

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 8672

1061 SCOMM 28: JOINT GAS PIPELINE COMMITTEE. 1981-82 ~~106~~

directly on all the social, economic and environmental subjects discussed in this report, and indirectly, but no less compellingly, on all matters related to the North: it requires a recognition of the special and collective nature of the native interest in the North.

Vol. 2: Terms and Conditions

11. Mr. Justice T.R. Berger in his report entitled Northern Frontier, Northern Homeland: The Report of the Mackenzie Valley Pipeline Inquiry:

... the social consequences of the pipeline will not only be serious - they will be devastating.

Vol. 1.

12. Mr. Harry Allen, Chairman of the Council for Yukon Indians:

Our land claims talks have been interrupted by insufficient and erratic funding; unilateral northern development of our resources; no consultation on matters of constitutional and northern development in the Yukon; deficient social programs, and total disregard of our presence in our homeland.

Minutes of Proceedings of
the Special Committee on
the Northern Gas Pipeline,
March 6, 1978; 5:8

SCOMM

28:23

BEFORE THE
SUBCOMMITTEE ON FOSSIL AND SYNTHETIC FUELS
OF THE
COMMITTEE ON ENERGY AND COMMERCE
AND THE
SUBCOMMITTEE ON ENERGY AND THE ENVIRONMENT
OF THE
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS

HOUSE OF REPRESENTATIVES

PREPARED STATEMENT
OF
JOHN G. MCMILLIAN
CHAIRMAN, BOARD OF PARTNERS
ALASKAN NORTHWEST NATURAL GAS TRANSPORTATION COMPANY

OCTOBER 20, 1981

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Prepared Statement

of

John G. McMillian
Chairman, Board of Partners
Alaskan Northwest Natural Gas Transportation Company

Mr. Chairman, I am John G. McMillian, Chairman and Chief Executive Officer of Northwest Energy Company and Chairman of the Board of Partners of Alaskan Northwest Natural Gas Transportation Company, the consortium of natural gas companies selected to design, construct, and operate the Alaskan segment of the Alaska Natural Gas Transportation System.

We are very pleased to appear here today to support the waiver of law proposed by the President. The Alaskan Northwest partnership, its Canadian counterpart, Foothills Pipe Lines (Yukon) Ltd., the three principal North Slope gas producers, Arco, Exxon, and Sohio, the project's financial advisors, both here and in Canada, and the lenders who are expected to provide a significant portion of project debt, have reached a critical stage with respect to completion of the ANGTS. Many hurdles, regulatory and otherwise, have been successfully surmounted. Over one-third of the total pipeline mileage is either complete or currently under construction. However, one significant hurdle remains -- final development of a private sector financing plan which will enable the remaining portions of the ANGTS to be constructed. The waiver you are considering is essential to development of a financing plan. Without the waiver, the ANGTS cannot be completed by private industry alone. If the ANGTS is not completed, consumers in this country

would be denied access to over 13 percent of our nation's proven domestic gas reserves, and our country would be forced to maintain a greater dependency on vulnerable and insecure foreign energy sources.

Those who have become involved with this project following the discovery of the Prudhoe Bay field in 1968 are firmly committed to completion of this vital transportation link to the North Slope. This group includes most of the largest gas transmission companies in this country and Canada; the North Slope oil and gas producers which have developed the Prudhoe Bay reserves and were instrumental in the construction of the facilities necessary to bring the North Slope oil to lower 48 markets; and, collectively, both our financial advisors and the prospective lenders who have arranged the financing for most, if not all, major energy projects during the last two decades, and who are expected to arrange for and contribute significant amounts of the debt necessary to assure completion of the ANGTS.

We believe the ANGTS can and must be completed, and we welcome the opportunity to testify on behalf of the waiver proposal. We believe these hearings will amply justify the need for the proposed waiver and the need for expeditious, positive action. The waiver proposed by the President is not the same as that requested by Alaskan Northwest in June of this year. However, the modifications which have been made are acceptable to Alaskan Northwest as the minimum necessary to attempt to develop a private financing plan that will assure completion of the project.

My testimony today will provide a summary of the procedural background of the project, the construction to date, the major regulatory approvals and milestones, current activities, the estimated capital costs, the marketability of Alaskan gas, the benefits of the project to the U.S., the financing parameters, the regulatory approvals that still must be obtained, and a discussion of the waiver transmitted by the President.

I. PROCEDURAL BACKGROUND

A. Selection Process

In 1968 the largest single discovery of oil and natural gas ever found on the continent of North America was made at Prudhoe Bay on the North Slope of Alaska. The Prudhoe Bay field contains over twenty-six trillion cubic feet of recoverable natural gas, or 13 percent of all proven domestic gas reserves. Potential gas reserves in Alaska have been estimated at over 100 Tcf.

In view of the significant demand for natural gas in this country, it was recognized by all involved in the natural gas industry that construction of an economical transportation system for bringing Alaskan natural gas to the lower 48 states was imperative. This recognition led to the filing with the Federal Power Commission, the predecessor to the Federal Energy Regulatory Commission, of applications to construct such a transportation system.

1. FPC Proceedings

Between 1974 and 1976 three separate and competing gas company consortia, including Alaskan Northwest's predecessor, Alcan Pipeline Company, applied to the Federal Power Commission for authority to build a system to transport Alaskan gas to the lower 48 states. The three competing transportation proposals were consolidated for hearing and decision at the FPC and a massive formal evidentiary proceeding to determine the best proposal was initiated. During the course of the three years of hearings over 45,000 pages of testimony and over 1000 exhibits were compiled on all aspects of the design, financing, construction, and operation of two different overland pipeline routes through Alaska and Canada and an alternative Alaskan pipeline/liquified natural gas tanker system. Detailed consideration was given to such matters as gas reserves and deliverability, construction schedules and techniques, financing and cost of service, tariffs, marketability, geotechnical concerns, and socio-economic impacts. Additionally, comprehensive environmental impact statements were prepared by both the FPC staff and the Department of Interior. The FPC staff statement concluded that the most environmentally acceptable pipeline route was along the Alcan highway corridor and followed the 1975 issuance of a report to Congress by the Secretary of Interior, which concluded that an overland transportation system through Alaska and Canada for the transportation of North Slope gas reserves, including the

Alcan highway corridor route, was economically and technologically feasible. */

2. ANGTA

While the FPC was holding these hearings, Congress, recognizing the potential for delay at the FPC and the urgent need for Alaskan gas, enacted the Alaska Natural Gas Transportation Act of 1976. The purposes of the ANGTA were to provide a means for making a sound decision with respect to the selection of an Alaska Natural Gas Transportation System and, once the selection had been made, to expedite its construction and initial operation by expediting agency decisions, limiting and expediting judicial review of such agency decisions, and providing a mechanism by which the President could propose and Congress could waive laws that applied to the gas transportation system if necessary to permit the expeditious construction and initial operation of the system.

The ANGTA provided a six-part procedural framework to expedite a final decision on and construction of an Alaska Natural Gas Transportation System: (1) a FPC recommendation to the President based upon the record developed during the two years of evidentiary hearings on the three competing applications and briefs and comments to the Commission; (2) comments to the President on the FPC's recommendation by Federal agencies and others; (3) a Presi-

*/ U.S. Dept. of the Interior, Alaskan Natural Gas Transportation Systems: A Report to the Congress, Pursuant to Public Law No. 93-153 (1975).

dential decision on the best possible ANGTS; (4) Congressional consideration and approval by joint resolution of the President's decision; (5) expedited handling of all Federal authorizations necessary or related to the construction and initial operation of the approved ANGTS; and (6) waiver of provisions of law where necessary for the expeditious completion of the ANGTS.

3. FPC Recommendation

On May 1, 1977, the FPC recommended that the President select the system for transporting Alaskan natural gas from the two overland pipeline proposals across Canada to the lower 48 states. Each of these pipeline proposals, however, took a different route through both Alaska and Canada.

4. Federal Agency Comments

On July 1, 1977, comments by various Federal agencies were submitted to the President. Every important issue regarding every major element of the FPC's recommendation was exhaustively studied through this system of recommendation and comments.

- The Federal Energy Administration, predecessor to the Department of Energy, concluded that any of the proposed systems to transport Alaskan gas to the lower 48 would help ensure that natural gas shortages do not occur and would reduce our dependence on foreign energy resources. The FEA also concluded that net national economic benefits of an ANGTS would be substantially positive.
- The Department of the Treasury stated that an economically viable system to transport natural

gas from Alaska to the lower 48 states could be privately financed.

- The Office of Coastal Zone Management of the Department of Commerce found that the adverse effects on native communities and local lifestyles would be less with the Alaskan Northwest route than with the other two competing proposals.
- The Council on Environmental Quality concluded that the Alaskan Northwest proposal was "the most environmentally acceptable" of the three competing proposals.
- The Department of the Interior found that the Alaskan Northwest route best minimized the environmental impact in Alaska if proper mitigative actions were taken.
- The Department of State concluded that a viable option existed for the transportation of Alaskan natural gas across Canada.
- The Justice Department report found that antitrust considerations did not militate against selection of any of the proposed transportation systems and that competitive considerations did not indicate the selection of one transportation system proposal in preference to the others.
- The Department of Transportation concluded that "with regard to pipelines, their continuity of service is by

far the best of any mode of transportation in the United States and we believe the Canadian experience is comparable." DOT also concluded that there was a "significant efficiency advantage to an all-pipeline system."

- A report by the Department of the Interior and the Department of Transportation found that the Alaskan Northwest proposal had the earliest expected delivery date and the least total cost.
- The Department of Defense found that a system to transport gas from Alaska to the continental United States was necessary to national security since it would enable the United States to reduce oil imports.

5. Canadian National Energy Board Selection of Alaskan Northwest Route

Following extensive hearings and deliberations, the Canadian National Energy Board on July 4, 1977 unanimously recommended certification of the Canadian portion of the route proposed by Alaskan Northwest's predecessor, Alcan, with several modifications. The NEB's decision was premised, in part, upon the environmental unacceptability of alternative routes.

Specifically, the NEB recommended certification of a Canadian segment consisting of approximately 2000 miles of pipeline to begin at the Alaska-Yukon border and proceed to a point near the James River, Alberta, where the pipeline would divide into the Eastern and Western Legs and proceed to delivery points near Monchy, Saskatchewan and Kingsgate, British Columbia. This route was

sponsored by Foothills Pipe Lines (Yukon) Ltd., which is owned equally by NOVA, an Alberta corporation, (formally The Alberta Gas Trunkline Company Limited) and Westcoast Transmission Company Limited.

6. Transit Pipeline Treaty

On August 3, 1977, the U.S. Senate ratified a treaty between the United States and Canada concerning "transit pipelines." This Transit Pipeline Treaty applies to the transmission by pipeline through one country of hydrocarbons not originating in that country for delivery in the other country.

The treaty prohibits authorities in either country from taking any measures which would impede, divert, redirect, or interfere with the transmission of hydrocarbons in transit. It also provides that each country will facilitate the expeditious issuance of permits, licenses, and other authorizations needed for the import or export through its territory of hydrocarbons through a transit pipeline.

The treaty mandates that public authorities in both countries not impose fees, duties, taxes, or other monetary charges on a transit pipeline not placed on similar pipelines not transiting the national border.

7. Agreement on Principles

On September 20, 1977, the United States and Canada signed an "Agreement on Principles Applicable to a Northern Natural Gas Pipeline" which established the terms and conditions by which the two countries would cooperate on a joint gas pipeline system for

the transportation of gas from Alaska and northern Canada. This Agreement provides for:

- prompt governmental approval of necessary permits, licenses and certificates;
- nondiscriminatory charges assessed in a just and reasonable manner;
- expeditious and efficient construction;
- sufficient capacity to meet the needs of U.S. and Canadian shippers;
- private financing and a variable rate of return;
- nondiscriminatory taxation;
- procurement practices on "generally competitive" terms;
- coordination and consultation between the governments and their respective regulatory authorities (the FERC and the NEB); and,
- each government to take measures necessary to facilitate timely construction, consistent with their respective regulatory requirements, and to seek all required legislative authority to facilitate expeditious construction and remove any causes of delay.

8. President's 1977 Decision

On September 22, 1977, the President issued his Decision and Report to Congress on the Alaska Natural Gas Transportation System selecting the Alaskan Northwest pipeline proposal and route as the most efficient, economic and cost effective means to bring Alaska gas to the lower 48 states. The Decision designated Alaskan

Northwest's predecessor, Alcan, to construct and operate the 745 mile pipeline segment commencing at the outlet of the Prudhoe Bay gas conditioning plant and extending to the Alaska-Yukon border; Northern Border Pipeline Company to construct and operate the U.S. Eastern Leg, consisting of approximately 1,130 miles of pipeline extending from Monchy, Saskatchewan to Ventura, Iowa for the transport of approximately 70 percent of the Prudhoe Bay gas to markets in the Midwestern, Eastern, and Southern portions of the United States; and Pacific Gas and Electric Company and its affiliate, Pacific Gas Transmission Company, to construct and operate the U.S. Western Leg, extending approximately 910 miles from Kingsgate, British Columbia to the San Francisco Bay area, for the transport of approximately 30 percent of the Prudhoe Bay gas to markets in the Western United States.

The President's Decision specifies certain terms and conditions that would apply to the ANGTS:

- Enforcement of the terms and conditions by a Federal Inspector;
- Approval or, in certain instances, review by the Federal Inspector of a comprehensive management plan, cost and schedule control techniques, final construction design, purchase procedures, labor management programs, quality assurance and control procedures, safety precautions, and environmental protections;
- Approval by the Federal Inspector of an affirmative action program for minority business enterprises;

- Use of a variable rate of return mechanism to provide incentives for project completion below budgeted costs;
- No tariff could be used which required payment from consumers prior to the completion and commissioning of the system; and
- Requirement that Alaskan gas producers have no equity, voting, or management position in the ANGTS.

The Decision also incorporated the complete text of the September 20, 1977 Agreement on Principles between the U.S. and Canadian governments.

9. Congressional Approval of Selection of Alaskan Northwest to Build the ANGTS

On November 2, 1977, Congress approved the President's Decision and the environmental impact statement prepared for the approved ANGTS. (H.J. Res. 621, Pub. L. No. 95-158) (Appendix A).

10. FERC Issuance of Conditional Certificates

Under Section 5(a)(2) of the ANGTA, the completion of the selection process in the U.S. required that the Commission issue certificates to those chosen to construct and operate the ANGTS. Accordingly, on December 16, 1977 the Commission issued conditional certificates to Alaskan Northwest's predecessor, Alcan, Northern Border Pipeline Company, and Pacific Gas Transmission Company for their respective segments of the ANGTS. */ In that order, the Commission identified several additional areas of

*/ The segment to be constructed within California by Pacific Gas and Electric Company is subject to the jurisdiction of the California Public Utilities Commission.

inquiry that needed to be addressed before final certificates could be issued. The Commission appointed an Alaskan Delegate to conduct proceedings on these areas on its behalf and to make recommendations with respect to their resolution.

11. Northern Pipeline Act

On April 12, 1978, the Canadian Parliament enacted the Northern Pipeline Act, which ratified the July 4, 1977 decision of the Canadian National Energy Board certificating the Canadian segment of the ANGTS and approved the construction and operation of that segment of the ANGTS. This Act also established the Northern Pipeline Agency to facilitate planning and construction of the Canadian pipeline, to implement the terms and conditions of the Agreement on Principles, and to monitor and minimize the social, economic, and environmental effects of the construction and operation of the Canadian segment of the ANGTS.

B. Related Matters

1. Natural Gas Policy Act

On November 9, 1978, the pricing of natural gas was modified by enactment of the Natural Gas Policy Act. That Act established the wellhead price of Prudhoe Bay gas at \$1.45 per MMBtu as of April 1977, subject to escalation for inflation; provided that price regulation of Prudhoe Bay gas will continue beyond January 1, 1985, when wellhead price regulation will end for certain other categories of gas; and allowed the delivered price of Alaskan gas to be rolled-in with the prices paid by U.S. pipelines

for gas from other sources for resale to distribution companies, industrial customers, and other end users.

2. Office of the Federal Inspector

Congress included a provision in the ANGTA requiring the appointment of a Federal Inspector and authorizing him to take the following actions to facilitate government monitoring of the ANGTS: establish a joint surveillance and monitoring agreement with the State of Alaska; monitor compliance with applicable laws and the terms and conditions of any applicable certificate, right-of-way, permit, lease, or other Federal authorization; monitor actions taken by the sponsors to assure timely completion of construction schedules and the achievement of quality construction, cost control, safety, and environmental protection objectives; subpoena information necessary to carry out his responsibilities; keep the President and Congress currently informed on any significant departures from compliance; and issue quarterly reports to the President and the Congress.

As previously indicated, the President's 1977 Decision provided the Federal Inspector with certain additional specific duties and responsibilities including the following: approval of the ANGTS sponsors' overall management plans; approval of insurance, bonding, and pre-qualification requirements for contractors; approval of the design of any segment prior to construction; and approval of affirmative action plans.

In addition, the Federal Inspector must also review the methods for supplying equipment, repair facilities, and spare

parts inventories to the execution contractors; collective bargaining agreements and labor relations procedures; quality assurance and control procedures; proposed cost and schedule control techniques; and all plans for implementation of specific environmental safeguards.

3. Reorganization Plan No. 1

In May 1979, Congress allowed the President's Reorganization Plan No. 1 of 1979 to take effect, which transferred to the Federal Inspector from various Federal agencies the responsibility to enforce the terms and conditions imposed by those agencies in the permits, rights-of-way, or other authorizations issued with respect to the ANGTS. This responsibility includes compliance or oversight activities reasonably related to the enforcement process. In addition to enforcement functions, Reorganization Plan No. 1 charged the Federal Inspector with the responsibility to coordinate the expeditious discharge of permitting activities by all Federal agencies and to ensure their compliance with Section 9 of the ANGTA, which requires expeditious agency action on all ANGTS-related matters. The purpose of this provision was to establish a "one window" approach to the governmental approval process.

Finally, the Federal Inspector is acting in the role of the "senior official" contemplated in the Agreement on Principles with Canada, whose obligation is to consult with Canada concerning implementation of the principles relating to the construction and operation of the ANGTS.

II. ANGTS CONSTRUCTION TO DATE

Construction of approximately 1,000 miles of the ANGTS in the lower 48 states and approximately 500 miles in southern Canada, or 30 percent of the total pipeline mileage, is now either complete or underway. This portion of the system is being "pre-built" to permit the U.S. to import an additional 1.215 billion cubic feet per day of Canadian gas for transportation through these "pre-built" facilities, pending completion of the entire ANGTS and transportation of Alaskan gas.

Following a hearing process on the pre-build facilities lasting one and one-half years, including formal evidentiary hearings, the Commission in 1980 authorized Northwest Alaskan to import for transportation through the Western Leg pre-built facilities of the ANGTS up to 300,000 Mcf of natural gas per day purchased from Pan-Alberta Gas, Ltd. for delivery to southern California markets. Imports through these facilities commenced October 1, 1981.

In 1980 the Commission also authorized Northwest Alaskan and others to import through the Eastern Leg pre-built facilities of the ANGTS up to an average of 975,000 Mcf of natural gas per day purchased from Pan-Alberta for delivery to Eastern, Midwestern, and Southern markets. Imports through these facilities will commence in the fall of 1982.

The estimated cost of the pre-build facilities is approximately \$1.7 billion in 1980 dollars. Construction to date on the pre-build facilities has been on schedule and modestly under budget.

The related authorizations of the National Energy Board of Canada, both for the export of Canadian gas through the "pre-built" facilities and the construction of such facilities in Canada, were issued only after assurances were provided by both the Congress and the President that the ANGTS remained in the national interest and should be completed expeditiously and that steps would be taken in the U.S. to permit the Canadian sponsors to commence billing for the Canadian segment when it was completed and ready to operate.

Specifically, on July 18, 1980 President Carter sent a letter to Prime Minister Trudeau of Canada stating that the United States ". . . stands ready to take appropriate additional steps necessary for completion of the ANGTS." (Appendix B). With respect to the financing of the Canadian portion of the ANGTS, President Carter stated as follows:

. . . the reasonable concern of Canadian project sponsors that they be assured recovery of their investment in a timely manner if, once project construction is commenced, they proceed in good faith with completion of the Canadian portions of the project and the Alaskan segment is delayed. In this respect, they have asked that they be given confidence that they will be able to recover their cost from U.S. shippers once Canadian regulatory certification that the entire pipeline in Canada is prepared to commence service is secured.

and concluded that:

. . . I accept the view of your government that such assurances are materially important to insure the financing of the Canadian portion of the system.

. . . I would be prepared at the appropriate time to initiate action before the U.S. Congress to remove any impediment as may exist under present law to providing that desired confidence for the Canadian portion of the line.

In July 1980, Congress passed a concurrent resolution (S.Con. Res. 104) expressing the ". . . sense of the Congress that the System remains an essential part of securing this Nation's energy future and, as such, enjoys the highest level of congressional support for its expeditious construction and completion by the end of 1985." (Appendix C). This Congressional expression of support provided the Canadian government with a critical assurance that construction of the entire ANGTS remained a U.S. priority. Support for the ANGTS by both the President and the Congress was necessary before the Canadian government would proceed to authorize the export of Canadian gas in support of the pre-built portions of the ANGTS.

III. OTHER MAJOR REGULATORY APPROVALS ALREADY SECURED AND SIGNIFICANT MILESTONES

Progress has also been made on the non-pre-build portions of the ANGTS in the four years since issuance of the President's 1977 Decision and Congressional ratification of that Decision. Numerous regulatory approvals required -- both in the U.S. and Canada -- have been issued and other significant milestones have been achieved.

A. Partnership Agreement

The Alaskan Northwest Natural Gas Transportation Company partnership was formed effective January 31, 1978 by subsidiaries

of six major natural gas companies to own the Alaskan pipeline segment of the ANGTS. Since then, four other major natural gas companies, through their subsidiaries, have joined the partnership, bringing the membership to a total of ten companies. Thus, the Alaskan Northwest partnership is presently composed of affiliates of the following U.S. and Canadian natural gas companies: Northwest Alaskan Pipeline Company - an affiliate of Northwest Pipeline Corporation and subsidiary of Northwest Energy Company; American Natural Alaskan Company - an affiliate of Michigan Wisconsin Pipe Line Company and a subsidiary of American Natural Resources Company; Calaska Energy Company - an affiliate of Pacific Gas Transmission Company and a subsidiary of Pacific Gas and Electric Company; Northern Arctic Gas Company - a subsidiary of InterNorth Inc., of which Northern Natural Gas Company is a division; Pacific Interstate Transmission Company (Arctic), an affiliate of Pacific Interstate Transmission Company and a subsidiary of Pacific Lighting Corporation; Pan Alaskan Gas Company - an affiliate of Panhandle Eastern Pipe Line Company, a subsidiary of Panhandle Eastern Corporation; Columbia Alaskan Gas Transmission Corporation - an affiliate of Columbia Gas Transmission Corporation, a subsidiary of The Columbia Gas System, Inc.; Tetco Four, Inc., - an affiliate of Transwestern Pipeline Company and Texas Eastern Transmission Corporation, a subsidiary of Texas Eastern Corporation; TransCanada Pipe Line Alaska Ltd. - an affiliate of TransCanada PipeLines Limited; and United Alaska Fuels Corp. - an affiliate of United Gas Pipe Line Company, a subsidiary of United Energy Resources, Inc.

The combined assets of these partners and their parents and affiliates exceeds \$40 billion. Their total 1980 gas sales were in excess of 7.8 Tcf, or 56 percent of all gas sales by major interstate pipelines in that year. As illustrated in the map attached as Appendix D, the affiliates of the partners transport gas ultimately distributed in 48 of the 50 states.

Alaskan Northwest, as a General Partnership under the Uniform Partnership Act of the State of New York, will finance, own, construct, and operate the Alaskan facilities that are part of the ANGTS.

Northwest Alaskan Pipeline Company has been designated operating partner by the partnership agreement with responsibilities for day-to-day activities necessary to plan, design, construct, and operate the Alaskan facilities.

The partnership is the successor in interest to Alcan Pipeline Company under ANGTA, the President's Decision, and related Federal Power Commission and Federal Energy Regulatory Commission orders, pursuant to a Commission order of June 30, 1978, which transferred the conditional certificate of public convenience and necessity from the original certificate holder, Alcan, to the Alaskan Northwest partnership. This order also found the terms and conditions of the partnership agreement consistent with the requirements of ANGTA and the President's Decision.

B. Incentive Rate of Return

In a normal pipeline certificate application, the FERC reviews the applicant's estimate of construction costs in deter-

mining whether to issue a certificate of public convenience and necessity authorizing the construction and operation of the proposed pipeline. Once a certificate is issued and construction completed, all costs are reviewed for prudence, and all prudent costs are then included in the pipeline's rate base. The pipeline earns its approved just and reasonable return on the investment deemed prudent, even if actual costs exceed the estimate approved by the Commission at the time of certification.

The President's Decision imposed a requirement in addition to the Commission's normal certification cost review and prudence determination -- establishment of a variable rate of return mechanism which would increase the ANGTS sponsors' allowable return for cost underruns or decrease their return for cost overruns. Unlike the normal pipeline certification process, under the President's guidelines the ANGTS sponsors would be penalized for cost overruns even if such additional costs were found prudent.

Pursuant to the mandate of the President's Decision to devise a variable rate of return mechanism, the FERC on May 8, 1978 commenced a rulemaking which culminated in the issuance of its Orders 31 and 31-B on June 8 and September 6, 1979. These orders established an incentive rate of return (IROR) mechanism applicable to the Alaskan Northwest and Northern Border segments governing the rate of return that the ANGTS sponsors of those segments may earn on project investment.

The basic elements of the Commission-approved IROR mechanism are the Cost Performance Ratio and an associated IROR schedule of

rates of return. The Cost Performance Ratio is the ratio of Actual Capital Costs (derived from the final construction costs) to the Projected Capital Costs (derived from the FERC-approved Certification Cost Estimate, as modified by the Federal Inspector-approved Final Design Cost Estimate, which is the total estimated cost at the start of construction and any approved scope changes during construction). The Cost Performance Ratio is intended to measure how well project management has succeeded in controlling the costs of the project. An IROR schedule specifies an allowed rate of return for each possible Cost Performance Ratio. The lower the value of the Cost Performance Ratio the higher will be the allowed rate of return, and vice versa. The lowest return is referred to as the Marginal Rate of Return, which is 8 percent. Thus, the Alaskan Northwest partnership will earn only 8 percent return for each equity dollar of cost overrun above the government-established target cost estimate. Given today's interest rates, the 8 percent return is truly a penalty rate.

The proceeding to determine the initial target cost estimate to be used in the later establishment of the sponsors' actual equity return is now pending at FERC.

C. FERC Approved Gas Tariffs

In addition to the IROR mechanism, Commission Orders 31 and 31-B also approved Alaskan Northwest's and Northern Border's pro forma tariffs for the transportation of natural gas on behalf of the shippers of Alaskan gas. These approved tariffs specify

the services to be performed, the method for computing the amount of payment for those services, and all related terms and conditions.

The tariffs are based on the concept of a monthly "cost-of-service" charge, which provides that the total charges to all shippers will equal the actual costs to Alaskan Northwest and Northern Border of performing the transportation service, including an allowed return on invested capital. Pursuant to the tariffs, service agreements will be entered into by Alaskan Northwest and each individual shipper and by Northern Border and the Eastern Leg shippers. */

The following key provisions are included in the Alaskan Northwest and Northern Border tariffs approved by the FERC:

1. Billing Commencement Date and Minimum Bill

The FERC ruled that billing commencement for Alaskan gas can begin when all ANGTS pipeline segments -- the Alaskan pipeline segment, the Canadian pipeline segment, the U.S. Eastern Leg, and the U.S. Western Leg -- are completed, tested, and proved capable of operating. Thus, under the existing approved tariffs, billing can in effect commence before the gas conditioning facility is operational and/or before gas is available for transport. The rate to be charged upon completion and commissioning is limited to a "Minimum Bill" which permits recovery of (i) actual operating and maintenance expenses, (ii) current taxes, and (iii) debt

*/ Western Leg shippers will enter into service agreements with PGT and PG&E. Alaskan gas tariffs for the Western Leg were not considered in Commission Orders 31 and 31-B, because the Western Leg is not subject to the IROR mechanism.

service including interest and scheduled debt retirement. This level of reduced billing (which does not include a return on, or of, equity investment) would continue until gas is tendered for shipment and transportation service commences.

2. Interim Rate

The FERC established an Interim Rate to commence with the initial delivery of gas through the system, which terminates on the earlier of the first year of operation or upon the attainment of design capacity throughput, whichever occurs earliest. The level of the Interim Rate is to be computed on the basis of the projected cost of service for the first 12 months of operation divided by the system design capacity throughput. The Interim Rate is to be no lower than the Minimum Bill then applicable.

3. Service Interruption

The tariff as approved by the FERC provided for three categories of service interruption:

i) More than a 10 percent reduction in service --

If Alaskan Northwest or Northern Border is unable to accept and transport at least 90 percent of the Alaskan gas tendered to it for any one month, charges to shippers would be reduced for return on equity and associated income taxes proportional to the percentage of volumes tendered but not transported.

ii) Less than a 10 percent reduction in service --

If Alaskan Northwest or Northern Border is able to transport more than 90 percent of the gas tendered by the

shippers, there would be no reduction in charges to shippers.

iii) Extended total service interruption -- In the event of a total cessation of service for 30 consecutive days, the segment responsible for the service interruption would be permitted to continue to collect that portion of its charges attributable to equity costs (i.e., that portion of depreciation expense not necessary for debt service and associated taxes), subject to refund pending determination of the cause of the interruption. However, under no circumstances would debt service ever be impaired.

D. Pipe Size and Pressure

Following application by Alaskan Northwest, a report by the Commission's Alaskan Delegate and comments by all interested parties, the Commission on August 6 and October 15, 1979 issued orders establishing the design specifications and initial capacity of the Alaskan segment of the ANGTS. These specifications included the pipe diameter and maximum operating pressure of the pipeline, which largely determine the capacity throughput of the line and the ability of the gas stream to carry natural gas liquids. Based on its review of the report by its Alaskan Delegate and the comments of the parties, the Commission determined that the Alaskan pipeline segment of the ANGTS would be built with 48-inch diameter pipe, have a maximum operating pressure of 1260 psig, and have compressor station size and spacing for an initial capacity of 2.0 to 2.4 billion cubic feet per day but

capable of expansion to an average daily volume of 3.2 billion cubic feet per day. The FERC orders were affirmed on appeal on January 3, 1980 in Earth Resources Company of Alaska v. FERC, 617 F.2d 775 (D.C. Cir.).

E. Federal Right-of-Way in Alaska

Since the majority of the lands traversed by the Alaska pipeline segment of the ANGTS is controlled by the Federal government, it was necessary to obtain a pipeline right-of-way from the Department of Interior. On August 19, 1980, the Department of Interior stated its intent to grant a right-of-way to Alaskan Northwest to cross Federal lands in the State of Alaska. Pursuant to Section 28(w)(2) of the Mineral Leasing Act of 1920, the Department of Interior requested that Congress waive the prescribed 60-day review period, which was done. On December 1, 1980 the right-of-way grant was formally issued by the Department of Interior.

The right-of-way contains numerous terms and conditions with which Alaskan Northwest must comply. In addition to extensive environmental restrictions, two of the most important stipulations are the requirement that Alaskan Northwest assist in the training of Alaskan natives for employment on the project and the requirement that the ANGTS be separated from the existing Alyeska oil line by 200 feet. The Department of Interior had previously required that the sponsors of the Alaska pipeline segment enter into a mutual indemnification agreement with the owners of the

Alyeska oil pipeline for damages that may occur on the respective rights-of-way. Such agreement was executed on November 26, 1980.

F. Environmental Terms and Conditions

On February 26, 1980, the Commission incorporated two general conditions into the conditional certificates of public convenience and necessity which had been issued to the ANGTS sponsors by Commission order of December 16, 1977. These conditions are applicable to all lands crossed by the pipeline, regardless of ownership. The first condition requires compliance with the Commission's regulations that establish guidelines for the location, clearing, and maintenance of pipeline rights-of-way and sites for related facilities. The second condition provides for the issuance of stopwork orders by the Federal Inspector.

G. Equal Employment Opportunity/Minority
Business Enterprise

On May 7, 1980 the Department of Interior, pursuant to Section 17 of ANGTA and Condition I-11 of the President's Decision, promulgated final rules to ensure that no person will be excluded from participating in any activity connected with the construction and operation of the ANGTS on the basis of race, creed, color, national origin, or sex. On May 8, 1980 the Commission issued an order attaching the above-referenced rules to the ANGTS sponsors' conditional certificates of public convenience and necessity.

H. Delegations to and Approvals by the Federal Inspector

On March 31, 1980 the Commission delegated to the Federal Inspector the authority to attach terms and conditions to the certificates of public convenience and necessity issued to the ANGTS sponsors to implement the requirements of the National Historic Preservation Act of 1966 and the Preservation of Historical and Archaeological Data Act Amendments of 1974.

In May 1980 Alaskan Northwest filed its overall management plan with the Federal Inspector, in accordance with Condition I-1 of the President's Decision. This plan was approved in principle by letter dated June 6, 1980 subject to submission of supplemental support of specific details of that plan.

By order issued December 19, 1980 the Commission delegated to the Federal Inspector the responsibility to determine the prudence of expenditures to construct the ANGTS.

On August 13, 1981, the Federal Inspector approved Alaskan Northwest's Affirmative Action Plan, which covers both equal employment opportunity and minority and female business goals and timetables.

I. Cooperative Agreement Among Alaskan Northwest,
the Principal North Slope Producers, and the
State of Alaska

After extensive negotiations, Alaskan Northwest and the major Prudhoe Bay gas producers -- Arco, Exxon, and Sohio -- entered into a Cooperative Agreement in June 1980 relating to the design and engineering of the Alaskan gas pipeline and the related gas conditioning plant. This document was reviewed by

the Department of Justice and the Department of Energy prior to its execution. The Alaskan Northwest partnership and the producers stated their joint intention to work together to expedite the design, engineering, and cost estimation of the Alaskan pipeline and gas conditioning facilities and to develop a financing plan in such a time and manner that all necessary government approvals could be obtained and facilities completed at the earliest practicable date. The Cooperative Agreement, to which the State of Alaska was also a signatory, became effective on June 20, 1980 and established a jointly funded, jointly managed Design and Engineering Board to continue the design, engineering, and construction planning of the Alaska pipeline segment and to begin the design and engineering of the gas conditioning plant necessary to prepare the gas for pipeline transmission.

Under the Cooperative Agreement, the producers agreed to contribute approximately \$90 million to the design and engineering undertaking prior to further contributions by the Alaskan Northwest partnership. This contribution level was reached during January 1981. Thereafter, the Alaskan Northwest partnership and the producers have been contributing on a 50-50 basis toward design and engineering work for the Alaska gas pipeline and the conditioning plant. To date over \$550 million has been spent in this effort alone.

The State of Alaska has thus far participated in monitoring the design and engineering effort as an observer. The State can,

however, elect to participate actively in the financing and management of the design and engineering effort at any time.

IV. CURRENT ACTIVITIES

A. Alaskan Pipeline Segment

In 1978 Alaskan Northwest selected Fluor Engineers and Constructors, a subsidiary of Fluor Corporation, as its Project Management Contractor. Fluor was selected on the basis of its proven record as one of the world leaders in project management and arctic engineering and contracting.

Alaskan Northwest and Fluor have assembled a team of over 400 highly experienced cost estimators, cost engineers, design and pipeline engineers, and environmental and other experts representing every discipline necessary for estimating, designing, engineering, constructing, and controlling the cost of a project of the magnitude of the ANGTS. The companies working with Alaskan Northwest and Fluor in this effort include Gulf Interstate Engineering, Michael Baker, Jr., Inc., Northern Technical Services, Inc., and R&M Consultants, Inc. Also involved are execution contractors who participated in the construction of the Alyeska oil pipeline, as well as many other multi-billion dollar construction projects in Alaska and Canada, including Morrison-Knudsen, Reading & Bates Construction Company, a subsidiary of Reading & Bates Corporation, Peter Kiewit and Sons, Curran Houston Inc., a subsidiary of Sedco Inc., and Green Construction Company.

Collectively, Alaskan Northwest, Fluor, and these consultants have spent over three years and more than 1,000,000 workhours in the design and engineering of the Alaskan pipeline segment, including extensive, highly technical field programs to ensure the correct design, and over one year in preparing a detailed capital cost and schedule estimate for this segment. The final Alaskan pipeline design and engineering work is approximately 34 percent complete, and preconstruction field programs will be approximately 72 percent complete by the end of this year.

1. Design and Field Programs

The ANGTS will be designed and constructed as a chilled, high pressure, buried pipeline system utilizing traditional and well established techniques. Certain problems are encountered in the far north which require special attention due to the severe climate and unusual soil conditions. However, with the design and engineering work accomplished to date, no insurmountable technical problems have been identified. Hence, the remaining challenge is to determine the conditions to be encountered and to develop the most cost-effective design and construction mode to complete the system in a safe and cost-effective manner.

During the development of the design, numerous engineering review sessions were held between Alaskan Northwest, Fluor, their consultants and leading engineers from several key Federal agencies -- the United States Geological Survey, the Corps of Engineers, and its Cold Regions Research and Engineering Laboratories.

These technical experts, along with engineering specialists from Alyeska, have provided an additional source of expertise which adds significantly to the project effort, especially in the critical areas of frost heave design and geotechnical/geothermal requirements.

An additional source of technical expertise comes from the producer and pipeline companies participating in the project. Engineering specialists in soil mechanics, geotechnical, and geothermal disciplines have been made available to Northwest Alaskan for special engineering assignments. The Foothills engineering group in Canada is another important source of expertise. The exchange of technical data with Foothills has been quite valuable. The Canadians have considerable experience in arctic engineering dating back to the early 1950s. Significant areas where the project is benefiting from Canadian participation is in frost heave, fracture control, and the development of new construction methods. Foothills has operated a frost heave test site facility near Calgary for several years and has just concluded an extensive full scale pipe burst testing program, part of which was carried out to Alaskan Northwest specifications in order to determine optimum fracture control design. Additionally, late last year Foothills initiated field testing of materials and construction methods at their Quill Creek facility in the Yukon. Aside from the testing of construction modes, this facility was designed to verify insulation systems and construction methods, including development of new equipment.

a. Frost Heave and Other Testing

Of all design requirements, the development of suitable methods for frost heave mitigation is probably the most demanding. Much of the soils in Alaska are characterized by permafrost. The pipeline will operate in a chilled state in Alaska and part of Canada to avoid damage to these soils from melting of the frost in the soil. However, the chilled pipeline must be designed to avoid or withstand frost heave. Frost heave is the phenomena where unusual stress may be placed on the pipeline causing potential movement or heaving due to growth of a frost bulb around the pipeline caused by the cold pipeline freezing water which has migrated to the pipeline from surrounding soil.

A full scale field testing installation, comprised of ten different modes or types of pipe sections, was completed at Fairbanks in the fall of 1979. The Fairbanks site was selected because the soil type prevalent in this area is considered by geotechnical specialists to be a worst case situation. The Fairbanks frost heave test site has been in operation since October 1979. The results to date have been most encouraging, with the magnitude of heave experienced being approximately one half of the amount predicted.

In recognition of the value of full scale testing, a decision was made in 1980 to install six additional frost heave test sites, which sites were selected for the purpose of providing the widest range of soil types and silt content attainable. Installation work at the six sites was completed in the first quarter of 1981,

and operational start-up is in progress at all sites. Initial results from the first site to become fully operational are comparable to the data obtained from the Fairbanks installation.

A similar field testing approach is being utilized in other specialized engineering areas, e.g., the development of a suitable pipe insulation system, fracture arrest, and soil stability. The expertise needed to develop satisfactory methods for handling these requirements has been assembled by the project as a means of assuring that the most cost effective design is achieved.

b. Site Specific Requirements

Another important element of the project engineering effort involves site specific requirements. For example, almost one-third of the pipeline location in Alaska is either parallel and adjacent to the Alyeska oil pipeline or the State Haul Road, which connects central Alaska with Prudhoe Bay and the North Slope. To establish a suitable location in these areas the design must give adequate consideration to the adjacent structures.

In some cases, where problems exist due to terrain, cross-drainage, slope stability, or other external factors, the design must be modified. Quite often, the most cost effective solution is to change the gas pipeline alignment so that the problem can be completely avoided.

The necessary interaction between the Alaskan Northwest/Fluor project group, Alyeska, and State/Federal representatives can best be described with an example. The original pipeline alignment included over 60 crossings of the Alyeska oil pipeline system.

Because of the problems involved in several of these crossings, route studies were conducted and the number of crossings reduced to 23. Subsequent discussions with Alyeska engineers have resulted in resolving the design criteria for most of these crossings.

Detailed working sessions have been initiated with both Alyeska and the State for the purpose of resolving all matters pertaining to proximity of the oil pipeline, State Haul Road, and the gas pipeline. These working sessions will involve special engineering groups, comprised of Alaskan Northwest/Fluor engineering, environmental, and construction personnel and engineers and other disciplines from Alyeska and the State. Each working group will have specific tasks assigned and participation will be limited to those who have the knowledge and experience required to resolve specific engineering problems.

c. Environmental Concerns

Equally important, the development of the engineering design for the project includes direct participation by the Alaskan Northwest/Fluor environmental affairs group. Their representatives are working with project design engineers on a continuous basis to assure that environmental requirements are incorporated at an early stage into the development of the design. The early recognition of environmental requirements in the design process will provide a better basis for alleviating sensitive environmental concerns and for obtaining government approval of the basic design prior to the commencement of construction.

d. Alyeska Experience

The risk of cost overruns in the construction of the Alaskan ANGTS facilities has been lessened as a result of completion of the Alyeska oil pipeline. The following points are noted:

- Both the similarities and differences of the two projects are such that the uncertainties, risks, and potential for cost increases to which the gas line will be exposed are considerably less than was the case for the oil line.
- Today, much more is understood about the process of building a large diameter pipeline in Alaska -- from a technical point of view and with regard to management, government involvement, infrastructure, and the supply and demand for critical manpower and equipment resources.
- Transporting chilled gas through permafrost is inherently easier than transporting heated oil in the arctic.
- The oil line was a pioneer project, built across a tremendous expanse of land that had nothing in the way of support infrastructure, such as highways to the job site and communications systems. To a large extent, the gas line will take advantage of this existing infrastructure. Furthermore, the entire infrastructure in the State of Alaska is now significantly more supportive than what existed in 1971, and much

improved technical, managerial, and construction capability exists in Alaska today.

2. Certification Cost Estimate

Simultaneous with the design and engineering of the Alaskan pipeline segment, the Alaskan Northwest/Fluor team has prepared a detailed, fifty-volume cost and schedule estimate for FERC review in accordance with the mandate of the President's Decision and FERC orders implementing the Decision. This estimate was filed with the FERC on July 1, 1980, as revised on October 27, 1980. The total estimate is comprised of a base engineering estimate of the cost of construction, a normal contingency allowance, plus an estimate of the possible cost impacts from abnormal events.

a. Estimate Highlights

The base engineering estimate includes the management, engineering, procurement, construction, testing, and start-up for the Alaskan pipeline segment of the ANGTS from the outlet of the gas conditioning plant at Prudhoe Bay, Alaska to the Canadian (Yukon) Border. The following are the highlights of major facilities.

- Compressor Stations - Four stations containing one 25,000 horsepower compressor each and three with two such units. Each station will also have a refrigeration system to chill the gas.
- Metering Stations - One station at Prudhoe Bay, which is combined with the plant's metering facilities, and one at the Yukon Border.

- Operations and Maintenance Facilities - One leased facility at Fairbanks and three other facilities located at compressor stations.
- Temporary Facilities - camps, airfields, warehousing, freight, and office space.
- Communications and Supervisory Controls Systems - Utilizes existing and new facilities, land-based and satellite.
- Pipeline - 745 miles of arctic grade 48" main line pipe. It is planned that pipe will be purchased in 40-foot lengths, and a central Fairbanks facility will be used for all double jointing (welding two 40-foot lengths of pipe into an 80-foot length), coating, and insulation.
- Project Directorate - All Northwest Alaskan activities; Project Management Contractor management and consultants' activities; pre-certification efforts including cost sharing studies; third-party monitoring (State of Alaska, Department of the Interior, and Federal Inspector), and permits, insurance, and taxes.

b. Estimate Components

The base engineering estimate equals \$7.08 billion, excluding all contingencies and an amount covering abnormal or unexpected events. In accordance with standard cost estimation practice, a contingency of 12 percent was then added to the base estimate to account for normal estimating uncertainty concerning accuracy of

material quantities and prices, human productivity assumptions, equipment reliability assumptions, normal schedule variances, and the accuracy of bid specifications based on current project definitions.

The normal contingency was developed by segregating the base cost estimate into individual risk items and establishing variance ranges for each item. This data was statistically examined on a computerized risk analysis model.

In addition to these estimating uncertainties, Alaskan Northwest faces risks arising from abnormal or unexpected events that could affect project costs. Under the FERC approved IROR procedure, the risks posed by these abnormal events and the resulting potential costs are to be quantified to aid the FERC in establishing a target cost for the ANGTS for IROR purposes. This analysis was also performed to establish a target cost for financing purposes to determine the possible range of cost increases due to events not subject to Alaskan Northwest's control.

Alaskan Northwest carefully analyzed the potential cost impact arising from 36 abnormal or unexpected events, such as strikes and work slowdowns, abnormal weather, unanticipated pipeline mode changes, unanticipated changes in domestic and world markets for labor, materials, and services, unanticipated environmental conditions, contractor failure to perform, contractor bankruptcy, and others.

After the 36 abnormal events were identified, experts from Northwest Alaskan, Fluor, and selected outside consultants defined

the probability of occurrence of each event classified as abnormal.

The same experts also evaluated the range of potential cost impacts if the event did occur. The assumptions in the engineering estimate which related to the event were reviewed, and values were established to represent the incremental costs of each event.

The cost ranges and probabilities for the 36 events were then used to determine the total potential impact of abnormal events on project costs. A computer simulation was employed to determine the range, distribution, and expected value of costs resulting from abnormal events. This simulation consisted of 1000 random samplings of each event. The results of this analysis indicate that such events could increase project costs by as much as \$2.28 billion.

The Alaskan Northwest cost estimate, including the base estimate, contingency, and abnormal events, totals \$10.2 billion in 1980 dollars excluding certain revisions to be filed shortly with the FERC and excluding finance charges, and has been the subject of intensive and in-depth analysis by the FERC staff, the Office of the Federal Inspector, the State of Alaska, and the three North Slope producers over the past fifteen months. The Federal Inspector retained Williams Brothers Engineering Company to assist in this effort. A final report on such estimate has been issued jointly by the FERC's Alaskan Delegate and the Division Director of the Office of the Federal Inspector and noticed for comment by the FERC. All comments have now been filed with the FERC, and a decision is expected to be issued in the near future.

B. Prudhoe Bay Gas Conditioning Plant

1. Design

The gas conditioning plant is being designed and engineered by the Ralph M. Parsons Company of Pasadena, California, which is the Project Management Contractor for the conditioning plant. Parsons is eminently qualified to design and engineer the plant, having more engineering experience at Prudhoe Bay than any other firm. In this effort, Parsons works closely with and under the supervision of Northwest Alaskan, which has been designated the operator under the terms of the Cooperative Agreement between the sponsors and major North Slope producers and which, as such, has responsibility for the day-to-day activities necessary to engineer and design the plant.

The plant will receive gas from the Prudhoe Bay producing areas and will condition the gas to pipeline quality by removing impurities, carbon dioxide, and heavier hydrocarbons. Because the pipeline will be operated as a chilled, high pressure line and because the first compressor station is at about milepost 80 of the pipeline, the plant will also refrigerate the gas to 30° F. and compress the gas to 1260 psig. The plant design is based on the SELEXOL process, a patented process licensed by the Allied Corporation (formerly Allied Chemical Corporation), for removing carbon dioxide and heavy hydrocarbons.

In addition to the conditioning facility, the plant will consist of an operations center, a 288-bed residential facility, a crude cooling unit, a river water intake station, a reservoir

intake station, a flare and waste water lagoon area, construction pads, access roads, and miscellaneous pipelines.

Most of the plant conditioning facilities will be prefabricated as modules at construction sites on the West Coast and then shipped to Prudhoe Bay by ocean-going barges, where they will be assembled.

Parsons has performed a great deal of the design, engineering, planning, and cost estimating for the plant, having expended over 400,000 workhours to date in this regard.

The FERC environmental staff has prepared both a draft and a final environmental impact statement, which conclude that construction and operation of the plant at the Prudhoe Bay site are environmentally acceptable. The environmental impact statement has fulfilled all the National Environmental Policy Act requirements.

2. Cost Estimate

The cost and schedule estimates for the plant are similar to and patterned after those submitted to the FERC for the Alaska pipeline segment. The target cost for the plant is composed of a base engineering estimate and a contingency. The base engineering estimate has been cast into a work breakdown structure similar to that developed for the Alaska pipeline segment for cost control purposes. The contingency is also similar to that for the Alaska pipeline segment, except that it also covers cost impacts from abnormal events as well as normal estimating uncertainty. Examples of abnormal events that could cause the plant cost to

overrun estimated costs are abnormally severe weather affecting fabrication sites, loss of a barge during the voyage to Prudhoe Bay, and a major fire at the plant construction camp. The total cost estimate for the plant, in 1980 dollars, is \$3.6 billion excluding financing charges, but including contingency for the events described above.

C. Construction Coordination and Logistics
for the Plant and Pipeline

Coordination of the design and engineering of the Alaska pipeline segment and the gas conditioning plant is performed by Northwest Alaskan as operator under the Alaskan Northwest partnership agreement and under the Cooperative Agreement. A Northwest Alaskan project team is located at the Irvine, California facilities of Fluor and works very closely with the PMC in connection with the design, engineering, and construction of the Alaska pipeline segment. A Northwest Alaskan project team is also located at the Pasadena, California facilities of Parsons where the plant is being designed and engineered.

The schedules for both the Alaska pipeline segment and plant are coordinated by Northwest Alaskan, with key dates and schedule requirements of the plant tied to the completion date for the Alaska pipeline segment. Meetings of the Technical Committee of the Design and Engineering Board, composed of representatives of the pipeline sponsors and producers, are held monthly. The Technical Committee receives progress reports on the Alaska pipeline segment and plant and makes recommendations to the Board on major issues affecting the pipeline and plant.

In addition, in order to eliminate or minimize delays or cost increases resulting from competition for resources between the Alaska pipeline segment and plant, a Resource and Logistics Committee was formed from members of the Northwest Alaskan pipeline and plant project management teams to identify areas where activities on one project could have an adverse impact on resources necessary for the other, such as craft labor availability, material acquisition, and transportation services.

To further reduce the potential for delays in the completion of the Alaska pipeline segment and plant, construction and material acquisition schedules have been planned to eliminate bottlenecks. The more difficult construction on the Alaska pipeline segment, such as laying pipe over Atigun Pass and major river crossings, will begin in advance of less difficult construction. For both the Alaska pipeline and plant segments, equipment with long lead times, such as compressors and refrigeration systems, must be ordered as soon as possible in order to avoid delay in the delivery of such equipment to the field. More particularly, plant equipment must be fabricated in the lower 48 states on a schedule that will assure it reaches Prudhoe Bay during the approximately six week period each summer that the Beaufort Sea is not ice bound. Additionally, 75 percent of the mainline pipe will be stockpiled in Alaska prior to the commencement of construction.

In the event that construction problems should arise, provisions have been made in the cost estimate for the Alaska pipeline segment, which is being reviewed by the FERC, and in the target

cost estimate for the plant, which will shortly be submitted to the Commission, for additional costs necessary to overcome the problems. Thus, even if problems arise, notwithstanding our efforts to minimize the likelihood of their occurrence, the project has been planned and engineered in such a manner that they should not cause serious or extended delays in project completion.

V. ANGTS CAPITAL COSTS

The ANGTS will be constructed in two phases. The first phase, which is referred to as the pre-build, has been partially constructed and will be completed in 1982. When completed, this phase will include 1,500 miles of pipeline or about 30 percent of the total pipeline system. However, it represents only about 8 percent of the total capital costs in 1980 dollars. The second phase involves completion of the remaining portions of the ANGTS by November 1986, assuming expeditious legislative and regulatory action by the second quarter of 1982.

Based upon this schedule, the total system is estimated to cost \$17.5 billion in 1980 dollars excluding contingencies and financing costs. Contingencies have been added for possible normal estimating errors and for abnormal events which may occur. These contingencies and allowances for abnormal events, which vary for the conditioning plant and each major pipeline segment, total \$5.5 billion in 1980 dollars and represent 31 percent of the base estimate. The 1980 dollar estimate of \$23.0 billion,

including contingencies, consists of \$3.6 billion for the conditioning plant, \$10.8 billion for the Alaska pipeline segment, \$5.8 (U.S.) for the Canadian segment, and \$2.8 billion for the Eastern and Western legs in the lower 48 states. Of the \$23.0 billion estimate, the pre-build phase of construction is estimated to cost \$1.7 billion and the second phase construction is estimated to cost \$21.3 billion.

Because these estimates are in 1980 dollars, it is necessary to add inflation and interest costs to estimate the amounts that must be financed. We have used a range of inflation and interest rates for this purpose from 7 percent to 11 percent and 10 percent to 14 percent respectively in the United States. The resulting range of cash requirements to construct the total system is \$38.7 billion to \$47.6 billion. The pre-build phase is estimated to be completed for \$2.4 to \$2.7 billion. Therefore, the net required amount to finance the remaining ANGTS facilities is \$36.3 to \$44.9 billion.

VI. MARKETABILITY

In order to determine the economic viability of the ANGTS, it is necessary to first estimate the delivered cost of the gas and then compare that to the cost of alternative fuels. The delivered cost of Alaskan gas will include all fixed and variable costs such as the wellhead cost of gas, depreciation, operating and maintenance costs, all taxes, return on equity and interest costs. These costs, when deflated to 1980 dollars, average from

\$4.65 to \$5.10 per million Btu's during the first twenty years of the project. Stated in constant dollars, this cost declines dramatically during the life of the project. For example, the delivered cost ranges from approximately \$9.20 to \$9.35 per million Btu's in the first year and from approximately \$2.75 to \$3.20 per million Btu's in the twentieth year. This dramatic decline occurs because of the amortization of the investment over the project life. Therefore, in real dollars, the cost of delivering Alaskan gas to consumers will decline significantly over the project life. This declining real cost is the basis for the bargain that Alaskan gas represents for the nation and should insure its marketability over the life of the project.

The factors which will be most influential in continuing a market for Alaskan gas are increasing constant dollar world oil prices, the demand for and declining availability of natural gas supplies in 1986-87 and thereafter, and the method by which Alaskan gas is priced to compete with oil.

The long term outlook is for an increase in real world oil prices. In an environment of rising constant dollar prices for oil, Alaskan gas will become increasingly attractive compared both to oil and to alternative gas supplies whose prices escalate with oil. Rising oil prices tend to stimulate the demand for gas at the expense of oil. Since a major portion of existing industrial and power generation plant capacity is designed for both oil and gas firing, rising oil prices quickly shifts demand to gas. In addition, prices for most supplementary gas supplies -- such as

Mexican and Canadian gas -- are linked to oil prices. Thus, rising real prices for oil make Alaskan gas -- the price of which is not linked to oil prices -- increasingly attractive relative to oil and to most other supplemental gas supplies. Finally, Alaskan gas will become an increasingly better buy than imported oil because as the real price of oil increases the real price for Alaskan gas delivered to U.S. consumers will decrease. The cost of Alaskan gas will decrease as depreciation reduces the rate base upon which transportation charges and related income taxes are calculated, which costs comprise the largest components of the delivered price of Alaskan gas.

Some estimates of future natural gas demand have been steadily reduced as a result of the extent to which natural gas demand has been responsive to increasing prices established by the NGPA. Although demand forecasts are down, the long-term outlook for production is down even more. Increasing drilling rates will be unable to offset the steady decline in gas reserves added per unit of drilling effort. As a result, the production rates will continue to decline. By 1987, when Alaskan gas will be available, the decline of conventional lower 48 gas supplies will have created a strong demand for Alaskan gas.

This supply-demand imbalance is illustrated in Tables III-I and V-I of the marketability study prepared by Jensen Associates, Inc., which is attached as Appendix E to my statement. Table V-I illustrates the forecasted demand for natural gas by residential and commercial sectors, industrial sectors, electric power gen-

erators, and other users through 1990. Table III-I shows the gas supplies projected to be available during the same time period from conventional and unconventional production, imports, synthetic gas, and Alaskan gas. Table III-I and V-I reflect market clearing after deregulation of new gas volumes in 1985.

The economic benefit of Alaskan gas is illustrated by the graph that I have attached to this statement as Appendix F. This graph shows the delivered cost of Alaskan gas for a range of assumptions regarding inflation and interest rates. Also shown is the estimated market clearing price for natural gas prepared by Jensen Associates, Inc. Two market clearing price estimates are shown. One is based upon the oil cost which Jensen expects would occur under the type of price formation typical of the 1970s during which occasional market disruptions periodically drove prices sharply higher. The other is based upon a lower bound possibility for oil prices. This graph shows that if only one major disruption occurs in the Mid-East resulting in significant increases in oil prices in the decade of the 1980s, Alaskan gas will be marketable from the very beginning of its availability. If a more conservative increase in oil prices occurs, there will be about three years when the Alaskan gas cost is higher than other supplemental gas supplies. However, in addition to the rolled-in pricing capacity afforded by the NGPA, there are other methods available which can be used to levelize charges for Alaskan gas to avoid this early-year problem, if required. We are confident that through a combination of the

increasing real price of oil and, if necessary, such levelizing methods Alaska gas can be marketed commencing in 1987.

Concerns also have been expressed about the marketability of Alaskan gas under complete natural gas deregulation. In a deregulated environment, the price of Alaskan gas will adjust to the marketplace and be saleable. As stated above, the price in the early years can be adjusted if necessary through tariff and/or contractual provisions to assure that Alaskan gas is marketable.

VII. NATIONAL BENEFITS

The benefits of completing the ANGTS are self-evident. This vital transportation link will connect the lower 48 states to 26 trillion cubic feet of proven natural gas reserves, or 13 percent of all domestic gas reserves, and over 100 trillion cubic feet of potential reserves in Alaska. Once the ANGTS is in place, gas exploration activities will increase in Alaska and Canada making additional reserves available for transport. The ANGTS will deliver two billion cubic feet of gas per day initially and can easily be expanded to deliver 3.2 billion cubic feet per day.

Construction of the ANGTS can displace between 400,000 and 600,000 barrels of foreign oil per day for the next twenty to thirty years. The resulting savings in foreign payments for oil is in excess of \$7 billion in the first year alone, assuming a conservative cost of oil of \$50 per barrel in 1987. An even

greater reduction in balance of payments will occur later as world oil prices rise, as Alaskan gas volumes increase, and as the delivered price decreases. These balance of payments savings will have a positive impact on the inflation rate.

The ANGTS will create jobs for U.S. workers and orders for U.S. businesses to provide materials, equipment, and services in connection with the construction and operation of the pipeline and related facilities. There will be a peak work force for the Alaska gas pipeline and gas conditioning plant of 16,000 workers.

As the Net National Economic Benefit Study prepared for the project shows, the present value of the Alaskan gas that the ANGTS will bring to the lower 48 states is likely to be between \$90 and \$140 billion. */ The total present cost of delivering this gas (including the wellhead cost of the gas) is approximately \$50 billion over the 25-year project life. Accordingly, the present value of the net benefits of the ANGTS is between \$40 and \$90 billion for all U.S. parties associated with the project. For our base case, we use the median gas value of \$110 billion, which yields a median Net National Economic Benefit of \$60 billion. All of the above values are in January 1980 dollars, discounted in real terms at three percent to mid-1981.

In conclusion, the conservative direct net national economic benefit of the ANGTS -- economic benefits minus costs -- is in

*/ These values are the mode and expected value for the gas value, respectively. The NNEB study is attached as Appendix G to my statement.

excess of \$60 billion. This is simply the benefit derived from the market value of the gas and does not include the indirect benefits, such as increased energy independence, improved balance of payments, the creation of jobs, or the cost savings that would result if Alaskan gas prevents a repeat of the phenomenon experienced throughout the 1970s -- curtailments of industrial gas customers with resulting economic dislocations, including a loss of jobs, a reduction in taxes, and increases in unemployment compensation.

VIII. REMAINING GOVERNMENTAL AND REGULATORY APPROVALS

A. Alaskan Northwest

Alaskan Northwest must file with the Federal Energy Regulatory Commission a supplement to its prior filed application for a certificate to construct and operate the Alaska pipeline segment of the Alaska Natural Gas Transportation System. This supplement will include: (1) a plan for private financing and related materials including a cost of service study, a marketability study, and a net national economic benefit study which demonstrate the continued economic viability of the ANGTS; (2) amendments to its prior approved tariff which conform to the financing plan; (3) any necessary amendments to the prior approved partnership agreement to conform to the financing plan; and (4) minor adjustments to the cost estimates previously filed with the FERC in 1980.

Assuming the waiver proposed is enacted by Congress, Alaskan Northwest must also file an amendment to its prior filed appli-

cation seeking certification of the gas conditioning plant and approval of a tariff governing recovery from the shippers of the plant investment plus a reasonable rate of return on such investment.

Pursuant to Sections 4, 5, 7, and 16 of the Natural Gas Act, the FERC is empowered to issue a final certificate to Alaskan Northwest if it finds that Alaskan Northwest is able and willing to provide the transportation service and to conform to the provisions of the Natural Gas Act and the Commission's rules and regulations, that the rates and charges of Alaskan Northwest are "just and reasonable," and that the proposed service "is or will be required by the present or future public convenience and necessity."

The Commission must examine a number of factors in determining whether issuance of the certificate is in "the public convenience and necessity." For example, the Commission must find that the project is economically feasible, that the project can be financed under terms acceptable to the Commission, and that the proposed tariffs are just and reasonable and in the public interest. One important point must be emphasized. Congressional approval of the proposed waiver will not relieve the FERC of its responsibility to satisfy itself that these requirements have been met prior to issuance of a final certificate to Alaskan Northwest.

Additionally, Alaskan Northwest also must obtain from the State of Alaska appropriate land use authorizations for those portions of the pipeline and conditioning plant that will be on lands in which the State has an interest.

B. Northern Border and Pacific Gas Transmission

In addition to issuance of a final certificate to Alaskan Northwest, the Commission must also issue final certificates of public convenience and necessity to the Northern Border Pipeline Company and the Pacific Gas Transmission Company enabling them to complete the non-pre-built portions of the U.S. Eastern and Western Legs of the ANGTS. The Commission review process and the legal requirements described above are equally applicable to these applications, and Congressional approval of the proposed waiver will similarly not relieve the FERC of the ultimate responsibility to ensure that these requirements have been satisfied.

C. Shipper Tracking

The shippers of Alaskan gas must seek Commission approval of tariffs which permit them to flow through to their customers the sales price of Alaskan gas and the conditioning and transportation charges to be paid by them under the FERC or the Canadian National Energy Board approved tariffs. While the Commission has not yet reviewed such tariffs, it has addressed the need for what is referred to as "perfect tracking." In its Orders 31 and 31-B approving the Alaskan Northwest and Northern Border tariffs, the Commission noted that the financial and economic viability of the ANGTS is dependent not only upon tariffs which assure a constant stream of revenue from the shippers to the ANGTS, but also upon adequate "tracking" mechanisms in the shippers' tariffs which will permit sufficient revenues to flow, without interruption, to each shipper from its customers to reimburse each shipper for

payment of ANGTS costs. Specifically, in Order 31 the Commission stated at page 147 that it:

. . . shares the project sponsors' assessment of the importance and relevance of the tariffs. The tariffs are indeed the "economic lifeline" of the project. There must therefore be a degree of certainty for project sponsors and potential financiers adequate to ensure that there will be a flow of revenues sufficient to service debt and all other current expenses once billing has been allowed to commence.

With respect to shipper tracking, the Commission found at page 67 that:

In order to further assure that revenues are adequate to cover the cost of service of the project, the Commission's policy will be to allow automatic tracking of Alaska gas transportation costs in the tariffs of gas shippers who are interstate pipelines under our jurisdiction. (Emphasis added).

Again, as with the other FERC filings, once the shipper tariffs are filed with the FERC, the FERC must review such tariffs under the standards of the Natural Gas Act and the proposed waiver does not restrict that review.

IX. FINANCING

The framework of the negotiations now under way to establish financing for the project and the related financial bases for the proposed waiver can best be understood by reviewing their historical underpinnings and development. Before detailing the evolution of the financing, however, it should be pointed out that the President's Decision reflected an expected cost of the ANGTS, as then defined, of \$13 billion, and an expected date of

first deliveries of gas of January 1983. While all parties understood that many governmental approvals would have to be obtained and that many agreements among the parties would have to be negotiated before construction could begin, nonetheless in 1977 it was anticipated that regulatory and policy questions would be answered in one to two years. Thus the 1977 cost estimate and the accompanying financing requirements were based on long-term debt costs of ten percent, cost contingencies of five percent, and cost escalation due to inflation was anticipated to be five percent annually.

In hindsight, the uniformly agreed upon assumptions underlying the 1977 cost estimate and the then-scheduled in-service date were unrealistic. But capital market conditions were stable in 1977, at least in comparison with today's environment, and government policies were strongly supportive of energy projects.

Much that was anticipated by the project sponsors and the government agencies which reviewed and confirmed the reasonableness of the assumptions underlying the project have not materialized.

A. Financing Parameters Established by the Federal Government

The President's Decision set forth the determination that the project could be privately financed and the conditions under which a private financing was expected to occur. A plan was proposed to share the risks and benefits of the project among its several beneficiaries in accordance with the following principles:

1. The project should be privately financed.
2. The equity investment in the project should be at risk under all circumstances.
3. Direct and major beneficiaries of the project should participate in the financing either directly or in the form of debt guarantees.
4. The burden of cost overruns should be shared by equity holders and consumers upon completion through the application of a variable rate of return on common equity. This would provide a strong incentive for the project to be constructed at the lowest possible cost.
5. Tariff charges could not commence prior to completion and commissioning of the system.

The President's Decision also established other critical parameters for the financing plan: a prohibition of producer equity investment in the project; the exclusion of the conditioning plant from the ANGTS; and a prohibition of direct or indirect government financial support, including guarantees. Finally, the plan described in the Decision contemplated the "project financing" of all debt, i.e. the assets and cash flow of the project -- its economic viability -- would provide the principal source of credit to lenders. Sponsors were not expected to extend their corporate credit in support of the project's debt.

Following the Decision, the FERC undertook to clarify the provisions in the President's Decision regarding commencement of consumer billing. In Orders 31 and 31-B the FERC ruled that billing could begin after the Federal Inspector certified that all ANGTS pipeline segments were completed, tested, and proved capable of operating. "Tested for service," according to the FERC, did not require that the line be filled with gas or that actual deliveries of gas begin. Moreover, it is important to note at this juncture that there was not a requirement that the conditioning plant be completed and rendered capable of service as a prerequisite for billing commencement. Thus under current law billing can commence on all four pipeline segments even in the unlikely event that the conditioning plant is not completed, and even if actual gas deliveries have not begun.

B. Original Sponsor Financing Plan

The principal financing parameters having been established by the President's Decision, Alaskan Northwest and its financial advisors in early 1978 initiated the development of a definitive financing plan. The original plan contemplated the following key elements:

1. The construction capital for the Alaska pipeline segment would be raised on a project financing basis without corporate or government completion guarantees. Funding for the conditioning plant would not be the responsibility of Alaskan Northwest.

2. In the absence of completion guarantees, the risk of non-completion of the Alaskan pipeline would be reduced to an acceptable level as follows:

- a. The project's final cost estimate would be subject to an independent risk analysis and an overrun probability assessment that would determine the amount of an Initial Pool of capital required to reduce to an acceptable confidence level the chance that the project would not be completed. Commitments for the equity portion of the Initial Pool would be provided by the project's gas transmission company sponsors. Debt commitments would come from U.S. and foreign commercial banks and U.S. insurance companies and equipment and material suppliers.
- b. Commitments would also be obtained for a second capital pool, a Completion Assurance Pool, which would be available in the unlikely event that project costs exceed the Initial Pool. The Completion Assurance Pool would be drawn down based on periodic comparisons of actual to estimated construction costs to date. Commitments for the debt portion of the Completion Assurance Pool would be supplied by the Alaskan gas producers and the equity portion shared by the sponsors and the producers, in a manner consistent with the President's Decision.
- c. Both capital pools would be irrevocably precommitted prior to the commencement of construction.

d. Whenever possible fixed price contracts for equipment and, perhaps, turn-key contracts for the construction of certain portions of the project would be negotiated. Such contracts would remove significant parts of the project from the risk of overruns.

3. Once completion was achieved, credit support for the project's debt would be provided through the FERC approved minimum bill gas tariff which would assure the payment of the project's debt service under all circumstances. Based on the tariff and a perfect tracking mechanism, financing commitments would be secured from institutional lenders for a portion of the commercial bank financing. In addition, public debt markets could also be used to refinance construction loans.

In summary, the plan was (i) to remove a major portion of the project's cost estimate from the risk of overruns through fixed price contracts and turn-key construction contracts; (ii) to obtain firm commitments for equity capital and supplier credits; and (iii) to secure irrevocable commitments for a Completion Assurance Pool of sufficient size to complete the project under any and all foreseeable circumstances. Debt commitments would then be obtained from commercial banks and institutional lenders subject to satisfaction of an extensive list of conditions precedent.

C. Efforts to Arrange Financial Support from the State of Alaska and the North Slope Producers

1. State of Alaska

Alaskan Northwest and its financial advisors devoted much of 1978 and 1979 to seeking the financial support of the State of Alaska, support which was envisioned by the President's Decision, in an amount of approximately \$2 billion. The plan proposed to the State and supported by its Governor included the issuance by a state agency of \$1.5 billion in tax-exempt debt, the proceeds of which would be used to purchase project debt. The rationale and appeal of this measure from the project's standpoint was that the State's offering would tap an otherwise unavailable segment of the capital market. Alaskan Northwest, as an issuer of taxable securities, is unable to raise funds from tax-exempt investors, many of whom who control large pools of capital. The proposal also contemplated the issuance of \$500 million of equity securities to the State, the income of which would add substantially to the enormous economic, fiscal, employment, and social benefits that the State will realize from the project.

This specific plan was not approved by the State legislature, but a special committee was formed to analyze State financial participation. Alaskan Northwest would welcome the State's active participation in the financing.

2. North Slope Producers

Commencement of negotiations with producers was seriously delayed because of unsettled legislative and regulatory issues

completely out of the control of Alaskan Northwest. First, there was the uncertainty surrounding resolution of the Natural Gas Policy Act of 1978. The NGPA, among other things, established the wellhead pricing of Alaskan gas, the duration of its regulation, and the manner in which it will be priced by pipeline purchasers. Secondly, the development of the Incentive Rate of Return mechanism, including the key rate of return parameters, was not fully completed until September 1979 -- two years after the President's Decision. Finally, FERC approval of the project design specifications for pipe diameter and design pressure was not final until January 1980. Only after all of these critical issues were laid to rest was it possible to prepare a definitive cost estimate for regulatory and financing purposes. Not until that point could truly meaningful discussions setting the framework for the producers' financial involvement in the project begin.

In the fall of 1979, a month after settlement of the Incentive Rate of Return proceeding, a financing plan was presented to the Alaskan Northwest partners for their approval, thereby setting the stage for the commencement of negotiations with the North Slope producers. This financing plan was essentially the same as that described earlier as the original sponsor financing plan and was fully in compliance with all of the requirements of the President's Decision.

The first meaningful indication of specific producer willingness to support the financing of the project became evident in late 1979. From the outset, the producers' principal requirements

for involvement in the financing were (1) that the President's Decision be altered, by waiver or otherwise, to permit the producers to own equity with full and proportional rights and benefits of equity ownership, and (2) that the conditioning plant be included in the ANGTS with provision for inclusion of all gas conditioning and processing charges in the ANGTS gas tariff. Neither of these producer requirements were permitted by the President's Decision.

The Department of Energy, through the Secretary and the General Counsel, served as an intermediary between the sponsors and producers to assist in negotiations. By March 1980, after numerous meetings and lengthy discussions, an initial set of conceptual agreements between the sponsors and producers was reached.

The principal accomplishment of these efforts was a Co-operative Agreement adopted in April 1980 and signed in June 1980 providing for the joint funding by the producers and sponsors of design, engineering, and cost estimation work for the Alaska pipeline and the conditioning plant. A second agreement, a Letter of Intent (which is attached as Appendix H), was entered into by Alaskan Northwest and the producers committing all parties to work expeditiously towards arranging a private financing of the project.

By May 1981, Alaskan Northwest and the producers agreed to approach the financial community with a financing plan embodying the following concepts:

1. For purposes of financing, the "as spent" cost of the Alaskan pipeline will be \$21 billion and of the plant

will be \$6 billion. In addition, a pre-committed completion assurance pool of \$3 billion will be formed.

2. The debt/equity ratio for all capital investment will be 75:25.
3. The investment limits of all participating companies will be defined from the outset. As a group, the transmission companies will provide equity in an amount not to exceed \$5.25 billion. As a group, the producer companies will provide equity in an amount not to exceed \$2.25 billion.
4. The Alaskan Northwest partners will own 70% of the pipeline and the plant, and the producing companies will own 30% of the pipeline and the plant. Equity commitments to the completion assurance pool will be made on the same 70:30 ratio.
5. Debt funds (pipeline and plant) will be sought on a project credit basis. The transmission group will be responsible for arranging for \$15.75 billion in project debt. The producer group has accepted responsibility for arranging for \$6.75 billion in additional project debt. The debt which the producers are responsible for arranging will be accorded terms and conditions equivalent to those accorded other project debt.
6. Each company's participation will be subject to satisfaction of conditions precedent, namely:
 - The conditioning plant will be included as part of the Alaska segment of the ANGTS.
 - Each company's investment will be limited to a sum certain defined in the financing plan.
 - All debt and equity participants will issue firm commitments, acceptable to all other participants, prior to construction of the pipeline or plant.
 - All necessary governmental approvals and authorizations will be issued and accepted by the participants.
 - All parties are assured that the project is economically viable.
 - All parties are assured that the Canadian segment will be financed and completed without U.S. company involvement.

-- Each financing layer will be afforded equal terms and conditions.

D. Comparison of Original Sponsor Financing Plan and Sponsor/Producer Agreement

The May 1981 plan deserves elaboration to be fully understood in relation to the original cost estimate and financing plan detailed in the President's Decision. The basic cost estimate in the plan reflects substantial cost additions over the \$13 billion estimate in the President's Decision. These cost additions are comprised primarily of (1) the \$6.0 billion conditioning plant not provided for in the 1977 plan, (2) costs resulting from the more extensive design features which evolved in the past four years in contrast to the cost of the design originally contemplated, (3) cost escalations resulting from the delay of four years in the anticipated completion date because regulatory proceedings took more time than had been anticipated in 1977, (4) the abnormally high rates of inflation experienced in the U.S. since 1977, and (5) the unusually high long-term interest rates prevailing in the last few years which now may be subsiding. To reiterate what was said earlier, the 1977 plan for the \$10 billion project was based on a 1975 dollar year estimate, escalated by five percent per annum to year of expenditure with a contingency of five percent and interest costs of 10 percent.

The May 1981 financing plan differs in material respect from the original sponsor plan also because of the requirements of the producers as conditions for their financial support for the project. Further, the funding assumptions reflect the absence

to date of State of Alaska support which had been contemplated by the President's Decision. And finally, the most recent plan, unlike that described in the President's Decision, utilizes supplier credits, and Eurodollar and foreign financing for the Alaskan facilities. This expansion of target capital sources provides an element of flexibility, and is necessary as a result of the growth of the financing requirements.

E. Position of U.S. Commercial Bank Lenders

On the basis of the agreement reached by Alaskan Northwest and the producers, the first formal presentation of an ANGTS financing plan was made in May 1981 to four major U.S. commercial bank lenders--Bank of America, N.T.&S.A., The Chase Manhattan Bank, N.A., Citibank, N.A., and Morgan Guaranty Trust Company of New York.

On August 28, 1981 the four-bank coordinating group advised the partnership of the results of its preliminary assessment of the financing concepts, the general availability of debt support for the project, and suggested certain modifications to the approach to financing which the partnership and the producing companies might consider. A copy of this letter, together with its attachments, is appended for review by the Committee as Appendix I. Without re-stating the contents of the August 28 letter in detail, inasmuch as the letter must necessarily speak for itself, it is nonetheless noteworthy for us to underscore certain of the banks' preliminary conclusions, which are, of

course, subject to the various conditions and caveats expressed in the letter of August 28.

First, the banks believe that the project can be privately financed without government guarantees or participation.

Second, the banks believe that there will be funds available on a world-wide basis sufficient to provide debt support for the project, within the range of \$12-18 billion.

Third, the banks believe that after completion, and when the ANGTS is operational pursuant to satisfactory tariff and tracking arrangements, the credit of the project itself will provide adequate assurances of debt service to the extent that the sponsoring companies will not be obliged to a continuing pledge of corporate credit.

These are very positive results. But this encouragement was tempered by the banks' advice that credit support will be required of the participating companies during the construction phase of the project. In this connection, the banks concluded that the completion pool of funds concept advanced by us will not be perceived by lenders generally to be acceptable, in and of itself, as a basis for debt support during construction. Consequently, the banks have concluded that the bulk of the funds needed for the construction of the project cannot be raised on that basis. Thus, they have advised us, as noted in the letter of August 28, that a modification of our financing proposal should be considered which will permit some degree of debt repayment assurance during the pre-completion phase, involving a

combination of (1) acceptable debt assumption arrangements by the sponsors and producers and (2) acceptable commencement of billing provisions prior to completion of the overall system.

The reliance by the banks on corporate credit and limited consumer support during construction may permit a reduction in the external financing requirements for the project. Since there would be a source of repayment for the bulk of project debt, the need to provide pre-committed contingency financing (to assure project completion and/or debt repayment) can be reduced or eliminated and the hopeful mitigation of inflation and interest rates would result in further reduction. The amount of the latter reduction is, of course, subject to the completion of further definitive engineering and cost estimation work. The banks have concluded that ". . . if the required credit support can be arranged, the banks are of the opinion that a modified plan may well provide the basis for private sector financing of the project."

As to the waivers of law deemed to be necessary by the banks, they have advised, in their letter of August 28, that the level of credit support required to raise the extraordinary amounts of capital to finance the project necessitates that ". . . [t]he debt [of the project] be supported by repayment assurances involving [among other things] acceptable commencement of billing provisions prior to the completion of the overall system."

In short, the banks have advised me that the billing commencement provisions set forth in the proposed waiver are a critical

credit support--indeed the absolute minimum--feature required to raise the necessary funds. Passage of the billing commencement features of the waiver package will increase the willingness of the banks and other lenders to participate in the financing in terms of the number of lenders participating and the amount of each lender's commitment to the financing.

In consideration of the circumstances described earlier which have resulted in the extraordinary amounts needed for this project, and the conditions that have developed in our financial markets since the President's Decision--none of which was anticipated in 1977--it is not unreasonable to understand the necessity for providing the limited credit support that lenders are seeking through a separation of the Alaskan pipeline and plant facilities, and the Canadian pipeline segment, for purposes of billing commencement for debt service charges.

F. Risk/Benefit Sharing Objectives of President's Decision Fundamentally Preserved

While the billing commencement waiver insisted upon by the banks would appear to represent a departure from the principles of risk sharing established in the President's Decision, the sponsors, as well as producers, would also be contributing more credit support -- with all its consequential costs and risks -- than was contemplated in the President's Decision. The concept of risk sharing is preserved: because of the greater financial requirements and the more difficult circumstances in which this project must be financed, it is incum-

bent that all project beneficiaries contribute more to realize the substantial benefits of the huge Alaska energy resource.

To reiterate an earlier point, the waiver provision providing for commencement of billing as each segment is completed is not unprecedented insofar as consumer exposure is concerned. Under current law, the consumer would incur a continuing irrevocable obligation to pay certain ANGTS costs even if gas service did not commence. This would result if all four pipeline segments were completed and commissioned for service by the Federal Inspector but (1) gas was not delivered by the producers to the conditioning plant, or (2) the conditioning plant was not completed.

The proposed waivers represent a recognition of the current reality with respect to consumer risk, not a dramatic wholesale repudiation of the risk/benefit sharing concepts developed in the President's Decision. Consumers would commence paying only for completed segments; they would not incur an obligation for uncompleted facilities. From the standpoint of consumer cost, the payment for cost of service charges as permitted under the proposed waiver will result in lower charges for gas to consumers over the project life. This will result because carrying costs will not be capitalized and paid for by consumers over the project life in the absence of consumer payments.

Consumers will be the ultimate beneficiaries of this project, realizing the substantial benefits of a domestic

long-term premium source of energy, one of the few supplemental energy supply programs offering declining costs in real terms over the next generation.

G. Impact of the Waivers Upon Private Financing

While there is much that can and will be done while the Congress is considering the proposed waiver of law, it is inescapably true that constructing and implementing a financing plan for the project cannot be accomplished in the absence of affirmative action by both Houses of the Congress on the waiver request. We can say to you categorically that if the waiver is not permitted, private financing is impossible.

Our views with respect to the proposed waiver are dictated by the stark realities of the world credit markets. It is not possible for the financing of this project to move forward so long as the producers of Prudhoe Bay gas are excluded from equity participation in the financing. The equity contributions of these companies, and their support of an appropriate portion of project debt during construction, is essential. The pipeline company sponsors do not have the individual or aggregate financial strength to shoulder the entire financing requirements of the project.

Similarly, it is not possible to construct financing for the project so long as the conditioning plant remains outside the system, subject to uncertainties of ownership, cost recovery, and integration of construction and operation. Gas cannot move

through the Alaska Natural Gas Transportation System without the conditioning plant, a fact readily apparent to any prospective lender. The plant must be integrated into the system and covered by the certificate and tariff ultimately determined to be appropriate by the Federal Energy Regulatory Commission for the Alaskan facilities.

With respect to the waiver dealing with regulatory constancy, we cannot overstate our belief that private financing in the world capital markets cannot be successfully arranged unless it can be demonstrated that funds advanced to the project under a FERC-approved tariff and tracking arrangement will not be subject to later change. We would emphasize that the lenders to whom we must appeal will be asked to commit funds on the basis of project credit after the system is operational; they will be asked to lend on the strength of a revenue flow which is derived through FERC tariff mechanisms. If they cannot be reasonably assured that the credit which they analyze and appraise before committing to the project is not subject to change in the future, they cannot, in all probability, lend to the project to the extent that will be required for successful implementation of a financing plan. Under the present state of the law, they have no such assurance. In this regard, we have been made aware of an opinion rendered by the General Counsel of the Federal Energy Regulatory Commission to Chairman Sharp and Congressman Brown dealing with the issue of regulatory constancy, and I have appended to my statement a copy of this

opinion for your review. (Appendix J). Given the views there expressed, and our own individual and collective experience in financing gas projects, we must advise you that it will be impossible for us to raise the billions of dollars of debt necessary to support the project if lenders are subject to a change in the rules of the game after their money has been committed and spent.

With respect to the impact on private financing of the waiver of law necessary to permit some flexibility in the commencement of billing for charges upon completion of the Alaskan facilities, we would offer these views. First, during the period of time when the ANGTS is under construction, the project has no revenue flow and essentially no credit in its own right to provide a basis for assurance to lenders that interest and principal will be paid. Thus, during the period of construction credit support must be arranged, and, in the banks' view, this support must come from the participating companies and, to a limited extent, from the consumer beneficiaries of the project. From our prior discussions with some of you and with your staffs, you are no doubt aware that we would have preferred a billing commencement waiver in terms which would permit maximum flexibility and maximum discretion within the FERC to approve, or disapprove, tariff provisions which would accomodate the details of the financing package which we are ultimately able to negotiate on a world-wide basis. But we understand that the degree of flexibility which we sought is not attainable, given the understable

reluctance of the Administration and many of you to sanction a massive shift to the consumer of the risk of noncompletion of the project.

It is our view that the proposed billing commencement waiver is the absolute minimum that will permit us to carry forward our work. Without this waiver we cannot proceed, and with it we can proceed only on the basis that the sponsoring companies will be called upon to assume greater obligations during the period of construction that were originally envisioned by us. With the waiver we can proceed, and we will give our best effort to make the financing work within its constraints.

H. Present Status of Financing Negotiations

On the basis of the views which we have just expressed, we trust it is clear that further progress on the financing of the project is inextricably tied to favorable Congressional action on the proposed waiver of law.

Following the delivery of the banks' letter of August 28 to the partnership, intensive negotiations have taken place among the participants, dictated in large part by the expression of the banks' views that a modification of our financing concepts would be necessary. These negotiations continue, but in all probability cannot be concluded by unconditional commitments until the participants know the Congressional reaction to the proposed waiver of law. Certainly financing cannot be put together on the basis of producer participation if producer participation is unlawful. Certainly financing cannot be

put together if there remains uncertainty as to the status of the conditioning plant. Certainly financing cannot be arranged until the spectre of regulatory change is laid to rest. And certainly there can be no definitive financing until the billing commencement issue is resolved.

Progress on financing also hinges on favorable FERC action on our cost estimate. Agreement on capital requirements must be attained, and Commission approval of the cost estimates is not yet in hand.

Despite these major uncertainties, each of which must be resolved by the Congress and the Commission at this stage, the companies which have supported this project for the past years, and which collectively have already spent almost \$550 million, are prepared to continue in their strong support of the project. Billions of dollars will be committed by these companies in the form of direct equity contribution and in the form of debt support during construction.

At this juncture we remain optimistic that if the Congress permits the proposed waiver to become effective, and if the Commission reacts favorably to our cost estimate, the private party participants in the project can reach agreement upon the level and degree of equity and credit support which they can each contribute. The aggregate credit so committed, together with the tariff and tracking mechanisms necessary to provide a basis for project credit after the line is operational, will

permit us to continue in our determined efforts to meet the challenge of financing this project.

Before addressing the specifics of the waiver package, I would note one further point. A private financing plan can be assembled in a manner that reflects a proper allocation of risks between the principal beneficiaries of the ANGTS--the North Slope producers, the Alaskan Northwest partners, and the consumers dependent upon the Alaskan gas. The project sponsors and producers are willing to continue to accept the risks of non-completion imposed upon them by the President's 1977 Decision because they firmly believe the project can be constructed on time and within budget.

X. PROPOSED WAIVER OF LAW

On October 15, 1981 President Reagan, acting pursuant to Section 8(g) of the ANGTA, transmitted to Congress a proposed waiver of law (attached as Appendix K) which would accomplish four specific purposes, all of which are necessary predicates to private sector financing: (1) permit both debt and equity participation in the project by the Prudhoe Bay producers; (2) include the conditioning plant in the ANGTS and in the certificate to be issued for the Alaskan facilities; (3) permit the FERC to approve, at its discretion, tariffs which will provide lenders with sufficient assurances of debt and/or equity repayment, after individual completion of the gas conditioning plant, the Alaskan pipeline segment, and the Canadian pipeline segment, to warrant their advancing the enormous sums needed for private financing;

and (4) enable the FERC to expedite the issuance of the final certificates for the ANGTS.

I shall now address in detail the reasons why a waiver of each provision of law is required.

A. Public Law 95-158 and the President's Decision

1. Producer Equity Participation

The President proposes to waive Section 1, Paragraph 3, and Section 5, Conditions IV-4 and V-1 of the President's Decision, Pub. L. No. 95-158, to permit producer participation in the ownership of the Alaskan pipeline segment and gas conditioning plant of the approved transportation system.

Conditions IV-4 and V-1 of the President's Decision presently prohibit producer equity participation in the ANGTS, limiting producers to providing debt or debt guarantees. Specifically, Condition IV-4 requires the Alaskan Northwest partnership to be open to anyone, except producers of Alaskan gas. Condition V-1 prohibits such producers from having an equity interest in the ANGTS or having any role in the management, control, or operation of the project.

Waiver of this provision of law would permit the producers to own a equity interest in the project. Despite recognition in the Decision that producers should participate in the financing of the project, the restrictions imposed on the producers by the Decision are incompatible with a meaningful producer contribution to financing. It is not difficult to understand why the producers