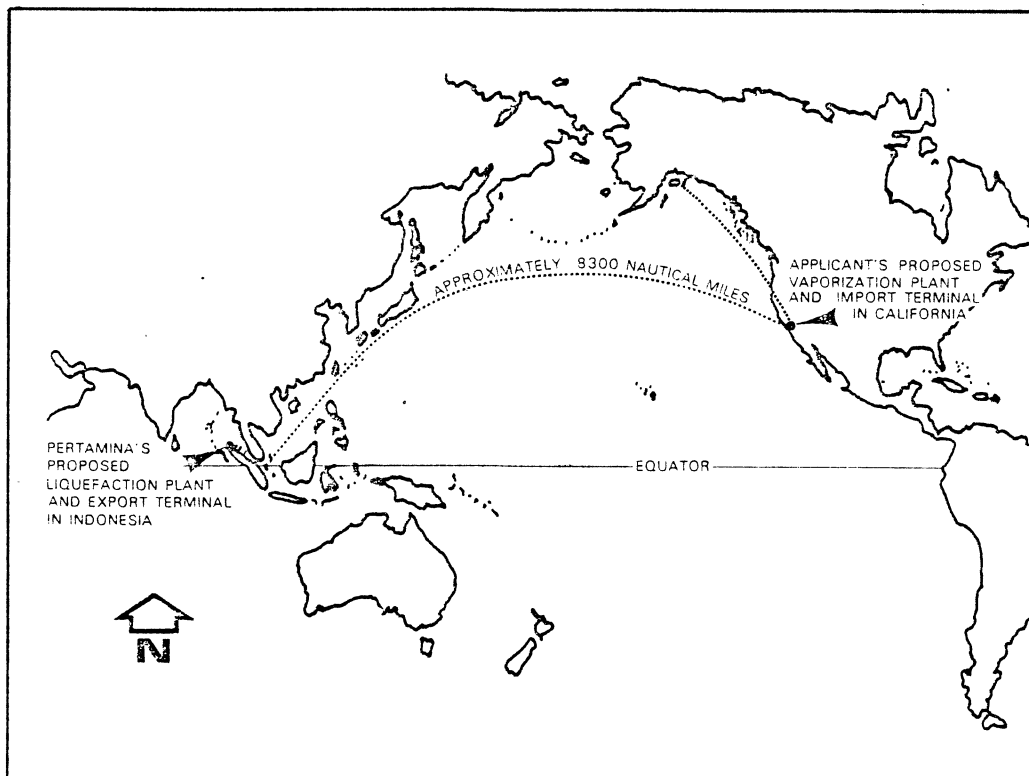




Joint Legislative Audit Committee
Office of the Auditor General



**REPORT TO THE
CALIFORNIA LEGISLATURE**



**ALTERNATIVE FINANCING METHODS OF
LIQUEFIED NATURAL GAS PROJECTS**

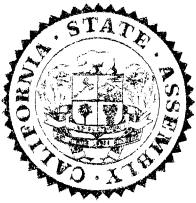
Office of the Auditor General
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REPORT OF THE
OFFICE OF THE AUDITOR GENERAL
TO THE
JOINT LEGISLATIVE AUDIT COMMITTEE

718

ALTERNATIVE FINANCING METHODS OF
LIQUEFIED NATURAL GAS PROJECTS

AUGUST 1977



Joint Legislative Audit Committee

OFFICE OF THE AUDITOR GENERAL

California Legislature



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August 22, 1977

The Honorable Speaker of the Assembly
The Honorable President pro Tempore of the Senate
The Honorable Members of the Senate and the
Assembly of the Legislature of California

Members of the Legislature:

Your Joint Legislative Audit Committee respectfully submits the Auditor General's report on alternative financing methods for needed LNG projects to supply the State of California.

The report is by Assistant Auditor General Wesley E. Voss.

Respectfully submitted,

MIKE CULLEN
Chairman

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SUMMARY

Applications have been filed with the Federal Power Commission (FPC) for projects to transport liquefied natural gas from Indonesia and Cook Inlet, Alaska, to California. Sponsors of the projects acknowledge that the amount of money needed to construct the projects' facilities precludes financing by the traditional utility method whereby the sponsors would obtain construction funds by issuing additional securities; that is, bonds, preferred and common stocks. They seek authorization to bind gas consumers' credit to obtain construction funds.

This would be accomplished through an "all events, cost-of-service tariff." The tariff would compel gas consumers to pay all project costs including profits to the sponsors beginning approximately four years before the gas begins to flow. Consumers' payments would continue even if the projects were unsuccessful and no gas was received.

Since the federal applications for certification of the projects were filed in 1973 and 1974, the FPC has considered a number of major financial issues which must be resolved. However, only vague references have been made in the FPC hearings to a viable alternative to the all events, cost-of-service tariff; that is, government finance.

To obtain the necessary construction funds under the alternative methods of finance, the following costs would be incurred over the projects' lives:

Conventional utility finance	\$4,103,000,000
Project finance with debt retired over the life of the project and a final liquidating dividend to sponsors	3,011,250,000
Project finance with sponsors' investment retired concurrent with debt retirement	2,131,250,000
Government finance requiring voter approval	687,500,000

The first method is unfeasible because sponsors have found they cannot obtain sufficient funds by this method. The third method is that proposed by the sponsors; however, the evidence presented at FPC hearings indicates the second method is more likely to occur. The fourth method would require voter approval.

Precedent exists for government financing. The California State Water Project was financed by a \$1.75 billion state general obligation bond issue at no cost to taxpayers. All project costs, including debt service, are paid from water sales revenues. Examples of government bond issues for private developments include the recently opened oil terminal at Valdez, Alaska, and numerous bond issues for anti-pollution facilities.

Similar financing of the LNG projects could save between \$1.4 billion and \$2.3 billion under the financing costs proposed by the sponsors. The Legislature could consider a ballot measure to enable voters to decide if the State should finance the proposed projects and thereby enable gas consumers to realize these savings.

INTRODUCTION

In response to a resolution of the Joint Legislative Audit Committee we have studied the proposed financing of the projects by which natural gas will be liquefied, transported to California from Indonesia and Cook Inlet, Alaska, and regasified. This examination was conducted under authority vested in the Auditor General by provisions of the Government Code.

This study was limited to examining the voluminous correspondence and proposal documents relating to the liquefied natural gas (LNG) projects' financing as supplied by Southern California Gas Company. The major portion of this material relates to the regulatory processing of the project applications before the Federal Power Commission. The scope of our examination was limited to (1) examining the accuracy of the cost data and (2) providing an assessment of the reasonableness of any underlying assumptions used to project the expected costs. In conjunction with the latter analysis, we also reviewed the proposed financing arrangements.

The projects' sponsors, Pacific Lighting Corporation (PLC) and Pacific Gas and Electric Company (PG&E), have determined that the magnitude of the capital requirements of these projects, considering all their other near-term capital needs, precludes financing by the traditional utility method, i.e., issuance of

debt and equity securities by the sponsors. Following is a description of the natural gas industry and conditions which adversely affect the industry's ability to obtain construction funds by the traditional method of finance.

Industry Background

Large gas transmission systems built in the 1950s were constructed under unusually favorable circumstances compared to current conditions. These pipelines connected large, proven fields of inexpensive gas to markets where gas had a competitive edge over most alternative forms of energy because the well-head price of gas transported interstate was federally regulated. The technology of pipelaying and gas transmission system design was simple and established, and materials and construction costs were predictable and not subject to unexpected inflationary pressures. Consequently, the investment community had a positive outlook on the gas transmission industry.

Investors today see the gas transmission industry threatened by the substantial demands placed on the capital markets by numerous other industries. The following problems contribute to the situation:

- The high risk associated with an industry threatened with exhaustion of its basic domestic product has adversely affected the industry's ability to raise funds by conventional means.

- In contrast to the vast supplies of inexpensive gas available in readily accessible locations of the past, new gas supplies involve risks of transporting gas from remote areas; new risks of evolving technologies; inflationary risks associated with large capital costs, long lead times, potential regulatory and construction delays; and ecological considerations.
- The unprecedented capital expenditures will produce a disproportionately small amount of gas per dollar spent in comparison to historic transmission facilities investments. The proposed Arctic gas pipeline and connecting systems will deliver about six percent of North America's annual consumption but will increase the aggregate transmission system's cost by 50 percent.
- The regulatory bodies may not provide the necessary regulatory underpinnings for an unconditional obligation to provide sufficient revenues to pay all project operating and capital costs, even if no gas is delivered.

As a consequence of these economic changes and risks, lenders now require a project's bonds to be supported by noncancellable contractual obligations providing for all the expenses

of project operation, including debt service, throughout the life of the debt obligation.

Projects Background

In 1973 a subsidiary of Pacific Lighting Company contracted to purchase from Pertamina, the Indonesian government-owned oil and gas company, LNG equivalent to 540 million cubic feet per day of natural gas for 20 years. Applications have been filed with the FPC for authorization to import the LNG from Indonesia, to construct a terminal complex in Southern California with facilities for receiving, storing and regasifying the LNG, and to sell the gas derived therefrom.

Another subsidiary has contracts with producers in South Alaska to purchase gas for amounts sufficient to provide delivery of 130 million cubic feet per day for about 20 years. Rights to additional gas discovered from existing exploration activities have also been acquired. Applications have been filed with the FPC for authorization to construct a liquefaction facility in South Alaska and a terminal complex in California with facilities for receiving, storing and regasifying the LNG and to sell the gas in California.

On January 27, 1976, Pacific Gas and Electric Company agreed to become an equal participant in the two projects for payment of one-half, or approximately \$21 million, of the cost incurred prior to January 1, 1976, and one-half of all subsequent costs.

Assuming receipt of satisfactory regulatory approvals, the sponsors will seek financing for the liquefaction facility in South Alaska and the terminals in California. The equity portion of the capital would be provided exclusively by the sponsors. Agreements have been signed for the charter (i.e., lease) of nine LNG vessels, each for 20 years, for use in the Indonesian project. The first three ships will be foreign-built and operated and have been financed by their respective owners. The six remaining ships, which would be U.S.-built and operated, would be financed and constructed only after regulatory approvals and financing required for the Indonesian project have been obtained. In 1973 contracts were signed for the construction of two LNG vessels for the South Alaska project. The original contract price, which does not include financing costs, was \$205 million for the two ships; however, cost escalation provision in the contracts will continue to increase contract prices, which now are estimated to total \$414 million.

Source of Finance

The estimated cost of the projects' facilities and ships is \$3.8 billion. The methods of financing the gas collection, liquefaction, receiving and regasification facilities have been established, but alternative means of financing some LNG ships are still being considered. The collection and liquefaction facilities in Indonesia would be financed by an agency of the Indonesian government. A significant amount of the materials for the Indonesian-based LNG facilities is anticipated to be purchased in the United States and it is anticipated that a significant part of the funds would come from the Export-Import Bank of the United States. The facilities in Alaska, together with the California receiving and regasification facilities, would be financed by issuing project debt and equity securities of approximately \$1.1 billion. The debt securities would be sold privately, with insurance companies anticipated to be the primary purchasers. The equity securities would be held exclusively by the project sponsors.

Following is a summary of the facilities and source of finance:

<u>Facility</u>	<u>To Be Financed By</u>	<u>Amount (Millions)</u>
<u>Indonesia</u>		
Collection and liquefaction	Securities of Indonesian Govt.	\$ 800
Nine LNG ships	Shipowners leasing to project	1,469
Receiving and regasification	Project debt and equity securities	<u>279</u>
Total Indonesia		<u>2,548</u>
<u>Cook Inlet, Alaska</u>		
Collection and liquefaction	Project debt and equity securities	688
Two LNG ships	Federal guaranty bonds with leverage lease or project equity securities	414
Receiving and regasification	Project debt and equity securities	<u>189</u>
Total Cook Inlet, Alaska		<u>1,291</u>
Grand Total		<u><u>\$3,839</u></u>

STUDY RESULTS

Alternative Methods of Finance

There are four alternative methods of financing the Indonesian and Cook Inlet projects to transport LNG to California. The alternatives and their projected carrying costs* are:

Conventional utility finance	\$4,103,000,000
Project finance with debt retired over the life of the project and a final liquidating dividend to sponsors	3,011,250,000
Project finance with sponsors' investment retired concurrent with debt retirement	2,131,250,000
Government finance requiring voter approval	687,500,000

NOTE: The above cost comparisons are shown in Appendices C, D and E. Appendix F provides the sources of the data used in these appendices.

The first method is unfeasible because sponsors have found they cannot obtain sufficient funds by this method. The second and third methods are variations of project finance. Sponsors prefer the third method; however, evidence presented at the Federal Power Commission (FPC) hearings indicates the second method is more likely to occur. The fourth alternative is government financing by a tax-exempt bond. This method could save between \$1.4 billion and \$2.3 billion below the finance costs proposed by the sponsors.

* Financing costs only; does not include facilities or operating costs.

Because there are a large number of energy projects that are likely to come into fruition, lenders can be selective in their investments and prefer the securities of the higher quality issuers and the safest project financing. Lenders require at a minimum that they be protected against the following basic risks:

- Completion -- The risk that the project may not be completed or that funds may not be available to meet cost overruns.
- Debt service -- The risk that, even though the project is completed and operating satisfactorily, and output is at or near capacity, revenue generated will be insufficient to provide for debt service after paying operating costs.
- Force majeure -- The risk that after the project is in operation, some event will prevent or reduce output. This event could be peculiar to the project itself, such as a catastrophic failure or a technical difficulty, or an externally imposed interruption.

At the time commitments are sought from lenders, financing of all project components must be coordinated and the following assurances provided:

- That an adequate supply of gas is available to support each project during its economic life.
- That financing is available for other aspects of the project.

- That the LNG liquefaction, regasification and transportation facilities are feasible from an engineering and technical viewpoint.
- That all components can become operational within the cost and construction time estimates.
- That sufficient funds are available and committed to assure start-up even if (1) the capital investment cost exceeds the cost projections, (2) delays occur in completion for whatever reason, or (3) operating problems occur which defer the expected delivery of gas and the related generation of cash revenues.
- That in the event the project is not completed by the date specified, a provision is made for lenders to recover their investment.
- That sufficient cash will be generated to meet project obligations and that the security arrangements and the credit behind the security arrangements will be adequate.
- That the projects will recover costs incurred, even though the gas may not be delivered.

The project sponsors are unable to accept such contractual obligations unless they are assured of passing such costs on to their

customers. The sponsors argue that project financing and the proposed cost-of-service tariff will be important elements in providing these assurances.

Project Finance

Under the project finance concept, the Indonesian and Cook Inlet projects to transport LNG would be financed as separate projects rather than as part of the regular business activities of the sponsors, PLC and PG&E. This requires that operations and contractual arrangements be organized so that the projects have unquestioned ability to generate sufficient revenue to repay their debts, if development and operations proceed as planned. For this method of finance, the securities issued are designed to be self-liquidating from revenue derived from the projects' operations, independent of sponsors' operations. The security holders may take recourse against the projects rather than directly against the sponsors.

The projects' credit assurance is provided by contractual arrangements which, in effect, bind the eventual gas consumers to pay for gas made available by the project and facility and operating costs, regardless of the amount of gas delivered. By the all events, cost-of-service tariff requested of the FPC and subsequently of the California Public Utilities Commission (PUC), natural gas consumers will pay all project costs in their regular utility bills regardless of the amount of gas provided by these projects. By the "take-or-pay contracts", gas

producers in Indonesia and Alaska will be paid for making gas available to the project whether or not the project can accept and deliver the gas. Without these provisions, gas producers will not execute long-term firm supply contracts and the investment community will not provide the funds necessary for facilities development. In Appendix A of this report, the president of the California Public Utilities Commission has described how project financing differs from the traditional method of business finance.

The sponsors, PLC and PG&E compared the conventional utility capital structure and the proposed project finance capital structure and argued that utility customers would realize substantial saving from project finance (see Appendix B). The conventional utility capital structure is 50 percent debt and 50 percent equity consisting of preferred and common stocks. Project finance would be 75 percent bonded debt and 25 percent common stock. According to PG&E, project financing would produce savings because of the higher debt ratio than can be achieved through a utility company's general credit.

A unique feature of the applications filed with the FPC is the proposal to retire equity capital during the life of the project. It is unknown whether the FPC will authorize such retirement or, if authorized, whether lenders will agree to the concurrent retirement of debt and equity. The objective of retiring equity concurrent with debt is cost savings; however, the sponsors could not identify any project which had been financed with such a provision. An investment banker

witness at the FPC hearings expressed doubt that lenders would accept this "unusual and unconventional" provision and described the viable alternative as not returning the equity until the debt is fully paid off and then paying a liquidating dividend at the end of the project. The cost of capital under the project finance method is shown in Appendix D both with and without equity retirement during the bond repayment period.

According to the sponsors, shipping is an integral part of the projects and must be included in the projects' financing to receive the most favorable terms from investors. The same underlying principles are incorporated in the shipping contracts as in other contracts, i.e., payment of the time charter rate in all events in an amount sufficient to cover operational and maintenance expenses, taxes, bareboat lease payments, depreciation and amortization of and interest on debt, and, except in certain events, the return on equity invested or lease fee as the case may be. The Indonesian shipping agreement provides:

- Should a ship be lost or become a constructive total loss, the shipper will pay for damages not compensated by insurance or otherwise, including the continuing lease or charter costs and the amount to retire all financial obligations.
- Any obligation to make payment due to any acceleration of obligations under any lease, charter or other financial arrangement, including stipulated loss or termination value or liquidated damages not otherwise recovered, shall be paid by the shipper.

- Any loss or delay in delivery of cargo shall be borne by the shipper; and the ship, her master and the affiliate providing the shipping service shall not be responsible for any loss or delay in delivery of cargo by any cause whatsoever, including negligence or unseaworthiness of a ship, except such as may be directly caused by the willful misconduct or gross negligence of the affiliate providing the shipping service.

The following example of the "no set-off" provisions in the shipping agreement between two of the participants will operate to continue the flow of funds from gas consumers to the appropriate affiliate company:

Notwithstanding any other provisions of this Agreement, no payment of the rate for lease, charter or other hire to third parties, any stipulated loss or termination valued, or debt recovery rate in the case of owned Ships, which is included in the Shipping Rate specified in Article 6 of this Agreement, or any other payment provided to be made by Pacific Alaska by the terms of this Agreement and/or the Time Charter for each Ship, which is required by PL Marine to satisfy obligations for the acquisition and financing of such ship, shall be subject to any right of set-off, counter-claim, recoupment, defense, abatement, suspension, deferment or reduction, and Pacific Alaska shall not be released, relieved or discharged from any such obligation or liability under this Agreement or any Time Charter for any reason whatsoever, including, without limitation by enumeration:

- (1) Any damage to, or loss, requisition, seizure, forfeiture or marshal's or other sale of any of the Ships;
- (2) Any libel, attachment, levy, detention, sequestration or taking into custody of any of the Ships, or any restriction or prevention of or interference with the use of any of the Ships;

- (3) Any title defect or encumbrance or any dispossession from any of the Ships by title paramount or otherwise;
- (4) Any claim, adjustment, refund or credit arising under this Agreement or as a result of any other transaction between PL Marine and Pacific Alaska;
- (5) Any reorganization, arrangement, insolvency, readjustment, bankruptcy, dissolution, liquidation or similar proceeding involving PL Marine or Pacific Alaska;
- (6) Any change, extension, indulgence or other act or omission in respect of any indebtedness or obligation of PL Marine, or any sale, exchange, release or surrender of, or other transaction in any security for any such indebtedness or obligation, whether or not Pacific Alaska shall have any notice or knowledge of any of the foregoing;
- (7) Any ineligibility of any of the Ships, or the denial of any of the Ships' right to engage in her trade or the ineligibility of any of the Ships for documentation under the United States flag by reason of any law or regulation of the United States or otherwise, or any failure to obtain any required governmental consent for any transfer of rights or title by PL Marine to Pacific Alaska pursuant to any provision of this Agreement;
- (8) Any of the terms of any insurance contract not being in effect or enforceable for any reason whatsoever; or
- (9) Any other circumstance or happening whatsoever whether similar or dissimilar to any of the foregoing.

Each payment of the above-specified components of the Shipping Rate, as well as any other amount provided to be paid by Pacific Alaska under this Agreement and/or any Time Charter, which are required by PL Marine to satisfy obligations for the acquisition and financing of Ships, shall be final, and not subject to any retained interest, and, without waiving any other rights or remedies (including any remedy of damages) which it may have against any other person, Pacific Alaska agrees not to seek to recover all or any part of any such payments from any other person for any reason whatsoever. Pacific Alaska hereby waives to the extent permitted by applicable law, any and all rights which it may now have or which at any time hereafter it may have conferred upon it, by statute or otherwise, to terminate, cancel, quit or surrender this Agreement and/or any Time

Charter except in accordance with the express terms hereof. Even though Pacific Alaska shall be deprived of or limited in the use of any of the Ships in any respect or for any length of time, whether or not by reason of some act, omission or breach on the part of any person, whether or not resulting from accident and whether or not without fault on the part of Pacific Alaska, Pacific Alaska will continue to make all such payments required of Pacific Alaska by the terms of this Article 8 and/or any Time Charter, or otherwise, without interruption or abatement. If for any reason whatsoever this Agreement and/or any Time Charter shall be terminated in whole or in part by operation of law or otherwise (except as specifically provided herein), Pacific Alaska nonetheless agrees to pay to PL Marine an amount equal to all payment(s) otherwise due under this Agreement and/or any Time Charter at the time such payment(s) would have become due and payable in accordance with its terms had this Agreement and/or any Time Charter not been so terminated in whole or in part.

The agreement also provides that even though a party is rendered unable to perform, "...nothing contained herein shall discharge or suspend Pacific Alaska's continuing obligation...to make payment of the amounts due...."

Except for the financing of Indonesian facilities and ships, it is anticipated that all equity capital will be provided by the sponsors and debt capital will be provided primarily by life insurance companies, public and private pension funds, savings banks and other institutions. Private placement is regarded by the sponsors as more appropriate than a public offering because of the type of financing and the complexity of the proposed security arrangements.

Whether the benefits of the all events provisions of the tariff should be limited to only debt security holders has not been resolved. At the FPC hearings, a sponsors' witness testified that

customers would be required to pay all costs under all circumstances. An FPC staff witness testified that the all events provisions are far too broad and comprehensive to achieve the balance of equities between investor and customer interests. The FPC proposed that the tariff retain its character as an all events tariff, but that the benefits be restricted to only debt investors, rather than both debt and equity investors as proposed by the sponsors.

In rebuttal a sponsors' witness testified that (1) no costs would be recovered under the cost-of-service tariff which would not be expected to be recouped under a conventional tariff, (2) removing assurances from the tariff would make financing more difficult and (3) the FPC staff proposals would preclude the proposed financing. The proposed changes would not assure investors of the sponsor's ability to restore operations without FPC approval. The proposed FPC changes would also make total investment recoupment uncertain and eliminate the ability to meet debt acceleration requirements. According to sponsors the proposed changes would also require FPC proceedings merely to give effect to change the federal or state income tax rates.

The investment banker witness representing the sponsors testified that the project cash would be three times the net income of PLC, and if PLC did not have the guaranteed revenues provided by the all events, cost-of-service tariff, it would be bankrupt. Other comparisons were cited concluding that the all events tariff would provide the necessary revenue even during a project interruption or outage.

The sponsors' financial witness testified as follows regarding the risks consumers must bear:

The plans recognize that the energy consumer, who is the ultimate beneficiary of the facilities, must in fact bear the ultimate risk of the success or failure of the efforts to provide him with an adequate supply of energy, and that inevitably this must entail payment by the consumer of the full economic cost of that supply.

It is a basic premise that all cost of a facility, all the economic costs, must indeed be borne by the ultimate consumer in the price he pays for the product, the service, or whatever it is. In one way or another, the consumer must pay all of these ultimate costs or the business cannot continue in operation.

The following is from the Pacific Alaska LNG Company application for a certificate of public convenience and necessity:

Applicant's project contemplates what has been referred to as "project financing". That is, the project must contain all of the economic and financial ingredients to stand on its own feet, independent of any additional credit guarantees. The magnitude of the capital required to provide for the transportation of LNG from Alaska to the ultimate consumer in Southern California dictates that financing be on a "project" basis. Applicant's project obviously must be economically self-sufficient to the degree that capital can be attracted on terms favorable to the ultimate gas consumer. It is necessary in the first instance that investors have no question about the repayment of their project investment principal and the timely recoupment of all prudent costs. Accordingly, Applicant respectfully requests this Commission when issuing its certificate of public convenience and necessity herein to specifically provide that the proposed tariff, which reflects project financing, become effective thirty (30) days after the issuance of said certificate.

The projects' ability to stand alone is provided by the following all-events provisions of the tariff:

Buyer shall pay to Seller monthly Seller's total cost of service for the billing month regardless of: (i) the amount of gas delivered, and (ii) the non-delivery of gas for any reason.

If the Southern California Gas Company and PG&E are not permitted to recover all the projects' costs in a timely manner through rates to consumers, it is highly unlikely in the opinion of sponsors that the projects' bonds would be accorded the bond rating necessary for issuance.

One of sponsors' financial witnesses testified to the alternatives as follows:

And, in the absence of an effective tariff, then there must be something else provided, whether that be government guarantees, or whatever it may be. I don't believe the lenders would look, at least to Pacific Lighting, as being large enough or a sufficient credit of having sufficient credit to back up such amounts of money in the absence of its ability to collect these monies, either through its tariff or through some kind of a government guarantee.

The financial witness from the investment banker testified to the same point.

If the all events cost of service tariff were not allowed to operate during periods of prolonged interruption and outside support were sought from somebody and the two participants concluded they did not have the financial strength to provide the outside support and the consumer is not going to be involved through the fact the tariff is not operating, the only other logical party I can think of as providing that credit support to attract lenders would be the government. And there is no program in place that contemplates that.

The financial planning witness for PG&E further testified:

If we felt we could, I think we would be recommending a project with a hundred percent debt, which would be much more in favor of the sponsoring companies and the consumers.

The treasurer of PG&E used the different methods of publicly financing a toll bridge to explain project finance.

...let's take another example of a project financing, a bridge.

The state builds a bridge and financing it with revenue bonds as opposed to general obligation bonds. Now the reason the project can be sold to investors is they feel there are going to be enough cars and trucks going across the bridge to pay off the debts by the revenue generated and the state will from time to time if necessary change the tolls on the bridge to make sure that that happens. That is a project financing concept.

The security behind it is the economics of the project and the ability of the state to change the tolls.

Now, if traffic should fall off because the federal government comes along and puts a much bigger bridge with no tolls next to it, and this has happened, the economics of the project would dissolve and if the state has not stood behind its ability to increase the tolls with its own guarantee, the investors would lose money. But if it had, then they would not.

Now, when the project was originally conceived [sic], if it was suspected that there was a possibility of the federal government building that second bridge, I can assure you that the lenders would want the state's back up behind the tolls, that is a general obligation guarantee rather than a revenue guarantee. The latter example is the type of tariff that we feel we need. You see a project can be done on a project basis without additional guarantees at some time.

The witness representing the investment banker further testified:

The reason we have gotten where we are, it has been determined that the sponsor's credit is inadequate to pick up these projects in the traditional manner. So somehow the credit of the consumers must be reached.

The only other way I think you get that result would be very cumbersome, and I don't think that it would be feasible to try to reach the consumers through individual contracts of who would pay for this.

Another way of going would be government support in the Title II fashion. This project is not at that stage now, nor to my knowledge does it intend to seek government support. But that is one way of doing it.

Really, it is to compensate for the inadequacies of the credit of the sponsors--to enhance the credit with a government guarantee would be another way to go, just as using the consumer's credit in the final analysis enhances the credit of the sponsors.

Government Finance

According to the U.S. Court of Appeals (520 Federal Reporter, Second Series, pages 439-440), one of the principal objectives of the Federal Power Commission is "...to bring about the production of power in the greatest possible quantity and at the lowest possible cost to the consumer in the long run--in the economist's terms, to insure the efficient performance of an industry in which the normal forces of competition are for one reason or another not equal to the task."

If the LNG projects were financed by tax-exempt bonds, savings between \$1.4 billion and \$2.3 billion below the sponsors' proposed costs could be realized. This would, however, require voter approval of the bond issue. Following is a partial list of

state and local government agencies which finance utility facilities by tax-exempt bonds in the same manner that public schools, toll bridges, water facilities, etc., are financed.

Austin Electric Light and Power
Chelan County (Washington) Public Utility District
Columbia Storage Power
Douglas County (Washington) Public Utility District
Grant County (Washington) Public Utility District
Jacksonville (Florida) Electric Authority
Lincoln (Nebraska) Electric System
Los Angeles Department of Water and Power
Lower Colorado River Authority
Memphis Electric Distribution System
Nebraska Public Power
New York State Power Authority
Omaha Public Power
Platte River Power
Puerto Rico Water Resources
Sacramento Municipal Utility District
Salt River Project Agricultural Improvement and Power
San Antonio City Public Service
Seattle Municipal Light and Power
South Carolina Public Service
Washington Public Power
Arizona Power
Intermountain (Utah) Power
Massachusetts Municipal Wholesale Electric
Municipal Electric Authority of Georgia
Texas Municipal Power Agency

The California State Water Project was primarily financed by a \$1.75 billion state general obligation bond issuance. There is no cost to state taxpayers resulting from this issue because the public agencies contracting for project water are required to repay with interest the bonds used to construct the project and to pay the cost of operating and maintaining the water supply.

Examples of government bond issues for private developments are the Valdez, Alaska oil terminal facilities and anti-pollution issues. In 1976 large companies indirectly financed about \$2.6 billion for anti-pollution equipment through the sale of tax-exempt bonds by various local governments.

CONCLUSION

The all events, cost-of-service tariff would bind gas consumers to pay all costs, including profit to the sponsors, regardless of the amount of gas received and even in the event that no gas is delivered. The only alternative financing which lenders will accept is government finance. State financing would save between \$1.4 billion and \$2.3 billion.

Price of LNG

Perusahaan Pertambangan Minyak Dan Gas Bumi Negara (Pertamina) is the State Oil and Gas Enterprise of the Republic of Indonesia. Pertamina contracted on September 6, 1973 to sell LNG to Pacific Lighting International, S.A. The rights of this latter company were transferred to Pacific Indonesia LNG Company which is jointly owned by PLC and PG&E. Gas will be sold by Pacific Indonesia LNG Company to Southern California Gas Company, a subsidiary of PLC, and to PG&E.

The natural gas is to be produced by Pertamina and Mobil Oil Indonesia Inc., a supplier to Pertamina. After production and gathering, the natural gas will be transported to a liquefaction facility to be built by Pertamina in Northwest Sumatra, where the gas will be liquefied, stored and then loaded onto LNG ships, where Pacific Indonesia LNG Company will take title to the LNG. Pacific Indonesia will purchase from Pertamina an average daily quantity of 619,710,000,000 BTUs which is equivalent to approximately 546 million cubic feet per day at 1135 BTUs per standard cubic foot. The contract term is 20 years after the first regular delivery but may be extended by mutual agreement.

The sales contract executed September 6, 1973 provided a contract sales price based on a formula consisting of the following components:

- A base price of \$0.63 per million BTUs.
- An annual adjustment factor effective each January first, beginning with January 1, 1977, whereby the base price would be increased two percent compounded each year.
- A quarterly currency revaluation factor of the arithmetic average of the change in 11 specified currencies.

Article 19(2) of the September 6, 1973 contract specifies that the seller, Pertamina, obtain all the governmental approvals and authorizations necessary in the Republic of Indonesia for performance by the seller. These approvals were obtained on March 18, 1975, after execution of a contract amendment of January 9, 1975, specifying a new contract price formula with the following components:

- A base price of \$1.25 per million BTUs.
- A quarterly adjustment whereby the base price is adjusted by a factor equal to one-half of the change in the average price of Indonesian crude oils from \$11 per barrel.
- A quarterly adjustment whereby the base price is adjusted by a factor equal to one-half of the change of the Wholesale Price Index for Fuel and Related Products, and Power over the value of the Index for the fourth calendar quarter of 1974 which

is established by the parties through negotiation to be 230.0. The Wholesale Price Index is compiled by the U.S. Department of Labor, Bureau of Labor Statistics.

In addition, the currency revaluation factor which was included in the September 6, 1973 formula will be applied directly to each invoice.

The differences between the September 6, 1973 proposed price and the January 9, 1975 agreed-upon price are as follows:

- The base price nearly doubled, increasing from \$0.63 to \$1.25 per MMBTU.
- The price inflation factor, giving equal weight to Indonesian crude oil prices and domestic fuel and power prices could increase by much larger increments than two percent compounded annually. Thus, the October 1976 index for fuels and power, the most recent available data, was 277.0, or 20 percent above the base figure of 230.0. If a similar price increase of Indonesian crude oil occurred, the base price of the contract natural gas would be increased by 20 percent, or ten times the price increase under the September 6, 1973 formula (both before adjustment for currency revaluation).

Buyer's Obligation to Take or Pay

The LNG purchase contract specifies the amounts to be purchased during each contract year and during the start-up and step-up period. The buyer is required to take and/or pay during each contract quarter at least 95 percent of one-fourth of each year's annual contract quantity. The buyer is not required to pay for the following:

- Quantities not delivered by reason of the failure of the seller.
- Quantities not delivered or taken by reason of force majeure or assimilated circumstances (i.e., serious damage to facilities or equipment affecting production, failure by producers to sell or deliver; provided damage not caused by willful misconduct or gross negligence of the party rendered unable to perform).
- Quantities not taken, provided that equivalent quantities have been delivered and taken in the same calendar year and in the preceding calendar year in excess of the buyer's obligations, but have not been previously applied against deficiencies in quantities taken.

Provisions to "take and pay for, or pay for if not taken" are contained in the contracts between PG&E, So Cal Gas and the various affiliate entities described in Appendix G.

Sufficiency of Gas Supply

The independent petroleum consulting firm of De Golyer and Mac Naughton has conducted a study of the availability of gas in the Arun field located within Contract Area "B" in Northwest Sumatra, Indonesia. There, Pertamina and Mobil will produce the gas for the Indonesian project. The consultant found that quantities of natural gas are more than sufficient to enable Pertamina to fulfill its obligation to sell and deliver. The Alaska project, however, does not have such assurance.

In its application for federal certification, Pacific Alaska LNG Company acknowledged that "...the reserves and deliverability presently under contract to Applicant are insufficient for the full utilization of the facilities applied for under either Phase I or Phase II of the project." Each of the phase developments is for facilities to handle 200 million cubic feet per day. According to sponsors' witness, the amount of gas under contract at the time of the FPC hearings (9/16/76) was 130 million cubic feet per day. One of sponsors' witnesses testified that at 117 million cubic feet per day the project would be extremely difficult, and probably impossible, to finance. The witness stated there is likely assurance of financing at the 150 million cubic foot level.

Basis of Cost Estimates

Fluor Corporation, which engineers and constructs processing plants for the petroleum, petrochemical, chemical, and mining and metallurgical industries; offshore facilities for the oil and gas industry; and nuclear and fossil fueled power plants for the electric utility industry, provided all estimates of facilities costs with the following exceptions:

- Corporate costs, including (1) an estimate of the cost of sponsors' personnel directly associated with the project during the planning and construction period, (2) special consultants and (3) the cost of the environmental impact reports.
- Cost of the contingency provision based on ten percent of estimated construction costs.
- Allowance for funds used during construction assuming a debt interest rate of 10 percent per year for construction loans and an equity return of 16 percent per year.

All costs, except the price of gas, are based on revised estimates which reflect a provision for inflation.

The annual capital charge for ships was calculated by the sponsors on a formula in the shipping agreement assuming a 9.5 percent annual leverage lease rate, a one percent after-tax fee, plus a provision for a return on the ships' working capital. The per-ship estimates were provided by Keystone Shipping Company on a 1973 cost basis and are escalated to the first year of operations.

The cost escalation computations were prepared for the FPC hearings assuming that the projects would start November 1, 1978, which was a revision from an earlier estimated date. The following illustrates the inflationary effect on the projects' costs: the original estimated cost of the two ships for the Alaska project was \$205 million; at the time of the FPC hearings, the estimate had increased to \$292 million; a more current (September 1976) estimate is \$414 million. The individual cost components of each ship are separately estimated. The shipping costs will vary not only because of differences in the timing of the ships' construction but also because of the different arrangements by which they are committed to the projects.

The financial witness from Morgan Stanley & Co. Incorporated, Investment Bankers, appearing on behalf of the sponsors, testified that (1) the cost estimates prepared by the professional firm of engineers have been accepted as accurate, (2) the ten percent for contingencies was financially prudent and (3) before the projects would be brought to lenders, cost estimates would be brought up-to-date. Separate provisions are made for contingencies and cost escalation. We found no basis to disagree with the conclusions of the witness for the investment banker.

Separate terminals have been proposed for the two projects. Testimony at FPC hearings was to the effect that consolidation of the projects in one terminal would add to the complexity but would not preclude financing.

Acceleration of Debt

After all governmental approvals have been obtained, negotiations will be conducted with major lending institutions to establish the provisions of the debt financing to be incorporated in the bond indenture. It is anticipated that lenders will require that under certain circumstances the due dates for bonds be moved forward. Examples of such events are failure of a major component to operate, determination that the remaining gas supply is materially less than anticipated and default or potential default.

The following provision of the proposed tariffs would increase the revenue from gas customers to retire the debt earlier.

Such cost of service shall be equal to the sum of the following amounts...

Depreciation determined as follows:

* * *

Additional depreciation, if any, in an amount sufficient to make cumulated depreciation allocable to debt retirement not less than cumulated debt repayments (including repayment of any accelerated debt obligation and excluding any repayments from the proceeds of insurance or amortization provisions) under any financing arrangement.

One FPC staff witness testified that such provisions are unnecessary because if an event caused the debt to accelerate, authorized rates could then be adjusted.

Return on Common Equity

The sponsors' witnesses proposed a higher rate of return than that recommended by the FPC staff. Except for the two exceptions described in the subsequent section entitled Rate Base Treatment Not Applied, the proposed tariffs seek a 16 percent after-tax annual rate of return on common equity. No empirical studies were conducted to support this particular rate of return, nor could any regulated operating projects be cited by sponsors which have a 16 percent after-tax rate of return. The sponsors maintain that their amount of equity investment in the project and the earnings thereon are to assure lenders that the projects' revenue, in any case, will be more than adequate to meet debt service requirements and provide a cushion to senior security holders over and above all other protective measures. According to sponsors the 16 percent rate of return on equity provides over two times coverage of interest costs in the early years, which is approximately the traditional minimum interest coverage for going concern utilities.

As the equity base in each company to which the rate is applied will diminish during the life of the projects, if lenders agree to the equity reduction, the sponsors also propose that the

return on equity be subject to a minimum equal to one percent of the total original investment in the facilities. The purpose of such a minimum is to provide an amount to the equity investors equivalent to a "management fee" for operating the facilities at such time as the equity earning base may become inadequate. The FPC staff witness's testimony neither supported nor opposed the management fee provisions.

The FPC staff witness testified that the cost-of-service tariff, in itself, unburdens the common stockholder (as well as the senior security holders) of much of the risk normally associated with such investments. The staff witness recommended a 13 percent rate of return on common equity.

In rebuttal, the sponsors' witness testified that the rate proposed by the FPC staff was inadequate. The witness identified the following common equity risks:

- Advancement of additional funds in the event of cost overruns.
- Being "priced out of the market."
- Failure to recover planning, design, negotiating and approval costs.
- Failure of facilities which would eliminate the equity return when such failure causes less than

25 percent of contract quantities to be delivered for more than 30 days.

- Modification or cancellation of the approved tariff by a future FPC or PUC action.
- The sheer size and highly leveraged capital structure leave little room for miscalculation or delay.
- Last to receive a return, if any, on investment.

Higher FPC authorized rates of return than recommended by staff were cited by sponsors' witness. The appropriateness of the FPC staff comparison to the average earnings of the companies comprising the Standard and Poor's Industrials was disputed by sponsors' witness. The limit proposed by FPC staff on the equity proportions of total capital would create several problems identified by sponsors' witness.

Equity Earnings During Construction Period

Following are the two methods of accounting for interest on debt and return on equity during facilities construction.

- Allowance for Funds Used During Construction (AFUDC)--
The rate base (net value of fixed assets), to which the authorized rate of return is applied to establish the return to investors included in the tariff rates,

is increased by applying this rate of return to the cost of construction in progress. Wall Street investors regard AFUDC profits as illusory because the income is recorded during the construction period but the related cash paid by customers occurs over the productive life of the facilities as depreciation is accounted as a cost of operations.

- Construction Work in Progress (CWIP)--The FPC is considering use of CWIP, which allows the interest on debt, return on equity and related income taxes to be included in the tariff rates while construction is in progress. This method is preferred by investors but results in customers paying interest and profits before the facilities begin to provide services.

The original federal applications were filed on the basis of AFUDC accounting but were subsequently amended to reflect CWIP accounting with billing to customers to begin 30 days after FPC certification. This conflicts with the California PUC requirement of AFUDC accounting. Also, the sponsors' witness could not identify any project which paid out dividends during the construction period.

Whether consumers should pay interest on debt and return on equity prior to the time gas is provided is an unresolved issue. Substantial amounts are involved. According to sponsors the estimated

construction cost for the Pacific Alaska LNG Company's collector pipelines and liquefaction facilities at Nikiski, Alaska, would be increased by 17 percent if carrying costs are capitalized. Under the CWIP accounting method, customers of PG&E and So Cal would pay approximately \$139 million during the four-year construction period for interest on debt and return on equity invested in the facilities. Under the AFUDC accounting method, customers would make no payments until the gas began to flow, but over the ensuing 20 years would pay an additional \$308 million in higher depreciation charges because the interest and equity return would have been capitalized and added to the construction costs. By starting payments up to four years before the gas begins to flow, customers save the difference of \$169 million. Similar differences would occur on other project components.

The sponsors have proposed a tariff applying CWIP accounting to both debt and equity with dividend paid during the construction period even though the bond indenture may preclude dividend payments. At the FPC hearings, it was recognized that CWIP could be applied to the debt portion and AFUDC to the equity portion of construction. For Pacific Alaska LNG Company, this would require the sponsors to obtain an additional \$37 million from sources other than their customers.

FPC staff witness testified it would be appropriate to capitalize the carrying costs of investment needed until after operations begin; that is, the use of the AFUDC method of accounting. In rebuttal, sponsors' witness testified as follows. If billings commenced only when gas begins to flow, the cash flow and necessary assurances and therefore the project credit would be eliminated during the lengthy construction period. Capital invested in the projects will require a return from the minute the investment is made, not just from the time the gas begins to flow. The ability to pay these financing costs as they are incurred from current revenue cash flow, rather than financing them externally, increases the probability the projects will be successfully financed and completed. It is more economical to charge customers for the financing expenses incurred during construction than to capitalize the carrying costs.

Elimination of Return on Common Equity

The proposed tariffs describe (1) force majeure and acts of God (e.g., fire, flood, war, riot, strike, acts of government) and (2) assimilated circumstances (e.g., serious damage to facilities, failure by producers to sell and deliver). The same tariff section provides:

Nothing contained herein shall discharge or suspend Buyer's continuing obligation to make payment of amounts accrued and accruing....

The only exception to the buyer's continuing obligation to pay, including a return on equity and the return of equity, occurs in the event the seller is incapable of delivering at least 25 percent of the contract quantity for more than 30 days. After 30 days the seller's rate of return on common equity is reduced to zero. This provision is applicable only to the subsidiary company which has caused the problem. Other subsidiary companies which may be precluded from performance will continue to invoice for normal profits. The purpose is to encourage the restoration of service.

There are no other provisions for reduction in payments for costs or profits. The FPC staff witness testified that other events, in addition to those affecting the particular affiliate, should reduce the return on equity. In rebuttal, the sponsors' witness testified that to require a similar reduction when facilities of others are the cause, facilities over which there is no ownership control and on which there are no earnings even when all goes well, is to compound the risk beyond all reason and any acceptable level.

Income Tax Savings

The states are divided as to whether utility stockholders or customers should derive the benefits from tax benefits, such as liberalized tax depreciation and investment tax credits.

"Normalized accounting", which allows these benefits to be realized by stockholders, is authorized in some states. The California PUC requires "flow-through accounting" whereby utility customers realize most of the benefits from income tax savings. This issue has been before the California Supreme Court on several occasions.

The proposed tariff is based on normalized accounting with an assumed ten percent earnings on the funds provided by customers but not paid in taxes. The section describing tax provisions provides:

A provision for state and federal income taxes for the billing month with the depreciation deduction for tax purposes based on straight line rates as provided in Section 3.2(a) above applied to the undepreciated tax basis of Seller's depreciable facilities and reflecting the after-tax return to equity as provided in Section 3.5 below.

Section 3.2(a) governing the monthly recording of depreciation provides:

One-twelfth (1/12th) of the annual straight line depreciation expense applicable to Seller's depreciable facilities as of the first day of the billing month. Such depreciation shall be based on the estimated lives of such facilities, but, as to Seller's investment in its original depreciable facilities, not more than twenty years, and as to Seller's subsequent investment in depreciable facilities, not more than the then remaining lives of Seller's original depreciable facilities.

Under this provision any new facilities built could be depreciated without further revision of the tariff.

Proposed tariff Section 3.5 specifies a 16 percent annual rate of return on common equity. The combined federal and state income tax is slightly under 53 percent. We have computed the amounts of profits before income taxes needed to net \$1 in after-tax profits under the two methods of accounting. During the first year of operations, customers would pay \$2.33 in before-tax profits under normalized accounting compared to \$1.81 under the flow-through method.

Rate Base Treatment Not Applied

Statutes providing for the regulation of electric, gas and telephone utilities generally specify that the rates shall be just and reasonable. Determination of a proper rate base is an important step toward that end, since the method of rate base valuation is a factor in determining the rates a utility can charge.

California is one of 33 states which, together with the FPC and the Federal Communications Commission, prescribe "original cost" or "prudent investment" methods in rate base determination. Generally, in jurisdictions using an original cost valuation standard, the depreciation accrued in the books of account, i.e., the book reserve, is deducted from the gross book value of the property in determining the rate base.

Generally, the various project entities will employ the traditional rate base treatment. However, separate rates would be applied to debt and equity financing rather than the customary single composite rate. The following exceptions to the traditional rate base treatment have been sought:

- Pacific Marine Associates (PM Associates)--This affiliate will provide the LNG shipping service from both Indonesia and Cook Inlet to other affiliates and therefore is not a regulated utility. It is anticipated that the 11 ships will be committed to the projects by long-term time charter or leverage lease. PM Associates therefore will have little or no funds invested and traditional rate base treatment would provide insignificant profits (rate of return only on working capital). It is proposed that for leased, chartered and owned vessels the annual capital charge portion of the shipping rate include, in addition to the funds to pay lease, charter and debt financing, an after-tax amount equivalent to one percent of the original capital costs of the ships, including an allowance for funds used during construction (explained in the prior section

entitled Equity Earnings During Construction Period). The estimated annual leverage lease cost rate is 9.5 percent. The sponsors anticipate that the one percent management fee plus the taxes on the one percent management fee makes the effective annual lease rate 11.57 percent. A return on working capital of not less than 15 percent per year after taxes is provided in the shipping agreements.

- The proposed tariffs of other affiliate companies provide that if the annual after-tax rate of return on common equity is below one percent of the total investment in facilities, then the return shall be one percent of the total investment. The sponsors' witness described this as a reward to management for putting the whole project together and managing it after the equity had been practically retired. An exhibit submitted by Pacific Alaska LNG Company shows that this provision would increase its profits by a total of \$5.6 million during the final three years of project operations.

An FPC staff witness took issue with the proposal to separate debt and equity financing and suggested the application of the traditional single return allowance. In rebuttal the sponsors' witness testified that the criticism was invalid and the staff suggestion would require a continuing series of FPC proceedings to reflect the changing mix of debt and equity.

Leveraged Lease

Leveraged leases will probably be used to provide the U.S.-built ships; six ships for the Indonesian project and two for the Alaskan project.

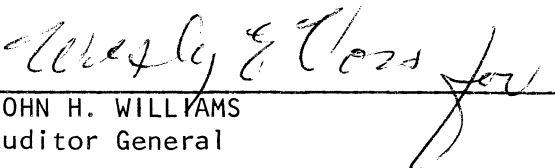
A leveraged lease differs from an ordinary lease in that the lessor purchases and owns the equipment by providing only a percentage, usually 20 to 40 percent of the capital needed. The remainder of the purchase price is borrowed from institutional investors on a nonrecourse basis to the leasing company. It is anticipated by sponsors that the long-term debt portion of the financing will be issued under provisions of Title XI of the Merchant Marine Act of 1936, as amended, which provides for U.S. government guarantees of construction loans and long-term debt.

Leveraged leases provide an additional source of equity capital. The external lessor/owner is able to fully utilize all tax benefits and is able to reflect such benefits in a lower lease payment. Ships would be acquired by other than leveraged leasing in the event of a tax law change or if funds are unavailable in the leveraged lease equity market. Ships may be owned by affiliate companies.

The reason for the management fee of one percent after tax of the total original investment in each ship is as follows. If the ships are leased by the affiliate, there would be no significant rate base in the conventional utility sense because all debt and equity capital for the ships would be provided by external parties. The fee induces the affiliate to enter into the long-term lease commitments, assume the risks involved and undertake the responsibilities of the ongoing operations. The one percent would not be recovered if a ship is out of service for more than 30 days.

The one percent rate was selected based on the sponsors' knowledge, rather than on analysis or comparison.

Respectfully submitted,



JOHN H. WILLIAMS
Auditor General

August 17, 1977

Staff: Wesley E. Voss, Assistant Auditor General

THE "IN ALL EVENTS TARIFF" - - - IT MEANS WHAT IT SAYS

The investor takes the risk. The investor takes the profit. Right? Only half right. Because under terms of new gas supply projects presented to the PUC, this simple description of capitalism will be modified and the consumer will take the investor's place in one part of the formula. Guess which part. Right.

This role reversal takes place as the necessary consequence of the "In All Events Tariff", an integral part of the financing conditions contained in these new gas supply proposals. Before considering further the workings and implications of this provision, it is important to understand the circumstances that make this possible.

There is a serious natural gas shortage, with new supplies needed by 1980. Utility companies across America have now on their drawing boards various projects to secure enough gas for the 1980's. The cost of those projects in which the California consumer has a direct interest exceeds \$20 billion dollars. The capital for these projects must be raised within the next two to three years if the projects are to come on line in time. The need for new capital that far exceeds the net worth of the utilities has resulted in innovative financing proposals.

The industry solution, which the PUC will be asked to approve, is the "In All Events Tariff." It means exactly what it says.

The investment community has balked at conventional financing because the technology is uncertain and future governmental action unforeseeable so that the risks are substantial. Accordingly, utilities are being offered financing only subject to the "In All Events Tariff".

The "In All Events Tariff" (originally called "Come Hell or High Water") satisfies investors by eliminating all risk. It is a guarantee by the ratepayers of a particular utility that the project will not only recover all expenses, but produce a specified return on investment, regardless of whether gas is delivered at all or in what quantity. The terms include proposed interest **rates** of 10 - 12% and returns on equity of 15 - 17% (compared to the Commission's rate last found reasonable for PG&E of 12.83%) so that the gas will be necessarily expensive even if the technology is successful, governmental interference avoided, and operating expenses minimized. It's important to understand that the utilities themselves didn't originate these proposals. It is necessary to understand that utilities in every state are being offered the same terms. And it is important to understand that this situation is not related to the question of whether **gas** prices should be regulated. We are dealing here with problems of transporting known supplies or manufacturing and delivering synthetic gas.

This kind of financing raises several fundamental questions that I hope will be considered and addressed by the public. It is imperative that there **be** thorough public discussion regarding these terms so that consequences can **be** understood and alternatives explored, without delaying delivery of the gas. **Some** of these questions will be raised in the second part of this series.

Robert Batinovich
Commissioner
California Public Utilities Commission

THE "IN ALL EVENTS TARIFF"
(Continued)

The first part of this series described a kind of financing proposal that the Public Utilities Commission will be asked to approve -- the "In All Events Tariff". This second part discusses several fundamental questions raised by this kind of financing:

1. Aren't we mixing the roles of the consumer and investor? Traditionally consumers have put up no capital and taken no risk. Lenders and stockholders have put up capital, taken different risks, and taken corresponding returns. The "In All Events Tariff" asks the consumer to take the risk.
2. Why have any profit in the transaction? Profit is supposed to be the reward for risk. But the risk has been eliminated. Why not finance the project entirely from (relatively) lower cost debt?
3. Why are such high returns required? Interest rates and the return on equity are supposed to reflect the degree of risk. If the consumer is going to take the risk, shouldn't he be allowed to participate as an investor, perhaps through some device like existing employee stock ownership plans?
4. Where is the incentive to keep costs under control? Cost overruns are familiar to all of us. The Alaska oil pipeline has not yet been completed but the estimated cost to date exceeds \$7 billion, compared to an original estimated cost of \$900 million. Why won't that happen here, where under the terms of an "In All Events Tariff" the gas will not have to compete with gas from other sources for willing buyers? The potential

impact is frightening.

5. Are the utilities doing all that they can to get the producers to participate as investors, so that conventional financing might be possible after all? The Alaskan gas producers are large oil companies. Is it fair that they are able to obtain the leases because of their large

supplies of cash and then sit on the gas, saying "come and get it."

Oil company participation on an equity basis or on a loan guarantee basis.

might make an Alaskan gas pipeline possible with conventional financing.

6. Isn't it misleading to consider this kind of financing superior to direct government financing and ownership? The government has undertaken some of the major energy projects of the past, such as TVA and nuclear facilities. Why not have the Army Corps of Engineers build the pipelines or terminals and contract with private companies to operate them?

The most serious question is, where will this kind of financing lead?

Won't it mean higher prices for everything? How can other business compete for capital without matching these terms? Will banks require an individual seeking to open a dry cleaners to sign up prospective customers for a firm commitment five years before agreeing to make the loan? Might this even mean the end of small business? I urge the public generally, and the business community in particular, to review this matter carefully and to consider its implications for our economic system.

Please understand. We haven't got much time. We want to negotiate. But what about other states? California has advised the Federal Power Commission that it opposes this kind of financing. But what do we do if the FPC and other states approve it? Where is the magician who can convince the people that this is the best deal for them?

ROBERT BATINOVICH

Commissioner

California Public Utilities Commission

PACIFIC GAS AND ELECTRIC COMPANY

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STANLEY T. SKINNER
VICE PRESIDENT - FINANCE

November 5, 1976

Commissioner Robert Batinovich
Public Utilities Commission
State of California
State Building, Civic Center
San Francisco, California 94102

Dear Commissioner Batinovich:

Members of our Finance and Gas Supply Departments have studied the questions on financing natural gas supplies for California you posed before the Energy and Environment Committee of the Business Task Force in Sacramento on August 26, 1976. Although our original efforts were directed at a question by question response, we have concluded that this approach did not put in proper perspective the basic issues underlying gas supply financing nor crystallize our general plans for meeting this formidable task. Accordingly, we have addressed the subject in a general fashion with a view to achieving a common understanding of the basic principles. Thereafter, we would hope to establish a continuing dialogue between the CPUC, PG&E and Southern California Gas Company concerning the specific questions you have raised.

At the outset, some background on the natural gas industry is necessary to comprehend and appreciate the need for new and innovative gas supply financing techniques. The last major gas project undertaken by PG&E was in the late 1950's when the Pacific Gas Transmission Company project was financed. At that time, the natural gas industry was much different than it is today. The use of natural gas was rapidly increasing. The price was low and expected to decline with further increased use. Pipeline technology was proven and costs of construction were predictable. Large proven fields were accessible with the technology at hand. It is not necessary to contrast that situation detail by detail with that of today. I know you are well aware that not one of those factors, except for conventional, as opposed to Arctic, pipeline technology, exists in the industry today. It is also not important for us to discuss why these fundamentals have changed, but only to acknowledge that they have changed.

The certainty of each of those factors (supply, technology and cost) made the natural gas industry of the 1950's, as incredible as it may seem today, an attractive investment for many types of investors. The public sale of several gas transmission stocks was followed by a run-up in price. Their bonds were not too difficult to place. Of course, as each of the certainties of the 1950's has become an uncertainty of the 1970's, we have seen the natural gas industry lose more and more favor with the investing public.

Typical of this is the lack of capital availability for companies rated below A, as many gas pipelines are. In the late 1950's and early 1960's, 20 - 30% of all capital raised in the financial markets went to such companies. In 1976 the same figure is about 7%. At the same time the amount of equity available in proportion to debt has fallen to about one-third of its former size. This means that these companies have great difficulty in competing for the capital associated with major gas supply projects. We must face this problem of capital attraction at a time when the projects are of tremendous capital cost relative to the size of the sponsoring companies and have the uncertainties related above.

Thus, the financial environment, as well as the industry itself, has changed dramatically and, as was noted in PGandE's last general rate case decision issued August 24, 1976, (CPUC Decision No. 86281): "...the time is ripe for more innovative thinking in regard to methods of financing the unprecedented capital expenditures projected for the future."

Of course, any new method of financing natural gas supplies must, as a mandatory prerequisite, result in the delivery of energy to the consumer at the lowest possible cost while at the same time preserving the financial integrity of the utility.

In answer to several of the questions you posed, we submit that project financing (i.e., the financing of an independent energy project separate from a sponsor company's credit), is the best, and perhaps only, alternative when compared to conventional utility financing and conventional credit support. While we believe there is great merit in this financing technique, we realize that project financing does not lend itself to every component of PGandE's construction program. The great majority of PGandE's construction expenditures encompass numerous projects which are not economically independent and thus are not susceptible to this innovative approach. Consequently, the majority of PGandE's capital needs must be satisfied by traditional means of raising capital utilizing conventional credit measures.

Concerning the first prerequisite of this innovative financing method, a major savings in cost to the ratepayer comes about because the capital structure in a project financing can support a much higher debt ratio than can be achieved by a utility company through financing on its general credit. The greater use of debt, with its lower-than-equity cost and tax deductibility, allows a lower overall rate of return even with a slightly higher cost of common stock equity. An example can show this to be the case:

<u>Project Financing Capital Structure</u>					
	<u>Capital Ratios</u>	<u>Cost</u>	<u>Weighted Cost</u>	<u>Taxes @ 50%</u>	<u>Revenue Requirement Rate of Return</u>
Debt	75%	10%	7.50%	--	7.50%
Common	<u>25</u>	16	<u>4.00</u>	4.00%	<u>8.00</u>
	100%		11.50%		15.50%

Interest coverage after Federal Income Tax = 1.5x

Conventional Financing Capital Structure

	<u>Capital Ratios</u>	<u>Cost</u>	<u>Weighted Cost</u>	<u>Taxes @ 50%</u>	<u>Revenue Requirement Rate of Return</u>
Debt	50%	10%	5.00%	--	5.00%
Preferred	12	10	1.20	1.20%	2.40
<u>Common</u>	<u>38</u>	15	<u>5.70</u>	5.70	<u>11.40</u>
	100%		11.90%		18.80%

Interest coverage after Federal Income Tax = 2.4x

As shown in the example, the revenue requirement rate of return of 15.5% applicable to project financing is approximately 18% less than the 18.8% rate of return needed for traditional financing. Furthermore, the project financing capital structure supports a much lower interest coverage than a conventionally financed utility because the operation of the project, rather than traditional financial standards, provides the credit support and the bond rating.

While project financing offers an attractive alternative to financing a major new gas supply project, it is not a panacea to the problems of the utility industry. Make no mistake about it, sufficient credit must stand behind a project to make it financeable. Debt investors, whether in proportions of 75% or 50%, are not going to invest long-term money in newly formed corporations without assurances as to return on and of their investments.

The fundamental measures of assessing credit worthiness in traditional utility financing are the coverage of fixed charges and the ratio of debt to equity. The high levels of equity capitalization and coverages are both costly and difficult to achieve in present capital markets. Nevertheless, these are the criteria and the conditions to be met to enable a utility to finance upon its general credit. As stated previously, the majority of PGandE's capital requirements are not susceptible to project financing and must, therefore, meet these conventional credit requirements.

However, when the opportunity does exist for a project financing, the logic and benefits of a relatively high debt ratio should be compelling to the company, regulators and consumers alike. While credit in a project financing is not dependent to the same degree upon the above mentioned conventional requirements, it is dependent upon innovative ones. The source of credit worthiness for project financing is the legal and economic links between the project financing entity and the sponsors and users of the project. To forge these vital links, there must be assurance from regulatory authorities that the costs of the project will be recovered without delay at all times during the project's life. In giving up protection upon which they have historically relied, investors must instead look to certain revenue assurance mechanisms. The link between a project financing entity and the end-user as

the ultimate provider of adequate project revenues must be strong and reliable enough to counterbalance a smaller equity base, lower coverage ratios and absence of the sponsor's general credit. With such a mechanism and the sharing of risks and benefits with consumers, the sponsor utilities are able to undertake new projects with viable, innovative financing techniques that would otherwise either not be available if based solely on the general credit of the utility or, if available, result in a higher overall cost to the rate-payer.

When we first analyzed the concept of project financing and its associated tariffs, we found a surprising similarity between this concept and what is implicitly assumed under current ratemaking procedures. There are several important features which apply to both:

- 1) The project is approved by regulatory authorities prior to the commencement of construction.
- 2) Justifiable costs will be included in rate base after regulatory approval.
- 3) The utility and the investors assume that if the project fails, the costs not recovered through legal action, if any, insurance or sale of property will be amortized through rates approved by the regulatory authorities. San Diego Gas and Electric Company, as an example, has recently asked the CPUC for permission to put its \$5.5 million loss from the abandoned Kariparowits power project into its rate base for a five-year amortization period.

At the Federal level, there has been explicit recognition of the necessity to formalize these concepts to support the financing of new energy projects. A recent Federal Power Commission (FPC) decision accepted the belief that certain costs involving new, large scale energy projects must have revenue assurances from consumers under all circumstances. In the High Island Offshore System case, the FPC stated in its Order on Rehearing issued July 30, 1976: "We find that the rate should be a modified unit-of-transportation rate with a demand charge. This will provide a sufficient revenue to cover service on the debt and operating expenses but will not place the entire risk upon the shipper.

* * *

Under the rates prescribed above, HIOS will have its financial costs and operating expenses covered regardless of the amount of gas delivered, but it will bear the risk of less than 988,000 Mcf flowing each day. The fact that the return to equity will depend on the actual volumes transported through the facilities should provide an incentive to the pipeline owners of the project to encourage dedications and the commencement of flow of dedicated gas."

All of the aforementioned concepts apply implicitly to PGandE's plant in service as well as its projects currently under construction. Since PGandE doesn't finance any single project by itself, the value of its properties supports each project from the investor's viewpoint. Backing up that, however, in the mind of the potential investor is the assumption that should something go awry with any of our projects, the Company will be able to recover through rates all necessary and reasonable costs not recovered through other means.

However, with the utilization of project financing and the separation of the project from our corporate credit, assurances that a revenue stream will be provided by end-users must be given explicitly to investors for the traditional protection they have given up. Absent these assurances, project financing will be difficult, if not impossible, to achieve, because lenders will look directly to the sponsor's credit for the return on and of their investment.

Of course, this is only a broad outline. We would like to open a genuine dialogue with you on this proposed financing technique and the role ratemaking must play in the financial support. These projects, which are vital to the State's economic well-being, are far too important to let semantics, lack of communication or misunderstanding cause their delay or failure. We would appreciate having the opportunity to discuss these issues with you in detail at your convenience.

Very truly yours,

ROBERT BATINOVICH

STS:mav

cc: Commissioner D. W. Holmes
Commissioner Leonard Ross
Commissioner V. L. Sturgeon
Commissioner William Symons, Jr.
Kenji Tomita, CPUC
Richard D. Gravelle, CPUC
Frederick E. John, CPUC
John J. Doran, CPUC
William Press, Director OPR
Bruce Beyaert, Business Task Force
Joseph R. Rensch, Pacific Lighting
A. A. Hunt, Pacific Lighting

Mailing Address

Attn: Mr. J. J. ...
 Director of ...
 Gas Support ...



6 South Flower Street
 Angeles, California 90017
 Telephone (213) 489-2601

P.O. Box 60043
 Terminal Annex
 Los Angeles, California 90060

November 3, 1976

Commissioner Robert Batinovich
 California Public Utilities Commission
 California State Building
 350 McAllister Street
 San Francisco, California 94102

Dear Commissioner Batinovich:

This is in response to your written statement and questions presented to the Energy and Environment Committee of the Business Task Force in Sacramento on August 26. Before addressing the specific questions, however, we believe certain basic concepts and terms need to be emphasized and perhaps more clearly defined.

First, the "all events tariff" is a misnomer. Only reasonable and prudent costs will be covered under the proposed tariffs for our projects and the equity will not receive a return under specified circumstances when gas flow is curtailed below certain limits for extended periods of time. The cost of service tariff which has been proposed is designed to support project financing, the least costly and most likely procedure to insure financing of all the projects necessary to maintain adequate gas supplies for California. Project financing in turn requires contractual obligations from creditworthy parties that they will:

1. Complete the project by providing necessary funds to meet cost overruns, if any, or in the alternative pay off the construction debt.
2. Provide sufficient revenue throughout the life of the project to service the debt and meet all operating and maintenance expenses.
3. Provide funds to pay off all outstanding debts should the project be abandoned for any reason prior to its expected life.

The parties who will be called upon to sign these contractual obligations will be Southern California Gas Company and Pacific Gas and Electric Company. Their creditworthiness will depend on their ability to collect revenues from their customers on a timely basis to meet their contractual obligations to the project. The tariff terms as proposed, if adopted by the Federal Power Commission and supported by the California PUC, we believe, will bring sufficient financial integrity to the projects to permit them to be financed on a project basis at the lowest reasonable cost to the consumer. Southern California Gas Company and the

Pacific Lighting system on the other hand do not have a large enough credit base to finance their portion of all the necessary gas supply projects without project financing and the regulatory approvals essentially as requested.

The premise that such tariffs eliminate all risk is simply not true. Risks are assumed by the equity investors in the basic areas of:

1. Planning, negotiating, and bringing the project through the approval stage.
2. Completion risk. (Financing cost overruns)
3. Risk of no return on equity.
4. Regulatory risk.
5. Business market risk.

These are the same risks that the California utility companies now have and the costs which consumers have or would have had to assume in the past are essentially the same as covered in our tariff proposals. The main risk that is eliminated under the proposed tariff is regulatory lag. During the early growth cycle of the industry when gas supplies were cheap, abundant, and readily available, this was less important. But now, with long lead times and construction periods, and with the high investments required to maintain existing or even reduced levels of service, a mechanism to assure prompt recovery of all prudently incurred costs is vital. In the final analysis, regulators must weigh, against the alternatives, the potential of unlikely events causing consumers to pay certain costs even though there is no gas flow. If the risks to the consumer of project failure, premature abandonment and increased costs outweigh the risk of insufficient energy for California, lost jobs, economic stagnation, and the higher cost (both in dollars and environmentally) of alternatives, then the projects should not be approved. We cannot have it both ways. These projects cannot be financed if the regulatory process and regulators specifically reserve the right to second guess the Company and its investors in years to come. The necessity, viability and economic consequences of these projects must be decided now in light of today's knowledge and circumstances. We do not have the luxury of further delay.

In specific answer to your questions, we offer the following:

Q 1 We hear so often that business wants government "out of the act." Why does it then ask for the people to bail it out?

A 1 No business can survive unless there are customers willing to pay the price for its product and service. A cost of service tariff does only that. In no way can this be considered a "bail out." It is a fundamental tenet of utility regulation that utilities are entitled to recover all prudently incurred costs related to providing service to consumers. No costs are included under our proposed cost of service tariff which would not be expected to be recouped under a conventional tariff; only the elimination of regulatory lag and the advance assurances represent changes. We are a regulated business which means government involvement. We don't believe regulation should be, "out of the act." We do ask, however, for regulation which is responsive to changed circumstances and the present needs of the industry and its consumers.

Q 2 Why have any profit in the transaction? Profit is supposed to be a reward for risk. Why such a high return?

A 2 The need for profit is inherent for any project to be financed in the private sector. All capital has a cost, and profit is the cost of the equity capital devoted to the enterprise. It is the compensation needed to attract risk dollars and as a reward for developing products and providing service to meet people's needs and for efficiently managing the business. These are not riskless projects. On the contrary, the California gas utilities have expended great effort and dollars to develop energy projects in time to meet the undisputed needs of their customers. The continuing risks indicated above are high by traditional utility standards. The return on equity of 15% to 16% is not high in light of the risks involved, the present level of interest rates on long term debt, the present heavy demand for capital generally, and the high leverage of the projects. Nor is it high when compared to return on equity currently proposed, granted or earned by regulated interstate natural gas pipelines which are going concerns with generally significantly lower debt ratios. (See Appendix A attached.)

A 3 Doesn't this mean that we are mixing up the roles of the consumer and investor? The consumer takes the risk, the investor takes the profit.

A 3 The roles of consumer and investor are not being mixed up and the allocation of risks proposed for these new major gas supply projects does not put consumers in any materially different position than they normally experience in ordinary utility operations. Under regulation the consumer must pay reasonable and prudent costs of

the service provided. If he does not, in the end the regulated utility's property is confiscated or it goes bankrupt and there is no service. The return on equity (or profit) again is the compensation necessary to attract such equity to the business. It is as much a cost as any other element of the tariff. It is a fundamental principle of utility regulation that consumers should pay through rates an amount sufficient to permit the utility to ~~preserve its financial integrity and its ability to raise additional~~ equity and debt capital in order to stay in business and to provide adequate service. With respect to consumer taking risks, even now consumers throughout the country are currently bearing the costs of facilities which are not being used at or even near capacity. In the future, if our projects do not proceed for whatever reason, the consumer in California bears the risk of insufficient energy at further increase in cost, lost jobs, and tremendously costly conversion of existing appliances to more costly, also inadequate and/or environmentally inferior alternatives.

Q 4 If consumers take the risk, shouldn't they be allowed an equity interest? How can they be offered a chance to make that decision?

A 4 The consumer is not taking the equity risk. He still has the choice of turning to more economic alternatives to the extent there are any. To the extent there are not any economic alternatives, he has the choice of reducing consumption or not consuming which is still bit better than no choice at all. In return for a tariff which will assure timely recovery of all prudently incurred costs for the projects, the customer has the best assurance of greater supplies of gas energy sooner and at lower costs than otherwise available.

Q 5 Why are such high interest rates necessary? Again, where is the risk that supports such a high rate?

A 5 Interest rates are determined in the market place and involve such factors as supply and demand, governmental monetary policy, investor perception of the course of inflation and the economy and most importantly the creditworthiness of the borrower. It is the function of financial markets to facilitate the flow of funds from those who have savings to those who need funds for capital and other investment. Interest rates are not set arbitrarily by any single source of funds or institution.

The gas supply projects under consideration will be competing for funds with numerous other potential borrowers at a time when it is likely there will be insufficient funds to satisfy the demands of all borrowers. The First Mortgage Bonds of Southern California

Gas Company which total only approximately 49% of its total capitalization are rated Aa by Moody's, and A by Standard and Poor's with interest rates reflecting such rating. It is anticipated that the interest rate for the bonds of each of the proposed projects will reflect the greater risks which result from the high leverage of 75% debt, the fact that the project is a new business, and that after construction is completed and operation begins the project will lack the diversity of supply and operations of SoCal. Nevertheless, we are hopeful that these projects, with a tariff essentially as proposed, will receive a rating equivalent to Moody's A (medium investment grade). If so, the debt will carry an interest rate commensurate with rates on similar quality project securities at the time of financing. Under present market circumstances, that rate would be only slightly less favorable than for Southern California Gas Company.

- Q 6 Are the utilities doing all that they can to get the producers to participate on an equity basis so that conventional financing is possible? Producers (oil companies) obtain the leases from the public because they have the cash, and then sit on the gas and say come get it. Where's the justice in that arrangement?
- A 6 Since this question deals with matters within the producer's control and discretion, it appropriately should be answered by them and we understand Standard Oil Company of California will respond. From our standpoint we do not believe, and it certainly has not been demonstrated, that gas reserves "are being sat on" where such gas can be produced and marketed on an economic basis.
- Q 7 Where does this kind of financing lead? Won't banks, lenders and the entire financial community ask for these same guarantees in all financial transactions? Could this lead to the elimination of small business?
- A 7 Banks, lenders and the entire financial community are concerned with the financial viability of the projects and their sponsors within the regulatory environment. They make loans based on their evaluation of the credit risks both as to credit fundamentals and the magnitude of the dollars involved in a single project related to the sponsor's size. "Small business" is not regulated in the same sense as a public utility. Further, these projects are not "small business" and special circumstances required to make them financeable by regulated industry should have no impact on criteria for lending to small business. On the other hand, once the first generation of these highly capital intensive projects is completed, operating and generating much higher levels of cash flow for the industry, it can be expected that succeeding projects of

similar magnitude should be financeable on more traditional terms.

Q 8 Why is this financing superior to direct government financing and ownership? Why not have the Navy or Army Corps of Engineers build the pipelines, own the ships and terminals then contract with private companies to operate?

A 8 This involves very fundamental arguments of private enterprise vs. government ownership. Government regulation of public utilities (a combination of private capital with government control) has been the American answer for this segment of our economy. It has worked successfully and effectively in the past and will continue to work in the future if regulation will recognize certain financial fundamentals inherent in the private sector. A look at the rest of the world where utilities are government owned as far as energy costs, efficiency, and quality of service should be persuasive. Even a closer look at home at the ability of our government and its agencies to be responsive on a timely and cost effective basis should be equally persuasive that government financing and ownership is not the answer.

Q 9 Aren't we being presented with two black boxes -- one is government ownership; the other is private with "in all events tariff." The difference is government borrows for less, does not pay property taxes or income taxes. On a \$7 billion pipeline the savings over 20 years is in excess of \$3 billion.

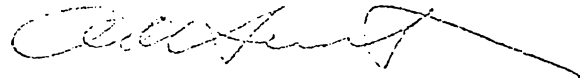
A 9 We are not presenting government ownership as an alternative and in fact there are numerous examples of government teaming together with private enterprise in ways far short of government ownership. An example is Marad Title IX loan guarantees for U.S. built ships. We plan to use this program in the financing of the LNG vessels for our projects. Even here, however, the Maritime Commission will require the same kind of assurances of repayment afforded by our tariff proposals. The tariffs as proposed bring financial viability to the projects and will permit financing in the private sector. Those who would argue that the only choice is government ownership are those who are already inclined to think that government can provide all the answers better and cheaper than our present system. It has not been demonstrated, nor do we think it can be, that because government may borrow for less, nor the fact that it can print money, means that in fact the project's economic cost to the public will be less. "Tax savings" as reflected in a government-owned project are illusory because history and common sense tells us that total taxes levied to support the cost of government must continue even though government ownership makes a particular project "tax-free." All that is at stake is who will pay, not

how much. To the extent a project and its consumers do not pay a fair share of taxes, means only that some other citizens must pay more. It is a spurious argument that because taxation levied by government increases the costs of a project, the government should take over the ownership of the facilities and thus lower the cost to the consumer. There is just as much rationale to an opposite argument that the laws taxing business should be repealed for the sake of reducing costs to consumers.

The imminent crisis of a gas shortage has grave implications for our economic and political system. It is a big problem not solvable with simplistic answers, emotional arguments, or wishful thinking. Creativity of the private sector has been demonstrated by its gas supply project proposals to overcome the problem. Public debate on the merits, implications and alternatives has continued ever since the oil embargo. Time does not permit further extended debate on an emotional or philosophical basis. Regulators, government and private sector must now work together to permit the problem to be solved on a timely and economically viable basis.

We would be pleased to discuss any of these matters with you further at the earliest opportunity.

Very truly yours,



AAH:nt
Attachment

cc: Members of Business Task Force
Attendees of August 26 Meeting
Commissioner D. W. Holmes
Commissioner Leonard Ross
Commissioner V. L. Sturgeon
Commissioner William Symons, Jr.
Kenji Tomita, CPUC
Richard D. Cravalle, CPUC
Frederick E. John, CPUC
John J. Doran, CPUC

APPENDIX A

Selected Composite Statistics For
Major Interstate Natural Gas Pipeline Companies @ 12/31/75*

(Thousands of \$)

a. Net Income Available for Common Equity	\$1,329,788
b. Total Common Equity	8,761,804
c. Preferred Stock Issued	1,029,596
d. Total Long Term Debt	9,850,316
e. Total Capitalization	19,641,716
f. Return on Year End Equity a ÷ b (**16.1% on average equity for the year)	15.2%**
g. Long Term Debt as % of Total Capitali- zation d ÷ e	50.1%

*Source: FPC News Release dated August 4, 1976, No. 22539,
"FPC Releases Preliminary 1975 Statistics on Inter-
state Natural Gas Pipelines."

See also Administrative Law Judge Decision dated 6/15/76 regard-
ing Pacific Gas Transmission (RP 75-57) wherein a return on
equity of 14.5% is adopted.

November 1, 1976

LIQUEFIED NATURAL GAS PROJECTS
 COST OF CAPITAL
 CONVENTIONAL UTILITY FINANCE
 (In Millions of Dollars)

Construction Year	Bonds--50% of Capital		Preferred Stock--		Common Stock--38% of Capital		Total Average Capital Outstanding	Total Cost of Capital
	Outstanding at Year-End	Average Outstanding	Outstanding at Year-End	12% of Capital Profit Before Taxes	Outstanding at Year-End	Profit Before Taxes		
1	\$137.5	\$137.50	\$33.0	\$6.6	\$104.5	\$31.35	\$275.00	\$51.700
2	275.0	275.00	66.0	13.2	209.0	62.70	550.00	103.400
3	412.5	412.50	99.0	19.8	313.5	94.05	825.00	155.100
4	550.0	550.00	132.0	26.4	418.0	125.40	1,100.00	206.800
Repayment Year 1	522.5	536.25	132.0	26.4	418.0	125.40	1,086.25	205.425
2	495.0	508.75	132.0	26.4	418.0	125.40	1,058.75	202.675
3	467.5	481.25	132.0	26.4	418.0	125.40	1,031.25	199.925
4	440.0	453.75	132.0	26.4	418.0	125.40	1,003.75	197.175
5	412.5	426.25	132.0	26.4	418.0	125.40	976.25	194.425
6	385.0	398.75	132.0	26.4	418.0	125.40	948.75	191.675
7	357.5	371.25	132.0	26.4	418.0	125.40	921.25	188.925
8	330.0	343.75	132.0	26.4	418.0	125.40	893.75	186.175
9	302.5	316.25	132.0	26.4	418.0	125.40	866.25	183.425
10	275.0	288.75	132.0	26.4	418.0	125.40	838.75	180.675
11	247.5	261.25	132.0	26.4	418.0	125.40	811.25	177.925
12	220.0	233.75	132.0	26.4	418.0	125.40	783.75	175.175
13	192.5	206.25	132.0	26.4	418.0	125.40	756.25	172.425
14	165.0	178.75	132.0	26.4	418.0	125.40	728.75	169.675
15	137.5	151.25	132.0	26.4	418.0	125.40	701.25	166.925
16	110.0	123.75	132.0	26.4	418.0	125.40	673.75	164.175
17	82.5	96.25	132.0	26.4	418.0	125.40	646.25	161.425
18	55.0	68.75	132.0	26.4	418.0	125.40	618.75	158.675
19	27.5	41.25	132.0	26.4	418.0	125.40	591.25	155.925
20	--	13.75	132.0	26.4	418.0	125.40	563.75	153.175
Total		\$687.500		\$594.0		\$2,821.50		\$4,103.000

LIQUEFIED NATURAL GAS PROJECTS
 COST OF CAPITAL
 PROJECT FINANCE
 (In Millions of Dollars)

Construction Year	Bonds		Stock--Ratably Retired		Total Cost of Capital with		Total Cost of Capital		
	Outstanding at Year-End	Average Outstanding	Outstanding at Year-End	Average Outstanding *	Stock Retiring at Year-End	Profit Before Income Tax	Stock--Not Retired Outstanding at Year-End	Profit Before Income Tax	Without Stock Retiring
1	\$206.25	\$206.250	\$68.75	\$68.750	\$42.6250	\$22.0	\$68.75	\$22.0	\$42.6250
2	412.50	412.500	137.50	137.500	85.2500	44.0	137.50	44.0	85.2500
3	618.75	618.750	206.25	206.250	127.8750	66.0	206.25	66.0	127.8750
4	825.00	825.000	275.00	275.000	170.5000	88.0	275.00	88.0	170.5000
Repayment Year 1	783.75	804.375	261.25	268.125	166.2375	85.8	275.00	88.0	168.4375
2	742.50	763.125	247.50	254.375	157.7125	81.4	275.00	88.0	164.3125
3	701.25	721.875	233.75	240.625	149.1875	77.0	275.00	88.0	160.1875
4	660.00	680.625	220.00	226.875	140.6625	72.6	275.00	88.0	156.0625
5	618.75	639.375	206.25	213.125	132.1375	68.2	275.00	88.0	151.9375
6	577.50	598.125	192.50	199.375	123.6125	63.8	275.00	88.0	147.8125
7	536.25	556.875	178.75	185.625	115.0875	59.4	275.00	88.0	143.6875
8	495.00	515.625	165.00	171.875	106.5625	55.0	275.00	88.0	139.5625
9	453.75	474.375	151.25	158.125	98.0375	50.6	275.00	88.0	135.4375
10	412.50	433.125	137.50	144.375	89.5125	46.2	275.00	88.0	131.3125
11	371.25	391.875	123.75	130.625	80.9875	41.8	275.00	88.0	127.1875
12	330.00	350.625	110.00	116.875	72.4625	37.4	275.00	88.0	123.0625
13	288.75	309.375	96.25	103.125	63.9375	33.0	275.00	88.0	118.9375
14	247.50	268.125	82.50	89.375	55.4125	28.6	275.00	88.0	114.8125
15	206.25	226.875	68.75	75.625	46.8875	24.2	275.00	88.0	110.6875
16	165.00	185.625	55.00	61.875	38.3625	19.8	275.00	88.0	106.5625
17	123.75	144.375	41.25	48.125	29.8375	15.4	275.00	88.0	102.4375
18	82.50	103.125	27.50	34.375	21.3125	11.0	275.00	88.0	98.3125
19	41.25	61.875	13.75	20.625	12.7875	6.6	275.00	88.0	94.1875
20		20.625	--	6.875	4.2625	2.2	275.00	88.0	90.0625
Total		\$1,031.2500		\$1,100.0	\$2,131.2500	\$1,980.0		\$1,980.0	\$3,011.2500

LIQUEFIED NATURAL GAS PROJECTS
COST OF CAPITAL
GOVERNMENT FINANCE
(IN MILLIONS OF DOLLARS)

		<u>Capital Outstanding at End of Year</u>	<u>Average Capital Outstanding</u>	<u>Interest</u>
Construction Year	1	\$ 275.0	\$ 275.0	\$ 13.750
	2	550.0	550.0	27.500
	3	825.0	825.0	41.250
	4	1,100.0	1,100.0	55.000
Repayment Year	1	1,045.0	1,072.5	53.625
	2	990.0	1,017.5	50.875
	3	935.0	962.5	48.125
	4	880.0	907.5	45.375
	5	825.0	852.5	42.625
	6	770.0	797.5	39.875
	7	715.0	742.5	37.125
	8	660.0	687.5	34.375
	9	605.0	632.5	31.625
	10	550.0	577.5	28.875
	11	495.0	522.5	26.125
	12	440.0	467.5	23.375
	13	385.0	412.5	20.625
	14	330.0	357.5	17.875
	15	275.0	302.5	15.125
	16	220.0	247.5	12.375
17	165.0	192.5	9.625	
18	110.0	137.5	6.875	
19	55.0	82.5	4.125	
20	-	27.5	1.375	
TOTAL				<u>\$687.500</u>

SOURCE OF DATA FOR COST OF CAPITAL

Following are the sources of the data used in Appendices C, D and E:

- Periods -- Four-year construction and twenty-year repayment periods are specified in the sponsors' applications filed with the FPC. These periods for the two projects will probably not occur simultaneously; however, to simplify the cost computations concurrence is assumed.
- Rates of Return -- The following rates of return are specified in the PG&E letter of November 5, 1976 to the PUC (Appendix B): bonds -- 10 percent; preferred after income tax -- 10 percent; conventional common after income tax -- 15 percent; and project common after income tax -- 16 percent. The 5 percent government bond rate used in Appendix E is slightly above recent rates of the State of California general obligation bond issues.
- Combined Income Tax Rate -- The 50 percent rate was specified in the above letter.
- Total Investment -- Excluding the investment in the Indonesian liquefaction facilities and ships, which are to be provided from external sources, capital needs of

\$1.156 billion were stated in the report entitled The Role of Gas in Southern California's Economy by Pacific Lighting Corporation. To simplify computations this amount was rounded to \$1.1 billion.

- Timing of Capital Needs -- It was assumed that one-fourth of the total capital needs would be provided at the beginning of each of the four construction years.

- Distribution of Capital -- The types of investment securities and the composition of the total capital for both the conventional and project finance methods are from the PG&E letter in Appendix B.

PROJECT ORGANIZATION

The project sponsors, PLC and PG&E, have each created several subsidiary companies which in turn have formed partnerships to perform the various project activities. Following are the entities and their functions:

Project Operations

- Pacific Alaska LNG Associates, a partnership formed to purchase natural gas, to own and operate gas transmission lines and liquefaction plant at Cook Inlet, Alaska, to contract for the transportation and regasification of LNG and to sell gas to PG&E and to Southern California Gas Company (So Cal Gas).
- Pacific Marine Associates, a partnership formed to transport LNG.
- Western LNG Terminal Associates, a partnership formed to own and operate LNG terminal complexes in California.
- Pacific Indonesia LNG Company, a California corporation jointly owned by PLC and PG&E, has contracted (1) to purchase LNG from Pertamina, the Indonesian government-owned oil and gas company, (2) to transport and regasify the LNG and (3) to sell the gas to So Cal Gas and PG&E.

Affiliated Companies

- Alaska California LNG Company, a subsidiary of PG&E, and Pacific Alaska LNG Company, a subsidiary of PLC, are the partners of Pacific Alaska LNG Associates.
- Pacific Gas Marine Company, a subsidiary of PG&E, and Pacific Lighting Marine Company, a subsidiary of PLC, are partners of Pacific Marine Associates.
- Pacific Gas LNG Terminal Company, a subsidiary of PG&E and Western LNG Terminal Company, a subsidiary of PLC, are the partners of Western LNG Terminal Associates.
- So Cal Gas, the principal subsidiary of PLC, is a public utility engaged primarily in the purchase, distribution and sale of natural gas, including wholesale to San Diego and Electric Company and the City of Long Beach.

Office of the Auditor General

cc: Members of the Legislature
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Office of the Lieutenant Governor
Secretary of State
State Controller
State Treasurer
Legislative Analyst
Director of Finance
Assembly Office of Research
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