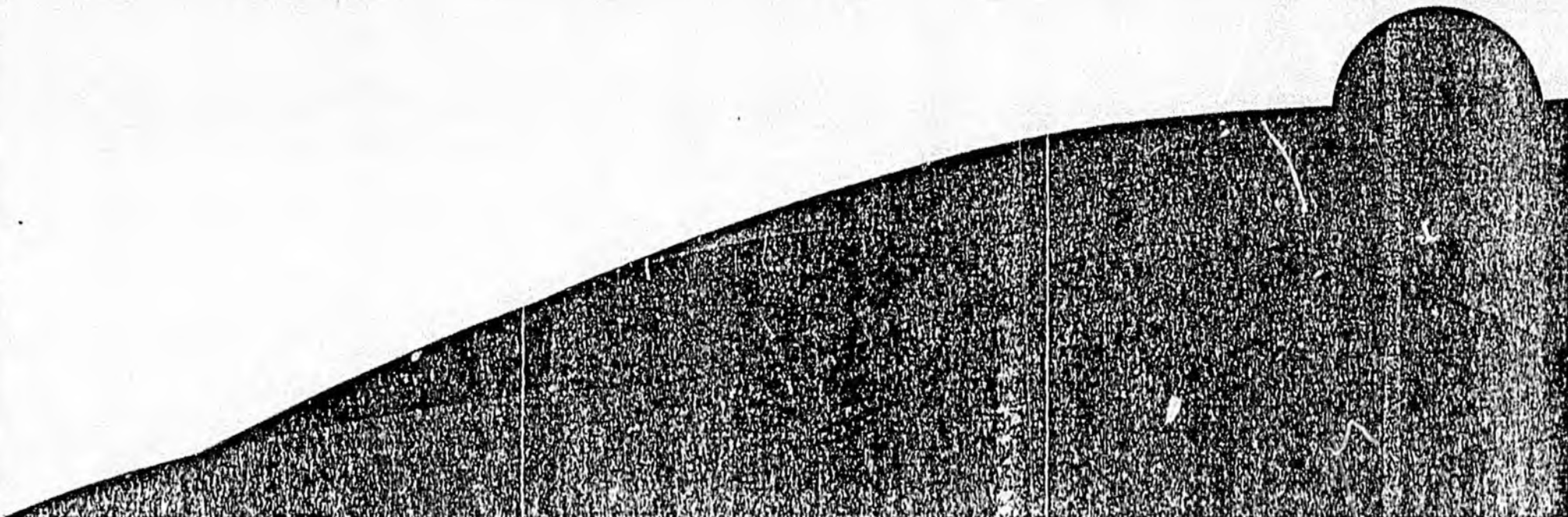
Enclosures



For more information contact: **Stephanie Ho Lem**
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Calgary, Alberta, Canada T2P 2V7
(403) 231-9680

The Princess Greenhouse

A
Demonstration
Project



THE PRINCESS GREENHOUSE

The Alberta Gas Trunk Line's Princess Compressor Station does more than pump natural gas. It's producing enough waste heat as a byproduct to grow top quality tomatoes and other vegetables for the local supermarkets.

A one-acre greenhouse was completed in January 1970 to demonstrate the feasibility of utilizing that otherwise wasted heat to produce top quality vegetables. Under the management and guidance of Alberta Gas Trunk Line's subsidiary, Algas Resources Ltd., the greenhouse has been operating as a demonstration project to determine the actual economic and technical conditions under which a facility heated in this manner will operate.

The quality of the vine-ripened tomatoes is far superior to those picked green from Mexico and southwestern U.S. which are shipped thousands of miles to Alberta and artificially ripened for its consumers.

Also vitally important is that Alberta Gas Trunk Line has diverted that otherwise wasted heat to heat fuel gas and the station buildings, thus saving thousands of dollars in fuel bills and conserving valuable natural gas that would normally be used.

HOW THE WASTE HEAT GREENHOUSE WORKS

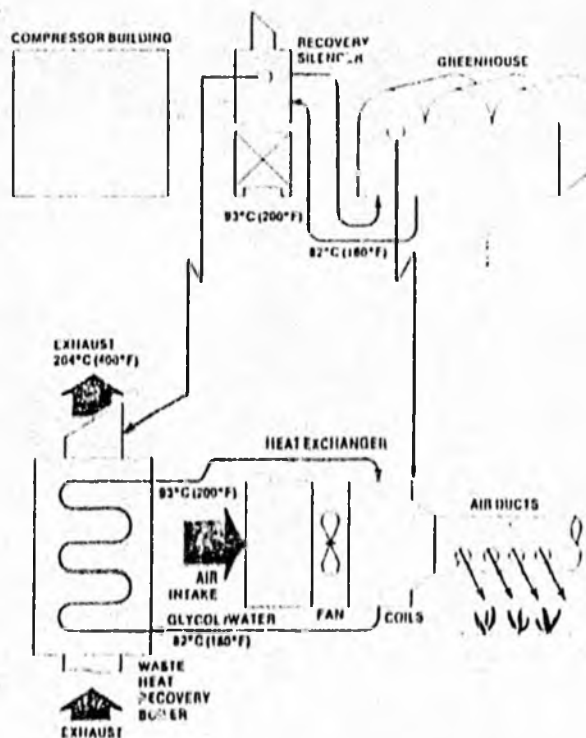
Princess Compressor Station, Alberta Gas Trunk Line's largest station, was chosen as the site for the waste heat recovery system because of its engines' nearly continuous operation on an annual basis.

Approximately 10 million Btu's per hour are recovered (enough to heat 100 homes) from two running engines. A 50/50 water/glycol mixture is the transport medium. The water/glycol mixture enters the waste heat recovery boiler at 82°C (180°F). Once the mixture is heated to 93°C (200°F) it flows through the station buildings, fuel gas heat exchangers and the greenhouse.

The heat energy is then transferred to the greenhouse air by means of 18 heat exchangers. The heated air is distributed throughout the greenhouse by a series of roof-supported polyethylene tubes.

The greenhouse structure is located some 200 metres (650 ft.) to the south of the waste heat recovery unit. The greenhouse consists of 10 connected bays each 5.3 metres (17.5 ft.) wide by 40.2 metres (132 ft.) long. The greenhouse is constructed out of galvanized metal and ribbed translucent fibreglass. Adjacent to the greenhouse is a service room which houses the control systems, cold room, employee facilities and produce packaging.

PRINCESS WASTE HEAT RECOVERY



GREENHOUSE OPERATIONS

The greenhouse growth system underwent a major change in 1970. The entire greenhouse floor was excavated, graded and 30 cm (12 inches) of concrete over sand was placed in the greenhouse. Sand culture (a form of hydroponics) was chosen over soil and other growth mediums for its ease of maintenance and economics. Soil is the most common growing medium but is not always the best medium for greenhouse crop production.

It is anticipated that the greenhouse should yield an average of 91 tonnes (100 short tons) of tomatoes on an annual basis. These will be marketed locally under the "Prairie Sun Vine Ripened" label and will be recognized as an energy conservation product in the supermarkets. According to Agriculture Canada, approximately 12,300 tonnes (13,500 short tons) of tomatoes were consumed in Alberta in 1970; thus the production at Princess has very little impact on total consumption.

With the population growth being experienced within Alberta, prospects appear to be very good for the development of a strong greenhouse industry.

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COMMITTEE REPORT

HOUSE

4/2/81

FURTHER: FINANCE

(11)

Date: MAY 19, 1981

Mr. Speaker:

The Committee on RESOURCES has had CSSB 244(Fin) ar.

"An Act suspending the principal and interest due on certain loans authorized by law and by the Alaska Power Authority for power projects, and redesignating the loans as grants for power projects; and providing for an effective date."

under consideration and (a majority of the committee) (the committee) reports it back with the following recommendations:

- do pass do not pass
- do pass with attached amendments(s)
- replace with CS for CSSB 244 same title
 new title
- and recommends _____
- AND attaches a "Letter of Intent" New Fiscal Note
- reports it back without recommendation
- referred to the _____ Committee

**MEMBERS SIGNING
DO PASS**

Tony Anderson

Paul F. Johnson

Ben Duvorski

**MEMBERS HAVING
OTHER RECOMMENDATIONS:**

Eric Sutcliffe (No Rec)

Rich Bedford (No Rec)

Tony Anderson
CHAIRMAN

Paul F. Johnson

THE LEGISLATURE OF THE STATE OF ALASKA
ELEVENTH LEGISLATURE

FISCAL NOTE

(AMENDED)

I. REQUEST
Bill/Resolution No. CSCSSB 244 Resources (An Act Suspending the Principal & Interest due
Title on Certain Loans Authorized by Law and by the Alaska Power Authority for Power
Requested by _____ Date _____
Projects and Redesignating the Loans as Grants for Power Projects.)

II. FISCAL DETAIL

Agency Affected Commerce & Economic Development

Program Category Affected Development

BRU, Program, or Subprogram(s) Affected Division of Business Loans

(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	-0-	-0-	-0-	-0-	-0-	-0-

FUNDING (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER (Specify Fund Source)						
Loan Principals converted to Grants	-0-	-0-	(1,290.0)	-0-	-0-	-0-
Interest through 6-30-81	- 0 -	(42.1)	-0-	-0-	-0-	-0-

POSITIONS

FULL TIME						
PART TIME						
TEMPORARY						

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

FY'81 Funding shows interest earned in FY'81 which will be lost.

FY '82 funding shows the loss of \$1,290,000 in principal from the Water Resources Revolving Loan Fund when the Sitka, Ketchikan and Kodiak loans are converted to grants.

IV. DATE June 1, 1981

PREPARED BY D.A. Hostak, Acting Director

AGENCY Commerce & Economic Development, Division of Business Loans

PHONE 465-2510

Original: Legislative Finance

cc: Budget and Management

Prime Sponsor (First Legislator Named)

FISCAL NOTE

I. REQUEST (fin)am
 Bill/Resolution No. CSSB 244 An act suspending the principal and interest due on certain
 Title loans authorized by law and by the Alaska Power Authority for power projects, and
 Requested by _____ Date _____
 redesignating the loans as grants for power projects.

II. FISCAL DETAIL
 Agency Affected Commerce & Economic Development
 Program Category Affected Development
 BRU, Program, or Subprogram(s) Affected Division of Business Loans
 (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 81	FY 82	FY 83	FY 84	FY 85	FY 86
100 PERSONAL SERVICES						
200 TRAVEL						
300 CONTRACTUAL						
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

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)

No fiscal impact.

IV. DATE 4-7-81 PREPARED BY Sharon Traylor, Director
 AGENCY Commerce & Econ. Dev., Division of Business Loans
 PHONE 465-2510
 Original: Legislative Finance
 cc: Budget and Management
 Prime Sponsor (First Legislator Named)