The original documents are located in Box 1, folder "Alaska Pipeline Environmental Impact Statement" of the John Marsh Files at the Gerald R. Ford Presidential Library.

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May 13, 1976

MEMORANDUM FOR: FRANK ZARB

FROM:

JACK MARSH

I noted in your recent weekly report the Federal Power Commission's impact statement on the Arctic Gas's proposed pipeline across Alaska and western Canada was found not to be environmental acceptable.

I would be grateful for any further information you can give me as to just what the results of this finding are likely to be.

Many thanks.

JOM/dl



JUN 7 1976



FEDERAL ENERGY ADMINISTRATION WASHINGTON, D.C. 20461 JUN 7 1976

OFFICE OF THE ADMINISTRATOR

MEMORANDUM FOR JOHN O. MARSH, JR. COUNSELOR TO THE PRESIDENT

FROM:

FRANK G. ZARB

SUBJECT:

LIKELY RESULTS OF FPC'S ENVIRONMENTAL IMPACT STATEMENT ON ALASKAN GAS TRANSPORT

As you indicated in your note to me, the FPC's environmental staff found that the Arctic Gas route was the least acceptable on environmental grounds of the proposed transportation routes. This finding is a result of the route's crossing of the Arctic National Wildlife Range, which is largely pristine.

The FPC staff also indicated that the most preferable environmental option is the soon-to-be-filed Northwest Pipeline proposal which follows the Alyeska oil pipeline until Fairbanks and then cuts across the Alcan highway through Canada.

The finding does <u>not</u> put decisive pressure on FPC to formally consider the Northwest proposal in its deliberations, nor does it rule out either the Arctic or El Paso proposals. A decision on Northwest consideration will come soon after Northwest's expected filing with the FPC July 9.

The FPC environmental staff's finding probably will not change Congress's present apparent intent of enacting a procedural bill similar to the Administration's bill. In fact, the addition of a third alternative (Northwest's proposal) illustrates the folly of a quick decision and points out the need for the Administration's bill.



Legally, it is not yet clear whether a separate impact statement will have to be written for the Northwest proposal.

The FPC environmental staff's summary is attached.

~

Attachment



FEDERAL POWER COMMISSION STAFF

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FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE ALASKA NATURAL GAS TRANSPORTATION SYSTEMS

VOLUMEI

EL PASO ALASKA COMPANY Docket No. CP 75-96, <u>et al.</u>

APRIL 1976



Glossary - This volume provides the reader with defini-(vi) tions of technical words or phrases used in the environmental impact statement.

2. Descriptions of Proposals and Preferred Alternatives 1/

a) Applicants' Proposals

i. Arctic Gas Proposal

Arctic Gas proposes to construct an all pipeline system to deliver natural gas from the Prudhoe Bay area on the North Slope of Alaska and the MacKenzie Delta area in northwest Canada to markets in Canada and the United States. The system would consist of approximately 4,504 miles of large diameter pipeline.

The proposed Arctic Gas system is a combination of four cts. Alaskan Arctic Gas - 195 miles of 48-inch diameter projects. pipeline running from Prudhoe Bay to the Alaska-Canada border. Capacity - 2.25 billion cfd; no compression.

Canadian Arctic Gas - 2,297 miles of 48-inch diameter pipeline running from the Alaska-Canada border east to receive MacKenzie Delta gas, then south, dividing at Caroline Junction, Alberta, and terminating at Kingsgate, British Columbia, near the Idaho border and Monchy, Saskatchewan near the Montana border. Capacity - 4.5 billion cfd; 36 compressor stations.

Northern Border Pipeline - 1,138 miles of 42-inch diameter pipeline running from the Montana-Canada border through Montana, the Dakotas, Minnesota, and Iowa terminating at Kankakee, Illinois near Chicago. Capacity - 1.5 billion cfd; approximately 10 new compressor stations.

Figure 1 depicts the routes of the applicant's proposals 1/ and staff's preferred alternative.

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Pacific Gas Transmission and Pacific Gas and Electric - 874 miles of 36-inch diameter pipeline loop (97 percent on existing pipeline rights-of-way), running from the Idaho-Canada border south through Idaho, Washington, and Oregon and terminating at Antioch, California, near San Francisco. Capacity - 0.85 billion cfd; no additional compressors.

The capacities of each of these components could be increased with additional compression and/or looping.

In addition to the pipeline and compressors, the proposed system would require the construction of other related facilities including aircraft landing facilities, delivery taps, communication sites, and roads. A detailed description of the proposed system is given in the DOI Alaskan Arctic Gas Transportation Systems FEIS.

Since the DEIS was circulated, several changes to the Arctic Gas System as originally proposed have been presented by the applicants. First, ITAA has withdrawn its application in this proceeding and will no longer construct any portion of the Kingsgate to Los Angeles leg. Second, PGT and PG&E will no longer construct a parallel system, but will loop the existing PGT-PG&E pipeline. This will result in a reduction of the four proposed compressor stations and the utilization of several security crossings reducing pipeline installation by approximately 43 miles. The revised system of PGT and PG&E would transport those volumes of gas committed to ITAA, with the possibility of additional pipeline in southern California. And lastly, Northern Border presented a statement on the record stating that it would be modifying its application to terminate at Kankakee, Illinois rather than Delmont, Pennsylvania. This would result in a net reduction of 481 miles of pipeline, compressor stations, and other facilities.



b) Staff's Preferred Alternatives

i. Fairbanks Alternative

The Fairbanks Alternative would follow the Alyeska oil pipeline route south from Prudhoe Bay for 520 miles. From there, it would pass northeast of Fairbanks and follow the Alaska Highway into Canada, pass Whitehorse, to Watson Lake, Yukon Territory, and continue along the Alaska Highway where it would rejoin the Arctic Alaska proposed route at Windfall, Alberta. At this point, the line would parallel the Alberta Gas Trunkline Pipeline Company System to the Alberta-Saskatchewan Border at which time it would parallel Trans-Canada Pipe Lines Limited to a point along the Red River at Emerson, Manitoba, where it would enter the United States. The right-of-way would proceed south along Midwestern Gas Transmission Company to Ada, Minnesota, and on to Kankakee, Illinois, along the proposed Dome Oil Pipeline Corridor. The PGT-PG&E route would not be constructed at this time since the volumes of Alaskan natural gas which would be committed to these companies could be handled by means of exchange of gas agreements.

With Richard Island Lateral

The Fairbanks Alternative would be the same as that described above, except that to attach those volumes of Mackenzie Delta gas, a 756-mile long lateral pipeline would need to be constructed from the Mackenzie Delta area south to Whitehorse, Yukon Territory, along the Demster Highway corridor, then join the Fairbanks Corridor Route.

ii. El Paso Alaska Alternative

The environmental staff's preferred alternative involves the construction and operation of one LNG liquefaction, storage, and sendout terminal at Cape Starichkof, Alaska, for the volumes of gas associated with both the El Paso Alaska project and Pacific Alaska (Docket No. CP75-140 et al.) project. The pipeline route proposed to connect the Prudhoe Bay Field with Cape Starichkof would generally parallel the Alyeska oil pipeline route from Prudhoe Bay to Livengood, located just north of Fairbanks. From Livengood, the route would proceed south and west along the corridor utilized by the Alaska Railroad to Anchorage and from there would continue south to the Cook Inlet area. The pipeline would then be routed down the eastern shore of Cook Inlet to its terminus at Cape Starichkof.

At the California end of the project, the environmental staff's preferred alternative involves the construction and operation of one LNG unloading, storage, revaporization, and sendout terminal at Oxnard, California, for the three volumes of gas associated with the El Paso Alaska, Pacific Alaska, and Pacific Indonesia (CP74-160) projects.

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ii. El Paso Alaska Proposal

The facilities as proposed by El Paso Alaska would transport 3.2 billion cubic feet of natural gas per annual average day from the Prudhoe Bay Field through approximately 809 miles of 42-inch diameter chilled gas pipeline to a gas liquefaction and LNG storage plant and marine terminal at Gravina Point, in Prince William Sound, Alaska. The pipeline facilities to Gravina Point would include gas separation facilities at Prudhoe Bay, 12 compressor stations, additional appurtenant facilities and a dispatching and control center. The proposed route would essentially follow the pipeline corridor established for the Alyeska oil pipeline except for the portion of the route south of Valdez and the LNG plant site which would traverse undisturbed sections of the Chugach National Forest.

The 500-acre LNG terminal site at Gravina Point would receive approximately 3.1 billion cfd of gas for processing through proposed gas treatment, dehydration, liquefaction and storage facilities. LNG in amounts equivalent to 2.809 billion cfd of gas would be transferred from 550,000-barrel LNG storage tanks, along a 1,200foot long marine trestle, to a twin berth marine loading terminal. The LNG would be loaded onto 165,000-cubic meter capacity cryogenic tankers for shipment 1,900 nautical miles south to a receiving terminal and regasification plant near Point Conception in southern California.

The Point Conception LNG terminal, to be constructed by Western LNG Terminal Company (Western), would consist of a twin berth marine unloading terminal, a 4,600-foot long trestle and land-based LNG transfer, storage, and regasification facilities on a 227-acre site. The Point Conception LNG terminal would have a design baseload sendout rate of 2.803 billion cfd of gas with a 3.103 billion cfd peaking capacity. Western has proposed to construct a pair of 142.3-mile long, 42-inch diameter parallel pipelines from Point Conception to Arvin, California, and a 108.9-mile long, 42-inch diameter pipeline from Arvin to Cajon, California, to transport the revaporized LNG to existing mainline gas transmission systems owned by Pacific Gas and Electric Company (PG&E) and Southern California Gas Company (So Cal).

In addition to the facilities described above, El Paso Alaska has described a preliminary proposal that would be necessary in order to transport either directly or by displacement 1.55 billion cfd of the 3.1 billion cfd available as peak day supply from the Western LNG terminal to markets east of the Rocky Mountains. Applications to construct such facilities have not as yet been filed with the Commission.

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3. Environmental Conclusions

a) Applicants' Proposals

The staff's conclusions about the environmental impact of the El Paso Alaska and Arctic Gas proposals have been based on a recognition that if gas is to be transported from Prudhoe Bay to the lower 48 states there is a need for construction of facilities.

It is concluded that there are undesirable aspects of both proposals which can reasonably be avoided. The major significant areas which should be avoided are as follows:

- 1) Arctic Gas Proposal
 - a) The Arctic National Wildlife Refuge in Alaska and its counterpart in Canada.
 - b) The Badlands and prairie pothole region.
 - c) The Ordway Memorial Prairie.
 - d) The Killdeer Mountains.
 - e) The Starved Rock Nature Preserve and State Park.
 - f) Proposed Wild and Scenic River Crossings-Moyie, Sacramento, John Day, Wapsipinicon, Little Missouri.
- 2) El Paso Alaska Proposal
 - a) The Chugach National Forest and LNG terminal site at Gravina Point.
 - b) Prince William Sound.
 - c) Proposed Wild and Scenic River Crossing-Gulkana River
 - d) Point Conception.
 - e) The Los Padres National Forest.
 - f) The Commanche Point/Tejon Hills botanic area and the proposed Tejon Ranch California Condor Critical Habitat Area.

I-A9

Avoidance of these areas is recommended either because of direct impacts, or due to increased pressure which might result from the construction in those areas that would "open the door" to future development.

When viewed in the context of the need for the facilities, however, the overall projects as proposed by El Paso Alaska and Arctic Gas are both considered to be acceptable, presuming that the mitigating measures proposed by the applicants and those that will be developed by Federal agencies will be implemented and successfully enforced. These mitigating measures would significantly reduce potential impacts and environmental damage would be held to a minimum.

The staff has concluded that the Arctic Gas proposal is environmentally preferable to the El Paso Alaska proposal for the following reasons:

- a) It would eliminate pipeline construction through a higher seismic risk area.
- b) It would eliminate the hazards of siting two LNG terminals in high seismic risk areas.
- c) It would eliminate the construction of a large industrial site in a totally undeveloped area of Alaska and in a remote area of California, which would significantly alter the land use, biological, aesthetics, and topographical features of these areas in addition to providing a catalyst for future development of these areas.
- d) It would eliminate the potential impacts on the marine environments in Prince William Sound and Point Conception from the seawater system and LNG plant discharges and from the LNG tanker traffic.
- e) The all pipeline system would provide a more operationally reliable system. It would also eliminate the potential operational and safety hazards of handling LNG and the possible disruptions and accidents related to shipping the LNG.
- f) It would have a substantially lower fuel consumption during operation.



Although different magnitudes of socioeconomic impacts in Alaska were protected for the Arctic Gas and El Paso Alaska proposals the analysis of these impacts did not result in conclusions indicating that one route was preferable to the other on the basis of of these different impacts.

The environmental staff further concludes that although the Arctic Gas proposal is more environmentally preferable, both the Arctic Gas and the El Paso Alaska proposals traverse areas which are highly worthy of preservation. For this reason, it is strongly recommended that neither of the applicants' proposals be approved as proposed.

b) Staff's Preferred Alternatives

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The staff's analysis of alternatives to transport Prudhoe Bay gas to the lower 48 states has indicated that the following alternatives would be preferable to the respective applicant's prime proposal.

- Preferred alternative to the Arctic Gas System -Fairbanks Alternative without PGT and the Richards Island Lateral as described in Section 2b(i) of the preceeding section. This route would possess the following environmental benefits over the proposed system:
 - a) Less total pipeline mileage; 3,711 miles vs. 4,504 miles. Reduced disruptions to vegetation, wildlife, land use and aesthetics.
 - b) Significantly less new ROW would be required, 650 miles * vs. 2583 miles.
 - c) 'Avoidance of 495 miles of wilderness in the Arctic National Wildlife Refuge and its counterpart in Canada and related waterfowl breeding areas.
 - d) Avoids the crossing of caribou calving grounds.
 - e) Avoids Badlands areas.
 - f) Avoids new crossings of prairie pothole and wetlands areas.
 - g) Avoids Killdeer Mountain crossing (a unique area).

* If the Dome Pipeline Corporation pipeline is constructed, this figure would be significantly reduced.

- h) Avoids Missouri River crossings.
- i) Avoids Wild and Scenic River Crossings Moyie, Sacramento, John Day, Wapsipinicon, Little Missouri.
- j) Crosses the Mississippi River at a more environmentally acceptable location.

Although different magnitudes of socioeconomic impacts in Alaska were projected for the Arctic Gas prime route and the Fairbanks Corridor alternative, the analysis of these impacts did not result in conclusions indicating that one route was preferable to the other on the basis of these different impacts.

If Mackenzie Delta Gas is made available for transportation, either a 756-mile lateral pipeline would need to be constructed which would follow the existing Demster Highway corridor to the Fairbanks alternative pipeline at Whitehorse, Yukon Territory or the Maple Leaf pipeline, as proposed by Foothills Pipe Lines, Ltd., would be constructed along the Mackenzie River Valley to connect to the Alberta Gas Trunk Line Company natural gas pipeline in northwestern Alberta.

- 2) Preferred Alternative to the El Paso Alaska System -Cape Starichkof LNG terminal site and related pipeline from Prudhoe Bay and LNG tanker transport to Oxnard, California, as described in Section 2b(ii) of the preceeding section. This alternative would possess the following environmental benefits over the proposed system.
 - a) LNG terminal siting in an area of Alaska which is more suited to industrial use.
 - b) Would eliminate destruction of the wilderness qualities of the Gravina Point/Prince William Sound area.
 - c) Avoidance of critical and intensive wildlife habitat along the pipeline route in the Chugach National Forest and bald eagle nesting sites at Gravina.
 - d) Avoids crossing a proposed wild and scenic river Gulkana.
 - e) The Cape Starichkof site would be less likely to experience an earthquake of the size of the 1964 event (8.5 Richter) than the proposed Gravina site.
 - f) Existing highway and railroad facilities with links to Anchorage would be available for supply during construction.

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- g) Both LNG terminals would be in areas better able to absorb the large influx of construction and operation personnel.
- h) The volumes of gas associated with the Cook Inlet gas production can be incorporated into the El Paso LNG terminal, thereby eliminating the need for separate terminals in Prince William Sound and Cook Inlet with the associated environmental impacts.
- i) Avoids new right-of-way clearing in Los Padres National Forest in California.
- j) Avoids LNG terminal siting at Point Conception in favor of an industrial site at Oxnard which is located further from active faults than is Point Conception.
- k) Reduces the number of miles of pipeline necessary in California.
- 1) Eliminates potential impacts from cold water discharge in favor of using a heated discharge from an existing electric powerplant for revaporization.

Very little difference in the magnitude of socioeconomic impacts in Alaska was projected for the El Paso Alaska prime route and the alternative route ending at Cape Starichkof. Although the distribution of impacts on specific localities will be different, the analyses of these impacts did not result in conclusions indicating that one route was preferable to the other.

The staff concludes that the alternatives described in 1) and 2) above are each environmentally superior to the proposals of the respective applicant and that the Fairbanks Alternative without the Richards Island lateral is the most environmentally acceptable system to transport Prudhoe Bay gas to the lower 48 states.



The net national benefits of the applicants proposed transportation systems, together with the FPC staff's preferred Fairbanks alternative, have also been analyzed. Net national benefits are defined as the dollar value of the benefits that flow from consumption of Alaskan gas less the costs, apart from environmental costs, to the nation of producing and delivering the gas. Naturally, the net national benefits depend, for a given system, upon the price of alternative fuels, the quantity of non-Alaskan gas supplies and the quantity of Alaskan supplies. For those systems that transport Mackenzie Delta gas, as well as Prudhoe Bay gas, the benefits also depend upon the quantity of Mackenzie Delta supplies through their effect upon the United States share of the transport costs. Because the gas flows over about 20 years, and the costs are incurred over a similar period, the net national benefits also depend upon the discount rate applied to net national benefits in future years. The results are summarized below for plausible values of these quantities. The systems considered are those proposed by the applicants, using their costs, and the variants costed by the Department of the Interior (references 12, 13 and 14) plus the FPC staff's preferred alternative.

In addition, the returns to the applicants on their proposed systems have been analyzed for similar scenarios. The principal methodological difference arises from the fact that United States taxes are costs to the applicants. However, from a national standpoint they are transfers of funds and not resource costs. These results indicate the rates of return to the applicants and the revenues remaining to cover wellhead prices under the various scenarios. In a rough way they also confirm the comparative system rankings found in the net national benefit comparison.

Net National Benefits

In Table I-A-1 are summarized the net national benefits for a relatively large Alaskan supply and two prices for oil as the alternative fuel. The alternatives are the Department of Interior variants using Department of Interior costs. High and low non-Alaskan supplies represent, respectively, optimistic and pessimistic levels of the quantity of future non-Alaskan supplies. The lower 48 transportation costs are assumed to be 2¢/MCF/100 miles beyond the system's terminal point in the United States. Table I-A-2 contains results for the same assumption except that the Alaskan supply is smaller.

Table I-A-1

Net National Benefits (Billions of Dollars)

Alaskan Supply - 23.6 TCF

10% Discount Rate - 2¢/MCF/100 miles lower 48 Costs

	\$12 per barrel oil		\$8 per barrel oil	
Non-Alaskan Supply	High	Low	High	Low
Improved El Paso a) Alaskan Arctic b)	5.73	7.57	1.70	3.48
Mackenzie Delta - 5.9 TCF	5.68	8.65	1.73	4.74
0 TCF	4.91	7.88	.96	3.97
Fairbanks Alternative c)	5.55	8.55	1.60	4.64

Termed "Improved Alaskan-LNG" in the analysis. Termed "Alaska-Canada" in the analysis. .a)

b)

c) Termed "Fairbanks-Alcan" in the analysis.

Table I-A-2

Net National Benefits (Billions of Dollars)

Alaskan Supply - 17.8 TCF

10% Discount Rate - 2¢/MCF/100 miles lower 48 Costs

	\$12 per barrel oil		\$8 per barrel oil	
Non-Alaskan Supply	High	Low	High	Low
Improved El Paso	4.20	5.69	1.10	2.55
Mackenzie Delta - 7.1 TCF 0 TCF	4.69 3.67 3.99	7.16 6.14 6.49	1.49 .47 75	3.95 2.93 3.23
Fairdanks Alternative	3.99	0.49	./3	J • Z 0

Noteworthy among the results are the following:

1) When non-Alaskan supplies are low, and Mackenzie Delta supplies about as expected, the Alaskan Arctic and Fairbanks alternatives yield higher benefits than El Paso. Fairbanks is superior to Alaskan Arctic when no Mackenzie Delta supplies are available.

2) When non-Alaskan supplies are high and the lower of the Alaskan supplies are available the net benefits ranking is Alaskan Arctic, El Paso and Fairbanks.

3) In all other cases the three alternatives yield about the same benefits.

4) The Fairbanks alternative is superior when no Mackenzie Delta gas is available and non-Alaskan supplies are low.

5) In no case does the Fairbanks alternative have benefits that fall below the highest by more than \$.7 billion. This means that its superior environmental features are available at a maximum cost, over 20 years, of \$35 million per year.

The rankings are not changed by changes in the discount rate. However, for high non-Alaskan supplies and \$8 oil the net benefits for all alternatives are negative at a 15% discount rate.

Table I-A-3 contains the net national benefits calculated for the applicants proposals. Although the flows are not entirely comparable, the comparative rankings observed above are preserved for the El Paso 2.4 BCFD proposal and the Alaskan Arctic.

Table I-A-3

Net National Benefits (Billions of Dollars)

10% Discount Rate - 2¢/MCF/100 miles lower 48 Costs

\$12 per Barrel Oil

Non-Alaskan Supply Alaskan Arctic	High	Low	
2.25 BDFD Prudhoe and 2.25 Delta	3.87	6.75	
El Paso			
2.4 BCFD Prudhoe	3.98	5.92	
3.3 BCFD Prudhoe	6.21	8.44	

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Returns to the Applicants

The results of the analysis of the rates of return to the applicants are comparable to those found in the analysis of net national benefits. In every case simulated, Alaskan Arctic earns a higher rate of return than El Paso. With \$12 oil and low non-Alaskan supplies Alaskan Arctic can earn a 15 percent rate of return on equity and still cover the estimated wellhead cost of the gas. Under the same circumstances El Paso can only earn a 10 percent rate of return. Even with a reduced flow of gas from the Mackenzie Delta (and hence higher costs for Alaskan Arctic), earnings for Alaskan Arctic are superior to those of El Paso.

The feasible rates of return are highly sensitive to the supplies of substitute fuels. An increase in the supply of non-Alaskan gas from low to high reduces Alaskan Arctic's rate of return to 10 percent and El Paso's to less than 5 percent. Neither applicant is able to sustain a positive rate of return if, in addition to relatively high supplies of non-Alaskan gas, the price of oil drops from \$12 to \$8. El Paso's position is sufficiently vulnerable that even with low supplies of non-Alaskan gas, a drop in the price of oil to \$8 prevents a positive rate of return.

Construction cost contingencies in the Arctic Circle have a similar but moderate impact on both project designs, and do not seriously reduce the discounted cash flows. El Paso is more vulnerable to changes in the cost of transporting gas within the continental United States, but the impact of such changes on the rates of return is insignificant. Within the range considered, a diminished flow in the Delta does not severely reduce Alaskan Arctic's profitability. If alternative fuels are scarce, Alaskan Arctic can maintain a 10 percent rate of return despite a reduced flow in the Delta and 100 percent inflation in construction costs in the Arctic Circle. May 13, 1976

MEMORANDUM FOR: FRANK ZARB

FROM:

JACK MARSH

I noted in your recent weekly report the Federal Power Commission's impact statement on the Arctic Gas's proposed pipeline across Alaska and western Canada was found not to be environmental acceptable.

I would be grateful for any further information you can give me as to just what the results of this finding are likely to be.

Many thanks.

JOM/dl

Conversion of Lignite to High Btu SNG

Under an ERDA contract, Conoco's gasification pilot plant in Rapid City, S.D. successfully produced pipeline quality Synthetic Natural Gas from low Btu lignite which is abundant in the southern and western states. While processes converting lignite to intermediate Btu SNG have been proven, the Rapid City process included a methanation step to enrich the product to high Btu gas appropriate for residental and commercial use. Pilot plant testing is nearly complete and the next step in development will be a large demonstration plant with commercial-size components.

(P.Newman, 964-4401)

NATURAL GAS

Gas Pipelines Environmental Impact

The Federal Power Commission's environmental impact statement on Arctic Gas's proposed pipeline across Alaska and western Canada to the northern plains States and El Paso's proposal to parallel the oil line from Prudhoe Bay to Valdez found neither environmentally acceptable as proposed. Although the Arctic's proposal was preferred, the FPC staff have suggested alternatives for further consideration by the Companies. Northwest Pipeline's proposal for a route turning east at Fairbanks through the Northwest Territories and Alberta to the northwestern States has yet to be evaluated.

(J.McCarrick, 961-8413)

