COMM-OPINION-ORDER, 5 FERC ¶61,199, **Incentive Rate of Return for The Alaska Natural Gas Transportation System, Docket No. RM78-12**, (Dec. 01, 1978)

**Incentive Rate of Return for The Alaska Natural Gas Transportation System, Docket No. RM78-12**

**[61,425]**

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**Incentive Rate of Return for The Alaska Natural Gas Transportation System, Docket No. RM78-12**

**Order Attaching Incentive Rate of Return Conditions to Certificates of Public Convenience and Necessity; Order No. 17**

**(Issued December 1, 1978)**

**Before Commissioners: Charles B. Curtis, Chairman; Don S. Smith, Georgiana Sheldon, Matthew Holden, Jr. and George R. Hall.**

**[Note: Order No. 17-A confirming the incentive rate of return mechanism and denying petition for reconsideration and clarification issued January 17, 1979, 6 FERC ¶61,042 .]**

I. *Background*

On May 8, 1978, 3 FERC ¶61,111 the Federal Energy Regulatory Commission (Commission) issued a notice of proposed rulemaking (43 F.R. 20245-20246, May 11, 1978) to adopt terms and conditions concerning an Incentive Rate of Return (IROR) on equity for certificates of public convenience and necessity for the Alaska Natural Gas Transportation System (ANGTS). [1] In this notice, the Commission invited interested parties to submit written comments on the proposed rule by May 31, 1978. By notice issued May 26, this comment period was extended to June 14, 1978. Parties were also allowed to file reply comments by June 23, 1978. The Commission received 24 comments on the proposed rulemaking from interested parties. [2]

On September 15, 1978, the Commission issued a revised notice of proposed rulemaking (43 F.R. 45595, October 3, 1978) in this matter and invited interested parties to submit written comments on the revised terms and conditions by October 6, 1978. By notice on October 6, 1978, this comment period was extended to October 13, 1978. The Commission received six comments from eight parties on the revised terms and conditions. Comments were received from the Office of Regulatory Analysis of the staff of the Commission, the State of Alaska, Alaskan Northwest Natural Gas Transportation Company, Northern Border Pipeline Company, Pacific Gas Transmission Company and Pacific Interstate Transmission Company, and Tennessee Gas Pipeline Company and Midwestern Gas Transmission Company. This order discusses these comments, issues appropriate terms and conditions, solicits additional comment and schedules oral argument on one matter, and sets forth schedules and procedures for the rest of the proceedings required to implement the IROR mechanism.

II. *Introduction*

The terms and conditions in this order incorporate improvements suggested by valid criticisms to both the initial and revised notices of proposed terms and conditions. Comments which repeated criticisms presented earlier in the comments on the initial notice have not been discussed again herein.

Some of the comments argued that the illustrative examples of rates of return and risk premiums used in the revised notice were too high, while other comments argued that they were too low. The Commission encourages the presentation of views on this subject at the appropriate point in the future, which is in the

evidentiary proceeding in which the actual values of the rates of return and risk premiums that will apply to the ANGTS will be determined.

The significant changes in the IROR terms and

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conditions from those proposed in the revised notice are:

**-- Footnotes --**

[1]. Certain concepts have been restated and redefined in order to make them more readily understood. In particular, the Cost Performance Ratio is now defined as the ratio of the Deflated Actual Capital Cost to the Projected Capital Cost, instead of the previously used concept of rate base. The cost estimate to be used as the basis for determining the Projected Capital Cost is now called the Certification Cost and Schedule Estimate instead of the Final Estimate. A glossary of terms is provided at the end of this order.

[2]. The rate of return used to calculate the AFUDC component of the Capital Cost will be set at a level approximately equal to the real rate of interest or cost of capital in the economy, instead of at the actual rates of interest incurred during construction and the allowed equity rate for calculating AFUDC. The real rate is less than actual or current rates by an amount equal to the expected rate of inflation.

3. The procedure for calculating the one-time adjustment to rate base has been simplified. The one-time adjustment will be derived on the assumption that the equity investment in the project will be reduced to zero over a 25-year period on a basis of straight-line depreciation. A procedure for Commission review of the one-time adjustment has also been established.

III. *Obstacles to Private Financing*

The two most serious criticisms of the revised terms and conditions were presented by the partnership proposing to build the Alaskan segment of ANGTS, the Alaskan Northwest Natural Gas Transportation Company. Alaskan Northwest states that there are two "aspects of the proposed rule which, if adopted, will force abandonment of the Partnership's plan for private financing." [3]

A. *Cost Basis for the IROR*

Alaskan Northwest objects to the implication in the revised notice that the basis for setting the IROR will be the March 1977 cost estimates. This concern is in fact the result of an ambiguity in the Commission's revised notice and can quickly be dispelled. The terms and conditions attached to this order provide that the Certification Cost and Schedule Estimates to be submitted by the applicant prior to the Commission issuing a certificate of public convenience and necessity will be the basis for the IROR mechanism. The Certification Estimates will be compared with the March 1977 estimates to determine whether the new estimates "... materially and unreasonably exceed the comparable capital cost estimates filed by Alcan with the Federal Power Commission...." [4]

The Certification Cost Estimate will also have to be examined carefully to determine the likelihood of cost over-runs or underruns from this new estimate. The *Decision* anticipated a 31 percent overrun for the entire system, based on the March 1977 estimate. [5] This figure was used in the revised notice as the basis for a Center Point of 1.3 for the example IROR schedule. If overruns from the Certification Cost Estimate are likely to be less than the overruns estimated using the March 1977 figure as base, a Center Point closer to 1.0 will be more appropriate.

B. *Inclusion of AFUDC in the Cost Performance Ratio*

Alaskan Northwest objects to the feature of the terms and conditions in both the initial and revised notices

which requires AFUDC (also known as interest during construction or finance charges) to be added to the direct construction costs in calculating the Cost Performance Ratio. Inclusion of AFUDC penalizes the equity investor for those delays during construction for which he is not protected by the change in scope procedure, according to Alaskan Northwest, which states:

> [T]his feature of the September 15 proposed rule is wholly unacceptable to the project sponsors because (a) it is in direct contravention of the Finance Terms and Conditions set forth in the presidential decision on the Alaska Natural Gas Transportation System; and (b) it imposes upon Alaskan Northwest a rate of return penalty for *all* project delay, whether or not caused by the Partnership. [6]

Alaskan Northwest has misinterpreted the second finance term and condition in the President's *Decision* (p. 36). This condition requires the Commission to exclude interest during construction from the Certification Cost Estimates for purposes of comparison with the March 1977 estimate in order to determine if the Certification Estimate "materially and unreasonably exceeds" the earlier estimate. However, this does not mean that the Commission cannot include interest during construction in the calculation of the Cost Performance Ratio. The *Decision* goes on to state that the Commission "may" use the Certification Cost Estimates as the basis for the IROR, implying that some other estimate or some modification to these estimates may also be used. In other words, the Commission has complete flexibility to determine which costs will be included in the calculation of the Cost Performance Ratio.

Alaskan Northwest cites five examples of delays that have occurred in the project because of government action or inaction which are beyond the control of the applicant. All of the examples have occurred prior to certification of the project and prior to the submittal of the Certification Cost Estimates. All costs incurred prior to certification and approved under the Commission's standard audit procedures for inclusion in the rate base will be included in the Projected Capital Costs, including AFUDC. As a result, any delays prior to certification will not increase the Cost Performance

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Ratio and will not reduce the Incentive Rate of Return. The penalties in the proposed IROR mechanism for delay would occur only for delays after the Commission has granted a certificate. [7]

The Commission understands, and is sympathetic to, the project sponsors' concerns about being penalized for delays which are beyond their control, particularly delays caused by the government. It is our intention that the scope change procedures, to be the subject of a separate rulemaking to be initiated as soon as possible, will absolve the project sponsors of responsibility for delays which are clearly the fault of the government. That same procedure should also address the much more difficult issue of determining what other delays and cost increases are truly beyond the project sponsors' control.

Prior to resolution of the scope change issue, the Commission feels it would be impossible to make any determination, positive or negative, with respect to private financing. The Commission would, if possible, choose to leave AFUDC in the determination of the Cost Performance Ratio, because the Commission believes that well-placed private incentives are virtually always desirable complements to specific government approvals, such as the Federal Inspector will be authorized to grant.

The Commission has revised the manner in which AFUDC is included in Actual and Projected Capital Costs as discussed in more detail below, in order to make its inclusion consistent with the inclusion of other costs in the Cost Performance Ratio. The Commission believes that the clarifications and revisions in the manner of inclusion of AFUDC adequately address the project sponsors' concerns as expressed in their comments on the revised notice. However, because of the significance that the project sponsors have attached to this feature of the IROR mechanism, the Commission feels a responsibility to consider their views on the revisions. The Commission will therefore entertain further comments on the matter -- and on this matter alone of inclusion of AFUDC in the Cost Performance Ratio as revised in this order. The Commission will also hold an oral argument for the presentation of views on this specific issue.

IV. *Application to the Western Leg and Northern Border*

A. *Western Leg*

In the revised notice, the Commission concluded that application of the IROR mechanism to the Western Leg was not in the public interest, primarily because the sponsors of the Western Leg were proposing a financing plan that consisted entirely of debt. The Commission found that a financing plan with 100 percent debt financing would create major cost control incentives. Also, since debt financing is less costly to consumers and since application of an IROR might make such high levels of debt financing impractical, application of the IROR to the Western Leg would not have the same benefits to consumers as would be the case for other segments of ANGTS.

In their comments on the revised notice, the sponsors of the Western Leg (Pacific Gas Transmission and Pacific Interstate Transmission) have informed the Commission that their financing plans never contemplated 100 percent debt financing, and asserted that the financing plans included in the Initial Decision by the Presiding Administrative Law Judge, [8] in the Federal Power Commission's *Recommendation to the President,* [9] and in the Presidents *Decision* [10] were all in error or misleading.

When the project sponsors submit a financing plan for the Western Leg as part of their application for a certificate of public convenience and necessity (as provided by Section 7 of the Natural Gas Act), this plan must be reviewed for consistency with past submissions and with the public interest. Substitution of high cost equity for low cost debt will result in increased costs to the consumers and will thus reduce the overall benefit of constructing the Western Leg. The Commission expects that the companies sponsoring the Western Leg will be prepared to demonstrate conclusively that the financing plan which is part of their required Section 7 filing utilizes the maximum possible proportion of debt. The Commission nevertheless finds that application of the IROR to the Western Leg will not be in the public interest.

B. *Northern Border*

The sponsors of the Northern Border Project also argued that development and application of an IROR mechanism to Northern Border would substantially delay the ANGTS. The Commission does not agree. The Commission finds that the potential for delay created by the IROR mechanism is sufficiently small that the public interest is served by its application to the Northern Border Segment. Northern Border argues that the Commission must determine an IROR schedule before a financing plan can be prepared and submitted to the Commission, and that this would delay the project. In a conventional pipeline certification proceeding, the applicant would normally submit a financing plan conditional upon the Commission granting a specific rate of return on equity, special tariff provisions, and so forth. Only after the Commission had before it a proposed financing plan, cost estimates, proposed tariff, and other important information affecting risks born by investors, could the Commission make a determination of the rate of return on equity necessary to finance the project. In the case of the ANGTS, the only difference is that the Commission must determine a schedule of rates of return (the IROR schedule) instead of a single value, and this can only be done after submission of a proposed financing plan and other exhibits.

The Commission presents below some discussion

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of the remaining procedures necessary to implement the IROR mechanism, and instructs the Alaska Delegate to develop with the project sponsors a timetable for these procedures that is consistent with timetables for Canadian and other U.S. Government authorizations, and to report fully to the Commission as soon as possible.

V. *Schedules and Procedures*

This order will discuss tentative schedules and procedures for filing the necessary applications for the

Alaska segment of ANGTS and for the Commission's consideration of these applications. Schedules and procedures will have to be much shorter and will have to be expedited for those portions of the Northern Border and Western Leg segments built to transport Alberta gas in advance of Alaska gas. The Alaskan Delegate is authorized to work with the applicant to develop a schedule and procedure for the filing of applications and to report to the Commission. The Commission will then order a schedule and procedure to provide guidance to the applicants, the Commission staff, and other interested parties.

Three components of a complete procedure to implement the IROR mechanism have not yet been determined by the Commission. These are:

(1) the methodology to be used to deflate actual costs to base year prices;

(2) the cost formats that the applicant must follow in submitting its Certification Cost and Schedule Estimates; and

(3) procedures to adjust the Certification Cost and Schedule Estimates for certain events not anticipated in preparing the estimates, or other changes in scope for the project.

The Commission expects that a rulemaking may be appropriate to solicit comments from all interested parties before the Commission issues an order establishing these components of the IROR mechanism. Prior to the issuance of a proposed rule, the Alaskan Delegate is authorized to discuss possible approaches or procedures with the applicants or other interested parties. The applicant is specifically invited to submit to the Delegate proposals on these issues.

In addition to raising matters concerning these components of the IROR mechanism, the comments continue to reflect some confusion and uncertainty regarding accounting and tax implications of the one-time adjustment to the rate base. The Alaskan Delegate is authorized to work with the project sponsors and appropriate offices of the Commission staff to identify and resolve these problems. A report on the resolution of such problems, together with recommendations regarding problems which the parties were unable to resolve, should be submitted to the Commission.

The parameters for the IROR schedule, such as the Marginal Rate, the Center Rate, the Non-Incentive Rate and the Center Point, require certain submissions from the project sponsors. The Commission's Alaskan Delegate is authorized to develop the appropriate phasing for the requisite filings. The following list reflects the Commission's current assessment as to what filings are required and when they might be expected.

[1]. Project company tariff: The Alaskan Delegate should report to the Commission as soon as possible on the status of tariff issues, hopefully by the end of January, 1979. Upon completion of that report, the project sponsors should file the project company tariff. Upon approval of the tariff, the Commission should be able to act on a filing for the Operation Phase Rate, if the basic framework of the financing plan has been established.

[2]. Certification Cost and Schedule Estimate: The Commission understands that the Certification Cost and Schedule Estimate is currently being prepared for presentation to the financial community in mid-1979. If the project sponsors will file that Estimate with the Commission, at least on a provisional basis, at the same time as it is presented to the financial community, the Commission can then initiate the required comparison with the March 1977 estimate. The Commission should also be able to set the Center Point for the IROR schedule.

[3]. Center Rate, Marginal Rate and Non-Incentive Rate: Proposals for these values will presumably be a part of the financing plan which the project sponsors will file with the Commission.

VI. *Revisions in Terms and Conditions*

*A. Calculation of Cost Performance Ratio*

In response to the comments on the revised notice, the terms and conditions specified by this order have been altered in a number of ways. The first change is that the definition of the Cost Performance Ratio no longer makes use of the concept of rate base. A new but similar concept is used instead (1) because it is not appropriate to include some components of rate base in the Cost Performance Ratio and (2) in order to avoid any confusion between the calculation of the Cost Performance Ratio and the calculation of rate base necessary for determining cost of service. Except for the one-time adjustment which is part of the IROR mechanism, procedures described in these terms and conditions for calculating the Cost Performance Ratio do not mean that this order changes in any way conventional and standard procedures for determining the rate base of a newly constructed pipeline.

The Cost Performance Ratio is hereafter defined to be the ratio between Deflated Actual Capital Costs and Projected Capital Costs. The term Capital Costs is meant to include both direct construction costs, such as labor, materials, and overhead, and AFUDC. Projected Capital Costs are based on the Certification Cost and Schedule Estimates approved by the Commission after adjustment

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for any changes in scope. The Deflated Actual Capital Costs are derived from the actual cost and schedule for construction of the project after deflating to base year prices.

The AFUDC added to direct construction costs will be calculated from a Real Rate of Return to be determined by the Commission. This rate is meant to exclude the effect of inflation on interest rates and rates of return. AFUDC will be calculated quarterly by applying a rate equal to one fourth of the Real Rate of Return to the Deflated Actual and Projected Capital Costs outstanding at the beginning of the quarter.

The major differences between the concept of Actual Capital Costs and the conventional concept of rate base are: (1) accumulated deferred income taxes are a factor in determining rate base but are not relevant in calculating Actual Capital Costs; (2) rate base includes working capital but Capital Costs do not; and (3) rate base includes an allowance for funds used during construction, based on the actual cost of equity and debt capital during construction, while Actual Capital Costs are defined to include an AFUDC charge based on a single Real Rate of Return.

*B. Real Rate of Return*

The reason for changing the method of calculating the AFUDC included in the Actual and Projected Capital Cost is to make this component of cost consistent with the other cost components. The Projected Capital Cost is based on the Certification Cost Estimates which are in constant base year prices, and the Actual Capital Cost is also deflated back to the same base year prices. In other words, these costs are in real or constant dollars instead of nominal or inflated dollars. Thus to be consistent and to avoid undesirable incentives, the AFUDC included as a cost should also be in constant or real dollars or, in other words, calculated from the Real Rate of Return.

In the September 15 notice, the Commission proposed to use the interest rates actually experienced during construction and the Non-Incentive Rate of Return on Equity to calculate the AFUDC included in the Cost Performance Ratio. Assuming a continuation of inflation over coming years, these rates will reflect the inflationary expectations of investors and include a substantial premium because of inflation and thus are nominal or current dollar rates of interest and rates of return. This inflation premium must be removed in order to determine the real or constant dollar AFUDC. As an illustration of how one might calculate the Real Rate of Return, suppose that current expectations are that inflation will continue at a six percent rate for the foreseeable future. Assuming 25 percent equity capitalization, a Non-Incentive Rate of 15 percent, and an interest rate on debt of 10 percent, the conventional overall after tax rate of return on rate base used to calculate AFUDC would be 11 percent (.25 x 15 + 75 x 10 = 11.25). Subtracting the six percent inflation rate produces a Real Rate of Return of about 5 percent.

From the project sponsors' perspective, use of a capital charge closer to the real cost of capital also means that capital charges have a much reduced impact on the Cost Performance Ratio. The Commission believes that this change, in combination with absolving the project sponsors of any responsibility for delay which is the fault of the government, should provide the desired incentive for continuous management interest in avoiding delay, without exposing the sponsors to unreasonable and unjust penalty.

*C. One-Time Adjustment to Rate Base*

The method of calculating the one-time adjustment to the rate base has been revised in response to two criticisms of the earlier procedure: (1) Northern Border objects to using 12 years as the assumed life of the advance delivery facilities for calculating the one-time adjustment facilities, since the pipeline will be used for 25 years or more when Alaska gas begins to flow; and (2) Alaskan Northwest objects (as did some other parties) to the fact that "there is no simple and clear-cut means of implementing the one-time adjustment to rate base." [11] The revised procedure for calculating the one-time adjustment is based on an assumed life of 25 years for the project, even though the actual life may be different, and on a very simple procedure for projecting the return of and return to equity for purposes of the discounted cash flow analysis.

The one-time adjustment will be based on the assumption that the return of equity will be at the annual rate of 4 percent of the equity investment in the project at the start-up of operations. In other words, equity will be depreciated on a straight line basis over a 25-year period. The annual return on equity will be calculated as the product of the Incentive Rate and the undepreciated equity at the beginning of the year. This method was suggested to the Commission by the proposal for an IROR put forth by the National Energy Board of Canada on October 5, 1978. [12] This return of and on equity will then be discounted back to the date of start-up of the pipeline, using the Operation Phase Rate as the discount rate.

To illustrate this method of calculating the one-time adjustment, Table 1 shows how to calculate the adjustment for a $ 100 unadjusted equity investment (including AFUDC), assuming that the Incentive Rate is 17 percent and that the Operation Phase Rate is 13 percent. The discounted total (at a 13 percent discount rate) of return of equity and the return to equity is $ 121.75. A one-time adjustment of $ 21.75 would thus be added to the allowance in the rate base of the project for equity funds used during construction. When the unadjusted equity investment in the project, the Incentive Rate, and the Operation Phase Rate have been determined, it is a simple, straightforward procedure to calculate the one-time adjustment to rate base.

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To illustrate what the size of the one-time adjustment would be for other values of the Incentive Rate, Table 2 gives the one-time adjustment as a percent of the unadjusted investment for various values of the Cost Performance Ratio and the Incentive Rate. In the example, the Operation Phase Rate is assumed to be 13 percent, and the IROR schedule is the example used in the revised notice of September 15. Building the project at a cost equal to projected cost (a Cost Performance Ratio of 1.0) would result in a 36.43 percent increase in the equity investment in the project. An overrun of 30 percent (Cost Performance Ratio of 1.3) would result in a 21.74 percent increase, while an overrun of 134 percent (Cost Performance Ratio of 2.34) would result in no change in the equity investment.

Though the calculation of the one-time adjustment should not be controversial, it is still necessary for the Commission to review the calculation and to make adjustments if an error has been made. The attached terms and conditions therefore require that the applicant submit for Commission approval the one-time adjustment within six months of the initiation of operations of the pipeline. The pipeline company may charge a transportation rate immediately upon first delivery of gas, based upon the Operation Phase Rate and the one-time adjustment as calculated by the Company. If, upon review of the submission, the Commission determines that the one-time adjustment submitted by the pipeline is incorrect, then any excess charges during the intervening period would be subtracted from the one-time adjustment.

TABLE 1

Example of One-time Adjustment Procedure

| Year | Return of Equity | Return on Equity (17% IROR) | Total | Discounted Total (13% discount rate) |
|---|---|---|---|---|
| 1 | $ 4.00 | $ 17.00 | $ 21.00 | $ 18.58 |
| 2 | 4.00 | 16.32 | 20.32 | 15.91 |
| 3 | 4.00 | 15.64 | 19.64 | 13.61 |
| 4 | 4.00 | 14.96 | 18.96 | 11.63 |
| 5 | 4.00 | 14.28 | 18.28 | 9.92 |
| 6 | 4.00 | 13.60 | 17.60 | 8.45 |
| 7 | 4.00 | 12.92 | 16.92 | 7.19 |
| 8 | 4.00 | 12.24 | 16.24 | 6.11 |
| 9 | 4.00 | 11.56 | 15.56 | 5.18 |
| 10 | 4.00 | 10.88 | 14.88 | 4.38 |
| 11 | 4.00 | 10.20 | 14.20 | 3.70 |
| 12 | 4.00 | 9.52 | 13.52 | 3.12 |
| 13 | 4.00 | 8.84 | 12.84 | 2.62 |
| 14 | 4.00 | 8.16 | 12.16 | 2.20 |
| 15 | 4.00 | 7.48 | 11.48 | 1.84 |
| 16 | 4.00 | 6.80 | 10.80 | 1.53 |
| 17 | 4.00 | 6.12 | 10.12 | 1.27 |
| 18 | 4.00 | 5.44 | 9.44 | 1.05 |
| 19 | 4.00 | 4.76 | 8.76 | 0.86 |
| 20 | 4.00 | 4.08 | 8.08 | 0.70 |
| 21 | 4.00 | 3.40 | 7.40 | 0.57 |
| 22 | 4.00 | 2.72 | 6.72 | 0.46 |
| 23 | 4.00 | 2.04 | 6.04 | 0.36 |
| 24 | 4.00 | 1.36 | 5.36 | 0.29 |
| 25 | 4.00 | 0.68 | 4.68 | 0.22 |
| Total | $ 100.00 | $ 221.00 | $ 321.00 | $ 121.75 |

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TABLE 2

One-time Adjustment as Percent of Original Equity Investment (including AFUDC)

| One-Time |
|---|

| Cost Performance Ratio | Incentive Rate (%) | Adjustment to Equity Investment * (%) |
|---|---|---|
| 0.8 | 22.6 | 52.19 |
| 1.0 | 19.7 | 36.43 |
| 1.2 | 17.8 | 26.10 |
| 1.3 | 17.0 | 21.74 |
| 1.4 | 16.4 | 18.49 |
| 1.6 | 15.3 | 12.50 |
| 1.8 | 14.5 | 8.16 |
| 2.0 | 13.9 | 3.26 |
| 2.2 | 13.3 | 1.63 |
| 2.4 | 12.9 | -0.54 |

* Operation Phase Rate and the discount rate are 13 percent.

*D. Certification Cost Estimates and Financing Plan*

The attached terms and conditions have been revised slightly to describe in greater detail the submissions the applicant must make with regard to cost estimates and a financing plan. The terms and conditions now require that a comprehensive Construction Plan and Pipeline Design be submitted along with the Certification Cost and Schedule Estimate. Such a Plan and Design are necessary for any change-in-scope procedure. If the Commission is to allow the Certification Cost Estimates to be revised because a change in scope has occurred, then it is necessary to know the original construction plan and design of the project.

The attached terms and conditions also impose certain requirements concerning the financing plan for the project. This plan should describe how both the expected costs of the project and any cost overruns will be financed. The terms and conditions state that, if the actual financing plan deviates significantly from the proposed plan, then the Center Rate, the Marginal Rate, and other parameters of the IROR mechanism may be altered by the Commission. The Commission's concern is that project sponsors could theoretically defeat the purpose of the IROR mechanism by changing the financing of the project during construction. For example, if the project sponsors determine that overruns are very unlikely and that actual cost may be near or even less than the projected cost, then they would have an incentive to increase the equity investment in the project in order to earn the high rate of return allowed by the IROR mechanism. Such a change would be to the detriment of gas consumers.

VII. *Written Comment and Hearing Procedures*

The Commission invites interested persons to submit written comments with data, views and other information concerning the single question of whether or not to include AFUDC in the Cost Performance Ratio as revised in this order. An original and 14 copies should be filed with the Secretary of the Commission by December 19, 1978. Comments should be submitted to the Federal Energy Regulatory Commission, 825 North Capitol Street, N.E., Washington, D.C. 20426, and should reference Docket No. RM78-12 . All written submissions will be placed in the Commission's public files and will be available for public inspection in the Commission's Office of Public Information, 825 North Capitol Street, N.E., Washington, D.C. 20426, during regular business hours.

In addition, the Commission will hold a hearing for oral presentation of views on the specific issue of the inclusion of AFUDC in the Cost Performance Ratio. This hearing will be held on December 21, 1978 at the Commission Offices. All persons, including Commission Staff, desiring to be heard at that time should so inform the Office of the Secretary of the Commission by December 13, 1978 and request the amount of time they wish to receive.

VIII. *Findings*

(1) For the reasons set forth, the Commission finds that it is appropriate and in the public interest in administering the Natural Gas Act and Alaska Natural Gas Transportation Act to adopt the terms and conditions as set forth below to the conditional certificates of public convenience and necessity issued by order on December 16, 1977 (Docket No. CP78-123 , *et al.*).

(2) For the reasons set forth, the Commission finds that written comment and hearing is required on the sole issue of the inclusion of AFUDC in the actual and projected Capital Cost Performance Ratio.

(Department of Energy Organization Act, P.L. 95-91, 91 Stat. 565, E.O. No. 12009, 42 F.R. 46267 (September 15, 1977), Natural Gas Act, 15 U.S.C. §§717 , *et seq.*, Alaska Natural Gas Transportation Act, 15 U.S.C. §719 (g).)

IX. *Conclusion*

In consideration of the foregoing, and subject to further modification following comment and hearing respecting the treatment of AFUDC in the Capital Cost Performance Ratio, the following terms and conditions are appended to the conditional certificates of public convenience and necessity issued by the Commission on December 16, 1977 in Docket No. CP78-123 , *et al.*, be effective 30 days from the date of issuance of this order.

*GLOSSARY*

*Center Point* -- The value of the Cost Performance Ratio which would be achieved at the expected or most likely level of construction costs for the pipeline. The difference between the Center Point and 1.0 is a measure of the likely or expected

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level of cost overruns from the Projected Capital Costs of the project.

*Center Rate of Return* -- The rate of return allowed at the Center Point of the IROR schedule. This rate of return should provide compensation to equity investors for the unusual risks created by the IROR mechanism itself in addition to the risks borne during the construction and operation of the pipeline.

*Certification Cost and Schedule Estimate* -- The estimate of construction costs and schedule submitted to and approved by the Commission prior to issuing a final certificate of public convenience and necessity for the project and which is the basis of the Projected Capital Costs.

*Change in Scope* -- An event or situation not anticipated in preparing the Certification Cost and Schedule Estimate for which the Commission allows the Projected Capital Costs of the project to be altered to take into account that event or situation.

*Cost Performance Ratio* -- The ratio of Deflated Actual Capital Costs to Projected Capital Costs. This ratio is used to measure the performance of the project sponsors in achieving the budgeted cost or construction and reducing cost overruns.

*Deflated Actual Capital Costs* -- The cost of construction actually experienced including an allowance for funds used during construction (AFUDC) and after deflating to base year prices using an index measuring the inflation in construction costs. The AFUDC is based on the Real Rate of Return. In earlier versions of the IROR mechanism this was referred to as the Deflated Actual Rate Base.

*Incentive Rate of Return (IROR)* -- The rate of return on equity that shall be decreased as the Cost Performance Ratio is increased in order to provide an incentive for project sponsors to keep construction costs as low as possible. This rate of return is referred to as a variable rate of return in the President's *Decision.*

*Incentive Rate of Return Schedule* -- A table or formula establishing a value of the Incentive Rate of Return for each value of the Cost Performance Ratio.

*IROR Risk Premium* -- The difference between the Non-Incentive Rate and the Center Rate of Return and provides compensation for the financial risks created by the imposition of the IROR mechanism.

*Marginal Rate of Return* -- The rate of return earned on each additional or incremental dollar of capital cost invested in construction. In order to provide an incentive to reduce construction costs this rate shall be set at a level below the cost of capital for an investment in this project. A marginal rate is implicit in the IROR schedule but a single overall rate of return will be earned on all equity investment which is the Incentive Rate of Return.

*Non-Incentive Rate of Return* -- The rate of return on equity used to calculate the allowance in the rate base for equity funds used during construction. This rate of return shall be equal to the rate that would have been granted for this pipeline if an IROR mechanism had not been instituted and will compensate equity investors for any unusual financial risks during construction of the pipeline as well as during operation.

*One-time Adjustment to Rate Base* -- An increase (or decrease) in the allowance for equity funds during construction which is equal to the present worth of the difference between the return to equity at the Incentive Rate of Return and at the Operation Phase Rate of Return.

*Operation Phase Rate of Return* -- The rate of return on equity to be used to determine the cost of service of the pipeline after construction is complete and a one-time adjustment has been made to the rate base. The rate of return shall compensate equity investors for any unusual financial risks during the operation of the pipeline.

*Project Risk Premium* -- The difference between the Operation Phase Rate and the Non-Incentive Rate of Return and provides compensation for any unusual financial risks borne by the equity investors during the construction of the pipeline.

*Projected Capital Costs* -- The estimated cost of the pipeline including direct construction costs and an allowance for funds used during construction (AFUDC). The estimate of direct construction costs is provided by the Certification Cost and Schedule Estimate. The AFUDC is based on the Real Rate of Return. The Projected Capital Costs may be adjusted for certain changes in scope of the project that occur during construction. In earlier versions of the IROR mechanism, this was referred to as the Projected Rate Base.

*Real Rate of Return* -- The rate of return used to calculate an allowance for funds used during construction (AFUDC) to be included in both the Projected Capital Costs and Deflated Actual Capital Costs of the Project. This rate shall be set approximately equal to the weighted cost of debt and equity capital after subtracting an amount equal to the rate of inflation currently expected by investors.

*TERMS AND CONDITIONS*

(1) *Applicability*

The Incentive Rate of Return (IROR) Rule will apply to two of the three segments of the Alaskan Natural Gas Transportation System within the United States, as defined in the President's *Decision and Report to Congress on the Alaska Natural Gas Transportation System* (referred to hereinafter as the *Decision*). These segments are: (1) the portion of the system within the State of Alaska, and (2) the portion of the system from the United States/Canadian border near Monchy in the Province of Saskatchewan to a point near Dwight in the State of Illinois. In the following terms and conditions,

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the term "pipeline" refers to each of these two segments, and the terms and conditions apply to each. The values for schedules, parameters, or variables to be established by the Commission in order to implement the IROR rule pursuant to some future proceeding may be different for each of the segments.

(2) *Cost Performance Ratio*

Pursuant to the second finance term and condition of the *Decision* (p. 36), the rate of return on equity during the operating period of the pipeline will be increased if the pipeline is completed under budgeted cost and reduced if the pipeline is completed over budgeted cost. The relationship between budgeted cost and completed cost will be determined by a Cost Performance Ratio. This is the ratio of the Deflated Actual Capital Costs (see condition 4 below) to the Projected Capital Costs (see condition 5 below).

(3) *Incentive Rate of Return Schedule*

The Commission will establish an IROR schedule which may be in the form of a table or formula. The IROR schedule will specify a value for the IROR for each value of the Cost Performance Ratio. The IROR schedule will compensate equity investors for the degree of construction cost overrun and schedule delay risk which they bear. The IROR schedule will take into account financing plants, cost estimates, and any other factors which the Commission determines to be materially relevant.

(4) *Deflated Actual Capital Costs*

The Deflated Actual Capital Costs will be determined at the start of operations as the sum of direct construction costs actually incurred in the construction of the pipeline after conversion into base year prices (see condition 9 below) plus AFUDC calculated from the Real Rate of Return (see condition 13 below). AFUDC will be calculated quarterly, based on the Deflated Actual Capital Cost incurred prior to the beginning of the quarter.

(5) *Projected Capital Costs*

The Projected Capital Costs will be determined at the start of operations as the sum of direct construction costs included in the Certification Cost and Schedule Estimate approved by the Commission pursuant to condition 6 below and after any adjustments for changes in scope (see condition 10 below) plus AFUDC calculated from the Real Rate of Return (see condition 13 below). AFUDC will be calculated quarterly, based on the Projected Capital Costs estimated to be incurred prior to the beginning of the quarter.

(6) *Certification Cost and Schedule Estimate*

Pursuant to the second finance condition in the *Decision*, the applicant for a certificate of public convenience and necessity for the pipeline shall submit to the Commission a Certification Cost and Schedule Estimate in 1975 prices, adjusted to reflect any design changes resulting from the Agreement on Principles with Canada and any addendum thereto, for comparison with the capital cost estimates filed by Alcan with the Federal Power Commission March 8, 1977. This estimate will not include AFUDC but will include costs actually incurred prior to submission of the estimate. This Certification Cost and Schedule Estimate must also be submitted in 1978 or later base-year prices and with costs set forth according to

formats to be specified by the Commission (See condition 8 below). The March 1977 cost estimate referred to in the second finance term and condition in the *Decision* must also be resubmitted in the same format, for comparability with the certification estimate. An explanation of any significant differences between the March 1977 and the Certification Cost and Schedule Estimate must be provided. The date of the base-year period for submitting costs may be determined by the applicant. With these estimates, the applicant shall also provide a Construction Plan and Pipeline Design which show the techniques and procedures the applicant proposes to use in constructing the pipeline and provide a detailed description of the pipeline as it will appear when completed.

(7) *Financing Plan*

The financing plan (Exhibit L) submitted pursuant to the Commission's Regulations (18 CFR 157.14 ) as part of the application for a certificate of public convenience and necessity under Section 7 of the Natural Gas Act shall describe how the applicant proposes to finance the estimated cost of the project and any overruns, including the proportions of debt and equity financing to be used. If the actual financing of the project deviates significantly from the financing plan submitted to, and approved by, the Commission, these terms and conditions and any determinations concerning parameters of the IROR schedule may be altered by the Commission.

(8) *Cost Estimate Format*

All cost estimates shall be submitted to the Commission according to a Cost Estimate Format to be determined by the Commission. Prior to submittal of the Certification Cost and Schedule Estimate, the applicant may submit a proposal for the Cost Estimate Format to the Commission. The Cost Estimate Format will specify the functional categories or components into which the total cost estimate must be divided and the key parameters or assumptions for which values must be provided. Each functional category of cost must be further divided according to the time period in which the costs are estimated to occur. The breakdown of costs shall be in sufficient detail that the Commission may compare the various cost estimates and determine the reasonableness of any changes.

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(9) *Inflation Adjustment*

The direct construction costs actually incurred, excluding interest during construction, will be deflated to base year prices, where the base year will be that used in calculating the Projected Capital Costs. The Commission will specify a construction cost index that generally measures the increase in pipeline construction costs due to inflation. Direct construction costs in any period will be divided by the ratio of the index in that period to the value of the index in the base year period.

(10) *Changes in Scope*

Prior to calculation of the Projected Capital Cost for determining the Cost Performance Ratio, the Certification Cost and Schedule Estimate will be adjusted to reflect changes in cost that result from certain events not anticipated in preparing the Estimate, or agreed to changes in values of parameters from those assumed in making the Estimate. The type and number of such events or changes in parameters and the procedure for adjusting the Certification Cost and Schedule Estimate will be determined by the Commission pursuant to a future rulemaking, hearing, or order.

(11) *Non-Incentive Rate of Return*

Prior to final certification of the pipeline, the Commission shall specify a Non-Incentive Rate of Return on Equity that compensates equity investors for any abnormal risks they will bear during the construction of the pipeline, excluding the risk created by the IROR rule. To the extent that equity investors in this pipeline bear greater construction phase risks than investors in other regulated gas pipelines, this Rate will be higher

than the general range of rates allowed for other pipelines. Once established, this Rate will not be altered during the construction phase of the pipeline.

(12) *Operation Phase Rate of Return*

Prior to final certification of the pipeline, the Commission shall specify an Operation Phase Rate of Return that is within the general range of rates of return for other pipelines with similar operating risks. This rate of return will be determined separately and independently from the IROR. Pursuant to the Natural Gas Act, throughout the construction and operation of the pipeline, the Operation Phase Rate of Return may be altered to reflect changes in rates allowed for other pipelines of similar operating risk or to provide just and reasonable compensation to equity investors.

(13) *Real Rate of Return*

Prior to final certification of the pipeline, the Commission shall specify a Real Rate of Return to be used to calculate the AFUDC to be included in the Actual Capital Costs and Projected Capital Costs. The general approach to calculating this rate will be to subtract from current market rates of interest and rates of return on equity an amount approximately equal to the inflationary expectations of current investors.

(14) *Cost of Service Calculations*

The allowed rate of return on equity used to calculate cost of service during operation of the pipeline will be the Operation Phase Rate defined above in condition 12. The rate base will include an allowance for equity funds used during construction. The equity rate of return during construction used to calculate the allowance is the Non-Incentive Rate defined above in condition 11. The allowance will also include a one-time adjustment calculated pursuant to condition 15 below. The cost of service for the pipeline shall include a charge for depreciation of the one-time adjustment, and a charge for an equity rate of return on the one-time adjustment where the rate of return is the Operation Phase Rate. The one-time adjustment will be depreciated in the same manner as the remainder of the allowance for equity funds used during construction.

(15) *Adjustment to Rate Base*

Upon completion of construction and initial operation of the pipeline, a one-time adjustment to the equity AFUDC account in the rate base will be calculated in three steps. First, for each year in the assumed 25 year operating life of the pipeline, a revenue stream for equity will be derived assuming that the equity investment including AFUDC in the pipeline at the start of operation is fully recovered by depreciation over a 25 year period in equal annual installments, and that an annual return on equity is derived by applying the Incentive Rate to the undepreciated equity investment at the beginning of each year. Second, the present worth of this revenue stream will be calculated using a discount rate equal to the Operation Phase Rate determined pursuant to condition 12 above. Third, the difference between this present worth sum and the equity investment including equity AFUDC at the start of operations will be added to the equity AFUDC in the rate base of the project. If the difference is negative, the allowance for equity funds during construction in the rate base will be reduced by the difference.

Within six months after the initial operation of the pipeline, the one-time adjustment must be submitted for approval by the Commission. If the Commission reduces the one-time adjustment, the excess in transportation charges incurred during the intervening period will be subtracted from the one-time adjustment. Similarly, and shortfall will be added to the one-time adjustment.

[1] Conditional certificates were issued by the Commission on December 16, 1977, 1 FERC ¶61,248 (Alcan Pipeline Company, *et al.,* Docket Nos. CP78-123 , CP78-124, and CP78-125).

[2] For a complete listing of the parties who filed

comments, see the Revised Notice of Proposed Rulemaking issued September 15, 1978 4 FERC ¶61,315 .

[3] Comments of the Alaskan Northwest Natural Gas Transportation Company, a Partnership, October 13, 1978, at p. 2.

[4] *Decision and Report to Congress on the Alaska Natural Gas Transportation System (Decision*), Executive Office of the President, Energy Policy and Planning, September 1977, at p. 36.

[5] The U.S. share of the project capital cost is $ 9.472 billion for the Base Case and $ 12.368 billion for the Overrun Case, or an increase of 30.6 percent. *Decision* at p. 157.

[6] Comments of Alaskan Northwest Natural Gas Transportation Company, a Partnership, October 13, 1978, at p. 3.

[7] Alaskan Northwest may also be overestimating the impact of interest during construction or AFUDC on the Cost Performance Ratio even after construction has begun. Interest during construction is calculated periodically and is equal to the product of the interest rate and the capital cost incurred prior to that date. If little or no construction has taken place, interest during construction is small, and the increases in cost due to delay are small. Even when the project is near completion, delay does not greatly increase interest during construction. For example, a year's delay very near the end of construction schedule would increase interest during construction by an amount equal to 5 percent of the cost of the project if the interest rate is 5 percent, or 12 percent if the interest rate is 12 percent. Delay may increase other costs besides interest during construction, such as rentals on idle equipment or salaries for workers with nothing to do, but these are costs that would be included in the Cost Performance Ratio even if interest during construction or AFUDC were not included.

[8] *Initial Decision on Proposed Alaska Natural Gas Transportation Systems, El Paso Alaska Company*, Docket No. CP75-96, *et al.*, Federal Power Commission, February 1, 1977, 58 FPC 810 at 1424.

[9] *Recommendation to the President, Alaska Natural Gas Transportation Systems*, Federal Power Commission, May 1, 1977, 58 FPC at 1103.

[10] *Decision* at p. 109.

[11] Comments of Alaskan Northwest Natural Gas Transportation Company, A Partnership, October 13, 1978, at p. 13.

[12] National Energy Board, Proposed Approach to Incentive Rate of Return for the Northern Pipeline, Preliminary Draft (October 5, 1978) at p. 21.