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FEDERAL RESTRAINTS ON INTERSTATE NATURAL GAS SUPPLY AND MARKET EXPANSION

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I. INTRODUCTION

The purpose of this article is to analyze one element of federal energy policy—the federal government's actions limiting the ability of the interstate natural gas industry to overcome the shortage of deliverable domestic gas supply and to reacquire the characteristics of a growth industry in today's rapidly changing energy marketplace. Before proceeding with this analysis, however, a few words of perspective on the current energy policy formulation process are are in order.

On April 20, 1977, President Jimmy Carter fulfilled his inaugural pledge to set forth a National Energy Policy during his first 90 days in office. This Policy (known as the National Energy Plan or "NEP") was announced in a nationally televised speech and was shortly thereafter embodied in a voluminous bill sent to Congress. The bill, H. R. 8444, was passed largely intact by the U.S. House of Representatives on August 5, 1977. Since that time, a substantially altered version of the bill has been passed by the Senate and a House-Senate Conference Committee has been unable to come to agreement, despite serious and sincere efforts by all concerned.

While it thus appears that the 95th Congress, like the three immediately preceding it, has not yet produced legislation embodying a coherent, long-term national energy policy, it does not follow that federal energy policy is non-existent. The void left by Congressional inaction is being filled by Executive Branch and regulatory agency decisions on a continuing basis. Given its more than $10 billion budget, its comprehensive power over energy conservation and over the pricing and distribution of petroleum products, in addition to its rate-making, rationing and licensing jurisdiction with respect to the interstate natural gas and electric industry, the recently organized Department of Energy can and does implement energy policy. One of the chief attributes of federal energy policy formulation during Congressional stalemate over the last several years, however, is that many elements of existing or ongoing policy can only be *inferred*. Thus, in the absence of any clearly announced policy goals or objectives, some components of energy policy can only be discerned by analyzing and piecing together a series of individual acts or statements of policy, no single one of which can be viewed as a definitive, or perhaps even deliberate expression of energy policy. The topic chosen for this note—gas supply and load growth policy—is one of those policy elements where this form of analysis is required. The approach to this analysis is in three parts: (a) a review of recent decisions limiting interstate supply and market growth efforts by two federal agencies, the Federal Power Commission (FPC) and its successor, the Federal Energy Regulatory Commission (FERC), and the Federal Energy Administration (FEA) and its successor, the Economic Regulatory Administration (ERA); (b) a review of several energy policy goals proposed to Congress by the Carter Administration which also limit gas supply and gas industry load growth activities; and (c) an evaluation or assessment of the legal and factual predicates of both the inferred regulatory policy and the proposed Administration policy. The concluding section outlines an alternative approach to policy-making for gaseous fuels.

II. FEDERAL AGENCY ACTION RESTRAINING INTERSTATE GAS SUPPLY IMPROVEMENT AND/OR LOAD GROWTH

This article does not contend that federal agency actions of recent years have been fully consistent with any specific set of goals and objectives, either inferred, announced, or otherwise. The authors do contend, however, that the FPC, FERC, and the FEA (now Economic Regulatory Administration or ERA) have taken a series of steps which have inhibited the ability of the interstate gas industry—that portion of the gas pipeline and distribution industry located outside the major producing states of Louisiana, Oklahoma, and Texas—to overcome the shortage of deliverable gas supply and to supply even a modest portion of the nation's constantly expanding energy requirements.[1] In this section, we identify and discuss the principal decisions and actions by which this restraint has been imposed.[2]

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1. Wellhead price regulation since 1954 has played a major role in creating current shortages. *See, e.g.*, R. HELMS, NATURAL GAS REGULATION: AN EVALUATION OF FPC PRICE CONTROLS (1974); Breyer & MacAvoy, *The Natural Gas Shortage and Regulation of Natural Gas Producers*, 86 HARV. L. REV. 941 (1973). Arguments for and against continued regulation, however, turn in large part on differing political value judgments. For an analysis and assessment of how various pricing strategies interrelate with several basic public policy goals, *see* Moring & Wilderotter, *Natural Gas: The Policy-Pricing Matrix* 23 ROCKY MT. MIN. L. INST. 737 (1977). This article, however, addresses non-price restrictive policies only and takes no position on the regulation-deregulation debate.

2. We do not ignore the various regulatory measures taken to stimulate domestic gas

A. ACTIONS IMPEDING INDUSTRY'S SELF-HELP EFFORTS

1. *The "Finder's Keepers" Problem*

As interstate pipeline companies began to curtail firm service to their distribution company customers in the early 1970's, a number of state-regulated gas distributors obtained authority to form producing subsidiaries to explore for and develop gas which would offset declining pipeline deliveries.[3] Transportation of these volumes by an interstate pipeline company from the producing field to the distributor's service area is subject to FERC licensing jurisdiction. While the Commission is without authority to order the pipeline to deliver the volumes to someone other than the distributor, it does have authority to deny certification on the basis of the end-use proposed by the distributor.[4]

In a series of early decisions, the Commission promptly certificated the transportation of such "self-help" gas developed by distributor-owned exploration companies.[5] Since this production was not owned by the pipeline company, it was not treated as part of the pipeline's supply for the purposes of computing curtailment allocations. Accordingly, the enterprising distribution company could receive not only its share of pipeline deliveries based on a Commission-approved curtailment plan, but could supplement its supply with its own production. By allowing interstate pipeline companies to carry the gas back to the distributor's service area, the Commission implicitly recognized what might be termed the "finder's keepers" principle.

In an order issued January 11, 1977, in the *NOMECO* proceeding,[6] however, the Commission refused to allow the sale and transportation of natural gas from a distributor's producing affiliate to the parent. The Commission reasoned that the distributor (Consumers

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supply. These measures include *inter alia* (a) the provision for 60-day emergency sales under 18 C.F.R. § 2.68; (b) the Order No. 533 policy allowing pipelines to transport natural gas purchased directly from producers by high-priority industrial customers, revised by FERC Order No. 2, (Feb. 1, 1978) (codified at 18 C.F.R. § 2.79); and of course (c) the decision to triple the ceiling price for sales of "new" natural gas from roughly $.50 per MCF to over $1.42 per MCF in Opinion No. 770, The Second National Natural Gas Rate Cases, (D.C. Cir. 1977), *cert. den.* 46 U.S.L.W. 3539 (1978). Except for the decision as to price (the effects of which cannot yet be definitely assessed), these actions have been in the nature of limited short-term palliatives that are far outweighed by the restrictive measures detailed below.

3. Since gas distribution companies are regulated public utilities, their investments and participation in such producing ventures are subject to review and approval by the approprate state public utility commisson.

4. FPC Transcontinental Gas Pipe Line Corporation, 365 U.S. 1 (1961) (usually known as the "Transco X-20" case).

5. *See, e.g.*, Op. Nos. 668 & 668-A, Northern Michigan Exploration Co., 50 F.P.C. 1143 and 50 F.P.C. 1788 (1973) (transportation for Consumers Power Company); Op. No. 678, Transcontinental Gas Pipeline Corp., 50 F.P.C. 1811 (1973) (transportation for Elizabethtown Gas Company); and Findings and Order issued in Transcontinental Gas Pipeline Corp., Docket No. CP74-150, 51 F.P.C. 1902 (1974) (transportation for Public Service Electric and Gas Company).

6. Order Reversing Initial Decision, issued in Michigan Gas Storage Co., Docket Nos. CP74-322 (Jan. 11, 1977); Order Granting Rehearing (Nov. 10, 1977).

Power Company) had less need for the supply than the interstate pipeline supplier that would otherwise receive much of the gas.

A number of parties filed objections to the ruling, arguing that the order in effect commandeered the gas resulting from the company's self-help efforts and would take away all incentive for distributors generally to undertake such efforts.[7] On rehearing, the Commission reversed its course and granted the necessary certificates, but on the narrow ground that it lacked adequate evidence in the record that the comparative needs of the other customers were in fact greater than those of Consumers Power. Moreover, the Commission cautioned that in the future the parent company would be required to demonstrate its actual need for the supplemental supplies as compared to other customers of the transporting pipeline.

> Any additional reserves to be delivered to Consumers will require additional certificate authorization during which the applicants will have the burden of presenting the scope of end-use analysis detailed above. . . . If Consumers subsequently seeks to purchase such additional gas, it must prove its case starting with a clean slate, not an open-ended transportation certificate in place.[8]

The order further explained that *de novo* proceedings would be required for each additional application "because the Commission should retain the flexibility to respond to any changes in its policy concerning distributor participation in interstate gas production."[9]

Although the Commission eventually allowed Consumers Power to receive its affiliate's production, the limited grounds for approval and the imposition of the comparative needs approach for future applications leaves the finder's-keepers principle surrounded by considerable uncertainty and raises the possibility that gas-poor competitors may successfully "raid" supplemental supplies obtained by more aggressive companies.[10] Under the rationale announced by the Commission in *NOMECO*, all that might be required is a sufficient

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7. In addition, the initial order denying certificates relied in large part on the fact that Consumers Power was also receiving gas from its non-jurisdictional SNG facility. The initial order thus would have discouraged self-help from *two independent* sources.

8. Order Granting Rehearing, *supra* note 6, at 8.

9. *Id.* at 9. Indications from the discussion of the Commission concerning the case indicated that some commissioners may adopt an even more restrictive position in the future. Chairman Curtis expressed particular concern that, by allowing Consumers to receive its affiliate's production, the Commission was

> opening up the vise by which distributor companies can unevenly obtain supply security *vis-a-vis* other distribution companies feeding off the same interstate natural gas supply mechanism. . . . I think I want to say "No, distribution companies, we don't want that investment in the offshore if the consequence of it is to acquire gas independent of the general needs of the interstate market."

THE OPEN MEETING REPORT 2 (J.S. Jaffee, ed. 1977).

10. Presumably, the "raider" would be required to pay for the diverted gas. In today's gas markets, however, the availability of gas is more important than monetary compensation.

showing of significantly greater need. The inequity would be compounded by the fact that it is the more aggressive company's consumers who lose the most by being deprived of gas supplies which they have paid for through higher utility rates. Moreover, future expenditures for supplemental supplies will hardly be approved by state regulatory commissions if the gas supply benefits are diverted to other users.

2. *Expansion of Gas Storage Facilities*

Increasing use of storage facilities is a simple and relatively inexpensive way to make gas available for new customers. Since pipeline supplies of gas are usually available to distributors on a year-round basis, if the distributor is unable to take full contract entitlements,[11] any gas not taken is sold to some other customer. This usually involves a double loss to the distributor, for not only does the distributor not receive the gas, but the company continues to pay demand charges regardless of whether full demand entitlements are taken or not. Accordingly, it is sound operating practice to seek markets for this "valley gas"—usually interruptible industrial or commercial customers that rely on alternate fuels during the remainder of the year.

By expanding storage facilities to hold the valley gas for increased peak-season deliveries, however, the distributor secures greater protection from curtailment for his temperature-sensitive requirements and may also have available sufficient volumes to serve new high priority customers, thereby upgrading his load. Underground storage capacity has increased rapidly throughout the 1970's, rising from some 4.9 TCF in 1969 to roughly 6.9 TCF in 1976, with the maximum daily sendout rising in 1976 to over 35 BCF.[12] Liquefied natural gas storage capacity has also been expanded and now stands at over 60 BCF. Daily deliverability from these facilities is estimated at around 7 BCF.[13]

When storage facilities are used in interstate commerce, they become subject to FERC jurisdiction.[14] In recent years, however, the

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11. Or maximum volumes available under the approved curtailment plan.

12. AMERICAN GAS ASSOC., GAS FACTS 1976 at 44, 46 [hereinafter cited as AGA, GAS FACTS 1976]. The abbreviations of MCF (thousand cubic feet), BCF (billion cubic feet), and TCF (trillion cubic feet) are standard. The importance of these volumes is underscored by the fact that maximum day sendout for 25 major interstate transmission companies in 1976 was approximately 58 BCF. Fully half of Columbia Gas Transmission Corporation's peak-day sendout now comes from storage.

13. *Id.*

14. Pursuant to the Department of Energy Organization Act, Pub. L. 95-91, 91 Stat. 565 (1977) [hereinafter cited as DOE Act] the FERC on October 1, 1977, assumed the certification powers and responsibilities which the Federal Power Commission had exercised under Sections 4, 5, and 7 of the Natural Gas Act. Although most of the storage cases discussed here were actually decided by the Federal Power Commission, the new FERC has given no indication of a change in policy.

Commission has refused to certificate new storage facilities where the purpose was to allow the attachment of new customers. In Opinion No. 810, *Michigan-Wisconsin Pipe Line Company,* (July 7, 1977), an interstate pipeline proposed expanding its storage capabilities in order to allow increased peak-day deliveries to certain of its distributor customers. The additional volumes were designed to permit the distributors to provide additional service for high priority loads. The Commission rejected the application, reasoning as follows:

> In this time of gas shortages it is inappropriate and contrary to the public interest to allow the attachment of new high priority customers where there are alternative means available to those new customers and where the Commission may feasibly take action to limit the growth of these distributors through its transportation jurisdiction. . . . There is simply no rational basis to encourage new customers.[15]

More recently, the Commission implicitly affirmed the antigrowth policy of Opinion No. 810 in an order setting hearing on a proposal by Northern Natural Gas Company to develop additional storage capacity.[16]

> [B]ecause growth is a factor in these proceedings, we believe the hearing established below should address the question of whether Northern should be permitted to increase its storage to satisfy additional demands represented by distributor growth and, if the question is answered negatively, what conditions can be attached to any permanent certificate issued in these proceedings to prohibit such use.[17]

The Commission then set forth a list of specific questions to be addressed in the hearing, cautioning that "[r]esponses to these issues should give consideration to the Commission's determination in Opinion No. 810. . . ."[18]

In marked contrast, the Commission summarily approved a recent exchange transaction in which the exchanged gas was to be liquefied for storage during the summer months and regasified and made available for delivery during the winter for service to *existing* high priority customers. The Commission noted merely that the re-

15. Op. No. 810, Michigan-Wisconsin Pipelne Company, et al., —— F.P.C. 23-24 (July 7, 1977). Although the Commission declined to impose a condition flatly barring the use of new storage capacity for attaching new load, the rationale for the decision was that such a condition would be difficult, if not impossible, to implement. *Id.* at 17-19.

16. Order Providing for Formal Hearing, issued in Northern Natural Gas Co., Docket No. CP77-193 (Sept. 19, 1977).

17. *Id.* at 5.

18. *Id.* at 6. *See also* the Initial Decision in Northern Natural Gas Co., Docket Nos. CP76-52 (May 19, 1977) denying certification of a proposed LNG storage facility primarily on the grounds that the new capacity would be used by Northern Natural's distributor customers to serve new high priority customers.

delivered gas would "ensure continuation of services to high priority customers and would not be used by Iowa Electric to attach new sales or upgrade load."[19]

3. *Certification and Curtailment Proceedings*

In curtailment and certification proceedings, Commission policy respecting supplemental supplies and load growth has not been entirely consistent. In Opinion No. 773, *Northern Natural Gas Company* (August 13, 1976), the Commission declared flatly:

> In general . . . a pipeline presently curtailing existing customers should not be authorized to attach new customers *regardless of the priority of use* to which the new customers would put any natural gas which they receive. In the absence of some compelling public interest consideration, existing customers should not be cut off in order that new customers may receive service who had never previously received natural gas deliveries.[20]

Accordingly, the Commission denied certification for a number of sales measuring stations which would have made very limited volumes of gas available for certain high-priority purposes.[21]

In curtailment proceedings, however, the Commission has followed some policies designed to allow or even encourage growth on curtailing pipeline systems.[22] For example, the Commission has consistently required that a fixed base period be used in computing customer entitlements.[23]

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19. Findings and Order issued in Northern Natural Gas Co., Docket No. CP77-397 at 2 (Sept. 19, 1977). *See also* Natural Gas Pipe Line Co. of America, Docket No. CP77-517 (Sept. 19, 1977) in which the Commission conditioned approval of a storage project on the pipeline's submitting annual reports of any increase in Priority I load so as to allow the Commission to closely monitor load growth; and the Initial Decision issued in Michigan-Wisconsin Pipeline Co., Docket Nos. CP76-255 at 16 (Nov. 11, 1977).

20. Northern Natural Gas Co., Docket No. CP77-397 at 2-3 (emphasis added).

21. Similarly, in approving a proposed curtailment plan on the Montana-Dakota Utilities Company system that provided for the addition of up to 4,000 new connections during 1978, a Federal Power Commission Administrative Law Judge warned:

> Nothing herein is a determination upon the merits that any growth whatsoever should be approved for a curtailing pipeline. Assuming the correctness of *Staff's position that no growth whatsoever should exist*, in the procedural posture of this proceeding the short-term limited growth provision is the farthest we can advance toward the *no-growth goal* for the period which the provision will cover.

Initial Decision issued in Montana-Dakota Utilities Co., Docket Nos. RP76-81 at 4 (Apr. 19, 1977) (emphasis added).

22. For an excellent discussion of the development of Federal Power Commission policy regarding pipeline curtailment plans, *see* Muys, *Federal Power Commission Allocation of Natural Gas Supply Shortage: Prorationing, Priorities and Perplexity*, 20 ROCKY MT. MIN. L .INST. 301 (1975). For a more comprehensive discussion of the curtailment problem, *see* WILLRICH, ADMINISTRATION OF ENERGY SHORTAGES: NATURAL GAS AND PETROLEUM ch. 2-4 (1976).

23. Fixed base periods have been applied in implementing curtailment plans for Transcontinental Gas Pipeline Corp., Op. Nos. 778 & 778-A (Oct. 8, 1976 & Dec. 8, 1976); Southern Natural Gas Co., Op. Nos. 747 and 747-B (Nov. 20, 1975 & May 21, 1976) and FERC Op. No. 5 (Nov. 17, 1977) (index of requirements approach based on fixed data

Since a fixed base period approach does not take into account supplemental sources of supply attached by a distribution company subsequent to the base period, it protects any new load attached by distribution companies and served by such supplies. In effect, although the portion of a customer's requirements served from traditional pipeline supplies under the curtailment plan may decine, supplemental supplies may be added without jeopardizing the company's curtailment allocation. This tendency is balanced, however, by the fact that a fixed base period approach also disregards service requirements attached subsequent to the end of the base period. Accordingly, if a distributor sought to "upgrade" its load by attaching more high-priority customers, curtailment under a fixed base period approach would refuse to recognize the new, high-priority load, resulting in a decreasing portion of its actual requirements being supplied under its pipeline supplier's curtailment plan. Moreover, to the extent that volumetric limitations are imposed at historical levels (i.e. actual takes in the base year) rather than based on contract entitlements, the effect is to insure that volumes for adding load *must* come from supplemental supplies.[24]

While the actual net effect of using a fixed based period is unclear, the Commission had adopted it in large part with the intention of protecting and encouraging the development of supplemental supplies by distributors[25]—a result at odds with the approach taken in the *NOMECO* proceeding, *supra*.

In recent orders in the *Cities Service Gas Company* proceedings, the Commission approved an approach which would allow distribution companies to attach new customers to replace old customers that converted to alternate fuel or otherwise reduced their consumption.[26] This policy, which might be termed "saver's keepers", implies

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base); and Panhandle Eastern Pipeline Company, Op. Nos. 754 & 754-A (Feb. 27, 1976 & Aug. 17, 1976).

24. *See, e.g.*, the Cities Service orders discussed at note 26 *infra*.

25. *See, e.g.*, Transcontinental Gas Pipeline Co., Op. No. 778 at 62 (Oct. 8, 1976).

> A rolling base period is also unsatisfactory in terms of Commission energy policy for it would act as a disincentive to Transco's resale customers attaching new supplemental supplies and as a penalty to those resale customers which have already attached supplemental supplies. These negative effects would result because the rolling base period would allow distributors to upgrade their requirements without increasing their supplemental supplies so as to increase their share of Transco's pipeline supply, which would result in their use through displacement of the new supplemental supplies of other distributors.

26. Cities Service Gas Co., Op. Nos. 805 and 805-A (June 14 1977 & August 2, 1977). *See also* Orders Denying Rehearing, issued Sept. 30, 1977, and Nov. 11, 1977, and Clarifying Order issued Dec. 12, 1977. In its initial order, (Op. No. 805), the Commission appeared to take the opposite track by stating, that "it is appropriate to terminate load growth on the Cities' system effective January 1, 1978, through the imposition of an Index of Requirements based on load attached on that date".

This result prompted Senator Eagleton of Missouri to introduce a bill, S. 1814, designed to overturn the Commission's apparent attempt to preclude distribution company load growth. Subsequently, however, the Commission's order on rehearing backed away from placing an effective ban on load growth, and the bill was withdrawn.

that a distribution company may retain in its service area any volumes made available by conservation on the part of its customers.[27]

The *Cities Service* orders failed to address the question of whether a distributor could use "conservation gas" to serve lower priority customers. Nor did the Commission attempt to rationalize the orders with the apparent renunciation of the "finder's keepers" principle in *NOMECO*.

B. *Producer Reservations of Interstate Reserves*

Another Commission policy which has resulted in decreased gas supplies for the interstate market is that of allowing producing companies to reserve offshore volumes for their own use in refineries or for other onshore industrial purposes. Federal offshore reserves have a "peculiar status"[28] since they are by definition in interstate market. Put another way, federal offshore production is the *only* source of new natural gas supply which is not normally able to be diverted to intrastate purchasers. Until changed in March of 1978, the FPC/FERC policy discussed below, allowed a producer to reserve what would otherwise be interstate supplies for his own use. The result was that federal domain gas was used in onshore Texas and Louisiana industrial facilities.

The producer reservation policy was first announced in the *Chandeleur Pipeline Company* case.[29] In *Chandeleur*, the Commission reasoned that if the benefit derived by the producer from using its offshore production in its own industrial facilities was greater than that obtained from selling the gas at low rates fixed by the Commission, then the producer would have an incentive to seek out more offshore gas. The Commission suggested that in the process, the producer might discover more gas than it could use in its own facilities, and might make the excess available to the interstate market. Despite the lack of any factual indication that the incentive theory actually worked, *Chandeleur* was upheld by the D.C. Circuit as a legitimate "experiment" by the Commission.[30] Under the *Chandeleur* doctrine, the Commission has permitted producers to have transported,

27. The Commission explained its policy in Op. No. 805-A:

> It was our intention that any distributor who reduced its consumption below that reported in the Index of Requirements would still be entitled to delivery of that increment of supply and could use that increment of supply to serve new high priority load. Thus, distributors would have an incentive to encourage conservation.

Op. No. 805-A at 5.

28. Consumers Union v. FPC, 510 F.2d 656, 660 (D.C. Cir. 1974).

29. Op. Nos. 560, Chandeleur Pipeline Co., 42 F.P.C. 20 (1969), *remanded*, Public Service Comm'n of New York v. F.P.C., 436 F.2d 904 (D.C. Cir. 1970), and Op. No. 560-A, 44 F.P.C. 1747 (1970), *aff'd*. 463 F.2d 824 (D.C. Cir. 1972).

30. Public Service Comm'n of New York v. FPC, 463 F.2d 824, 828 (D.C. Cir. 1972). The chain of assumptions on which the incentive theory was based was stated by the court in this way:

> At the Pascagoula refinery (and perhaps at other refineries now existing or

for their own use, well over a trillion cubic feet of gas from federal domain reserves.[31]

The *Chandeleur* cases appeared to establish a "finder's-keepers" policy for producers operating on the federal domain offshore—despite the fact that the applicable just and reasonable rates for interstate sales were designed to compensate the producer fully and provide all the needed incentive. Of course, producing companies are in the business of oil and gas production and need not obtain public utility commission approval prior to engaging in offshore exploration and development. Accordingly, as appropriate as "finder's keepers" is for distribution or pipeline company operations, it is equally inappropriate for producers operating in the federal offshore.

On March 7, 1977, the Commission issued Opinion No. 789, *Tenneco Oil Company, et al.*[32] Opinion No. 789 disclaimed further reliance on the *Chandeleur* incentive theory, but issued transportation and sales certificates to allow transportation of reserved volumes solely on the grounds that high priority industrial process and feedstock uses were involved. This novel theory would have effectively converted high priority industrial users into preferred purchasers of federal offshore supplies and would have been of dubious validity.[33]

On rehearing, however, the Commission determined that its policy of allowing producers to have reserved offshore volumes transported onshore for industrial use was no longer in the public interest and

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> to be built) natural gas is the least expensive and most efficient fuel to be used in the refining of crude oil. It is, of course, less expensive for Socal to use its own natural gas at Pascagoula than to buy natural gas from other distributors. The more cheaply Socal can acquire natural gas, the more it will be inclined to increase its refinery's production of fuel oil, as this will become more profitable as it becomes less expensive. The more Socal will be inclined to produce more fuel oil at its refinery, the more it must search out crude oil deposits to be refined. The more exploration for oil that Socal (or others) will be doing, the more natural gas it will be discovering in its search for crude oil. Finally, the more natural gas that Socal (or others) discovers the more natural gas flowing into interstate commerce will be increased, since Socal will have more natural gas than it will be be able to use itself.

Id. (footnotes deleted).

31. Through Jan. 1977, approximately 1.5 TCF of Federal Domain gas had been transported for producers' own use onshore. Approximately 145 BCF is now being transported annually from such reversed volumes, or some 4 percent of total Federal offshore production. *See*, FERC Op. No. 10 at 13 (March 20, 1978).
While initially the Commission applied no end-use conditions to such transportation certificates, in Op. No. 727, Tennessee Gas Pipe Line Co., ——F.P.C.—— (Apr. 17, 1975) *app. dismissed as moot sub nom.* Brooklyn Union Gas Company v. FERC (D.C. Cir. Feb. 9, 1978); and Op. No. 743, Mobil Oil Corp., ——F.P.C.—— (Sept. 9, 1975) *remanded sub nom.* Public Service Comm'n of New York v. FERC (D.C. Cir. Feb. 9, 1978); use of reserved volumes for boiled fuel was proscribed. In addition, the Commission limited the "incentive" volume to 20% of deliveries.

32. ——F.P.C.—— (March 7, 1977).

33. Since the Commission's rate jurisdiction extends only to sales for resale, direct sales from a producer to an industrial user are not subject to the Commission's rate ceilings. Direct purchasers are thus able to bid more for new supplies than interstate pipeline companies. To the extent the Commission permits transportation of such direct sales volumes from the federal domain offshore, industrial purchasers will be able to bid away volumes that would otherwise be sold to interstate pipeline companies for all their purchasers. Under present supply shortages, this result might well constitute undue discrimination. *See, e.g.*, note 34, FERC Op. No. 10 at 14, *infra*.

announced that it would not favor such transactions in the future.[34] Any necessary incentive for offshore production should come through just and reasonable rates from jurisdictional sales of such gas to interstate markets. Thus, in this limited area the FERC has now reversed prior policy and in effect opted for a policy favoring development of increased supplies for the interstate gas industry and its consumers.

C. NATURAL GAS IMPORTS

1. *Liquefied Natural Gas (LNG)*

When subjected to very low temperatures (in the neighborhood of -259°F), vaporous natural gas condenses and becomes a liquid, occupying approximately 1/600th of its gaseous volume. This enormous reduction in volume makes possible transportation over long distances in specially designed cryogenic tankers.[35] At present, the major exporters of LNG are Algeria and Indonesia, both countries with large gas reserves and minimal domestic markets. Potential future supply sources include Persian Gulf producers, Nigeria, Libya, Chile, and Trinidad.

Small volumes of LNG have been imported through a terminal in Everett, Massachusetts, for several years. Major imports, however, began in March 1978 at the Cove Point, Maryland terminal owned by an affiliate of Columbia Gas Transmission Corporation.

LNG imports could become a very significant source of supplemental supply. Henry R. Linden, President of the Gas Research Institute, has estimated that LNG imports could provide from 1.5 TCF to as much as 2.4 TCF per year by 1985.[36] Even the more conservative level of imports seems very unlikely at present, however, due to existing regulatory restrictions and the potential for delay involved.

Prior to the creation of the new Department of Energy responsibility for regulating imports of natural gas was exercised by the FPC under Section 3 of the Natural Gas Act.[37] Under the Department of

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34. FERC Op. No. 10, Tenneco Oil Co., Docket Nos. CI75-45, (March, 1978), *app. docketed.*

35. LNG can also be transported by truck. At least one east coast distribution company purchased LNG from Gaz Metropolitan, Inc. of Montreal towards the end of the 1976-77 winter and effected delivery by cryogenic tank truck. *See* Order Authorizing the Importation of Liquified Natural Gas, issued in New Jersey Natural Gas Co., Docket No. RP77-265 (March 17, 1977).

36. *All-out Push Urged for U.S. Gas Supply*, 75 OIL & GAS J. No. 48, 76-77 (Nov. 21, 1977). Projects already approved or presently pending involve roughly 1.8 TCF in proposed annual deliveries.

37. 15 U.S.C. § 717B. In Distrigas Corp., 47 F.P.C. 752 (1972), the Commission determined that liquefied natural gas (LNG) was natural gas within the meaning of Section 3 and asserted jurisdiction over proposed LNG imports. Initially, the FPC disclaimed jurisdiction over the termnal facilities to be used, but later changed its mind and ordered certification and applications to be filed covering the terminal facilities. FPC's shift of position was afffirmed in Distrigas Corp. v. FPC, 495 F.2d 1057 (D.C. Cir. 1974), but proceeding was remanded on other grounds. The FPC has held consistently that its transportation jurisdiction under the Natural Gas Act extends only to the transportation of

Energy Organization Act, this authority was shifted from the Commission to the Energy Secretary, who, in turn, has delegated it to the Economic Regulatory Administration (ERA).[38] The FPC never developed a general policy towards LNG import projects, preferring to consider each proposal entirely on its own merits. The result was the evaluation of an LNG import project on a piecemeal basis—with unpredictable shifts at times.

The question of whether imports should be priced incrementally to purchasers or "rolled-in" to the general pipeline system supply is a case in point. Averaging the price of higher cost imports into the overall pipeline supplies reduces the delivered price of the LNG and thus acts as an incentive for increased imports. Requiring each increment of higher cost imports to be sold separately at the higher price, on the other hand, tends to limit imports below the level expected if rolled-in pricing were adopted.

Initially, the FPC approved of rolled-in pricing for LNG imports, in effect encouraging the industry to develop more import plans based on that approach to pricing.[39] In the *Trunkline LNG* proceeding, however, decided in April 1977, the FPC ordered a project to be restructured so as to price imports incrementally to resale customers.[40] The effect of the abrupt shift in policy was to introduce considerable uncertainty as to whether the proposed imports could be successfully marketed over the short term. The FPC shifted back to rolled-in pricing on rehearing, however, recognizing that a decision to require incremental pricing would probably undermine the financeability of the proposal.

Notwithstanding the FPC's decision to shift back to rolled-in pricing, the zig-zag path of federal policy on the pricing question is apparently not over. On December 30, 1977, the Economic Regulatory Administration of the Department of Energy issued its first LNG import decision in the *Pac Indonesia* proceeding.[41] ERA noted that, in general, the Energy Department supported the concept of incremental pricing, and that, pending formulation of a general policy in an ongoing separate proceeding,[42] "the DOE will closely scrutinize pend-

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natural gas by pipeline. Accordingly, the ocean transport of LNG by tanker is not subject to FPC jurisdiction. Marathon Oil Co., Op. No. 735, (June 23, 1975). Certain aspects of ocean transport of LNG are, however, regulated by other Federal agencies. For example, the United States Coast Guard exercises responsibility for routing LNG tankers into ports.

38. DOE Delegation Order 0204-4, para. 6, 42 Fed. Reg. 60726 (1977).

39. *See, e.g.*, Columbia LNG Corp., 48 F.P.C. 723 (1972), and Columbia LNG Corp., ——F.P.C.—— (Jan. 21, 1977).

40. Trunkline LNG Co., ——F.P.C.—— (Apr. 29, 1977), Order on Rehearing, Op. No. 796-A (June 30, 1977). In addition, the FPC specifically "encouraged state commissions to require local distribution companies to price the imported gas incrementally at the retail level as well." *See* Op. No. 796, at 27.

41. DOE/ERA Op. No. 1, Pac Indonesia LNG Co., Docket No. 77-001-LNG (Dec. 30, 1977), *decision on reh. pend.*

42. Notice published at 42 Fed. Reg. 62419 (1977). Although public hearings were held in early January, 1978, indications are that the LNG policy review will not be concluded until the latter half of 1978.

ing projects to determine the extent to which an incremental pricing requirement will serve the public interest in each case."[43]

A second major area of concern is that of the appropriate level of U.S. dependence on imported gas supplies. Prior to formation of the DOE, even though the FPC was vested with authority over imports, the Executive Branch remained concerned over the national security and foreign policy aspects of LNG imports. Accordingly, the Energy Resources Council,[44] after public comment, issued a statement of policy on August 5, 1976, which concluded that LNG imports should be limited to no more than .8 to 1.0 TCF per year from any one country and no more than 2 TCF per year in total.[45] Subsequently, the ERC (acting through its "staff" in the Federal Energy Administration) intervened in a number of FPC certification proceedings to present its recommendation.

As part of the LNG import policy review undertaken following the election of President Carter, however, the ERC has withdrawn its numerical recommendation. DOE has announced that the dependency question will be studied in the general LNG policy review now underway.

LNG imports have encountered significant opposition at the state and local level from environmental groups opposing the construction of receiving terminals. Opponents argue that LNG is an "ultra-hazardous" substance and that ignition of an LNG spill could create an explosion.[46] While LNG is plainly a hazardous substance—as are propane, naphtha, and other hydrocarbons handled daily at ports around the country—the case for deeming LNG "ultra-hazardous" is far from clear.[47]

Nevertheless, opponents have succeeded in passing restrictive siting laws in California[48] and New York.[49] The California law has

43. *See supra* note 41, at 35. Since the *Pac Indonesia* application involved sales directly to two distribution companies (rather than interstate pipeline companies) the ERA was able to reason that imports would be "incrementally priced" at the wholesale level regardless of ERA action.

44. The Energy Resources Council was created by § 108 of the Energy Reorganization Act of 1974, Pub. L. 93-438, 88 Stat. 1233-4, (1974). It was conceived as a cabinet level interdepartmental organization within the Executive Office of the President. The ERC lacks substantive authority, however, and is endowed with essentially an advisory role. § 162 of the Energy Conservation and Production Act, Pub. L. 94-385, 90 Stat. 1127, 1140 (1976) directs the ERC to prepare a yearly report on national energy conservation activities.

45. The ERC study also concluded that LNG imports should, where feasible, be incrementally priced to low priority users.

46. The legal consequences of classifying LNG activities as "ultra-hazardous" are extremely significant since operators of LNG facilities may be held strictly liable for accidents regardless of the standard of care employed. The risk of strict liability may render LNG projects virtually uninsurable thus extremely difficult, if not impossible, to finance.

47. *See, e.g.*, Drake & Reid, *The Importation of Liquefied Natural Gas*, 236 SCIENTIFIC AMERICAN 22 (1977), concluding that LNG is on a par with other common flammable substances such as gasoline, propane, and vaporous natural gas which have not been regarded as "ultra-hazardous". For a detailed review of LNG history and operations *see* W. LOM, LIQUEFIED NATURAL GAS (1975).

48. The Liquefied Natural Gas Terminal Act of 1977, CAL. PUB. UTIL. CODE §§ 5550-5560 (West Supp. 1978) [hereinafter cited as the LNG Terminal Act].

apparently already forced a change in a previously approved site from Oxnard, Califonia, to Point Conception, necessitating an amendment to the original application and delaying final approval further.[50] Strong state and local opposition was also undoubtedly a factor in ERA's imposition of a series of very restrictive conditions on the *Pac Indonesia* import authorization, including a number of requirements with no relationship whatsoever to the alleged dangers of LNG.[51]

Federal siting legislation is another legislative obstacle likely to be raised during the 1978 session of Congress. A number of bills were introduced in 1977 containing a variety of approaches to siting LNG terminals.[52] Although no action was taken on the bills during 1977 because of congressional preoccupation with the proposed National Energy Act, hearings were scheduled in March 1978 and increased legislative interest is likely.

Regulatory delays in approving LNG import applications have been very costly. On more than one occasion, the underlying gas purchase contracts have been cancelled due to administrative delay. When renegotiated, the price has invariably been higher and the terms less advantageous to the U.S. importer and the ultimate consumer.[53]

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49. Liquefied Natural and Petroleum Gas Act, ch. 892, 1976 N.Y. Laws. The constitutionality of the New York law is under attack in a suit pending in federal district court for the Eastern District of New York.

50. The California example provides an interesting lesson in how changes in one aspect of a transaction can have an impact on others and trigger delay. After applicants filed an amendment to propose a site that would likely conform to the California law, an environmental group petitioned the ERC to reassert exclusive jurisdiction over the proposal to the exclusion of the Energy Secretary. The petition reasoned that although import authority under § 3 of the Natural Gas Act had been transferred to the Energy Secretary, the FERC retained jurisdiction in the present case because the same terminal would now be used for both imported LNG and domestic (Alaskan) LNG. Invoking the commingling doctrine sanctioned in California v. Lo-Vaca Gathering Company, 379 U.S. 366 (1965), the petition therefore urged the FERC to assert its certification jurisdiction under §§ 4, 5, and 7 of the Natural Gas Act over the imported LNG as well. Although the FERC has yet to rule on the petition, ERA's Op. No. 1, *supra* note 41, conditionally approved the initial site and noted that the issue of whether further federal proceedings were necessary depended on action by the State of California under the LNG Terminal Act. *See* ERA Op. No. 1, *supra* note 41, at 36-42.

51. For example, ordering paragraph 15 states, "Springs along the proposed or ultimate development pipeline routes which are known *or suspected* to be of value to wildlife *shall be avoided.*" ERA Op. No. 1, *supra* note 41, at 58 (emphasis added). Ordering paragraph 16 provides that:

> Prior to beginning construction, qualified biologists should survey the proposed rights-of-way and access road routes to determine if any rare and endangered animal species located along the proposed or ultimate development routes would be adversely affected. Mitigating masures . . . shall be considered.

Id. Such requirements could obviously be imposed any time any development activity of any kind takes place in an undeveloped area.

52. *See, e.g.*, S. 2273, 95th Cong., 1st Sess. (1977); H.R. 6844, 95th Cong., 1st Sess. (1977).

53. In the Trunkline LNG proceedings, initial applications were filed in late 1973 and hearings held in early 1974. The base contract price was $.50 per million BTU, subject to 4 percent annual escalations. The hearings were recessed, however, pending completion of an environmental impact statement. Sonatrach, the seller, exercised its contractual right to terminate due to the delay. In 1975, a new contract was signed setting the minimum base price of $1.30 per million BTU. The new contract price was subject to adjustment

As noted above, the division of responsibilities at the federal level between the FPC and the Executive Branch concerning LNG imports was ended by the Department of Energy Organization Act.

This institutional shift should allow for more rapid action on LNG import applications by placing all federal regulation in a single agency. In addition, the Secretary is presumably not required to follow the formal adjudicatory procedures of the FPC and the FERC. More importantly, however, the DOE has the authority and the opportunity to provide the stable policy framework which such massive projects require. In this context, DOE's apparent decision in *Pac Indonesia* to switch back to requiring incremental pricing is disappointing. While in part the energy price increases have been due to the one-time 1973-1974 increase in world-wide crude oil prices, the fact remains that for high priority, residential customers, the cost of LNG is well below that of electricity. Accordingly, there is considerable upwards pressure on price that is unlikely to abate in the foreseeable future.

In view of the large dollar investments required in LNG import projects[54] and the emergence of international competition for LNG supplies available for export,[55] stable policy and expeditious governmental action are crucial.[56] It is doubtful that further study and review as proposed by DOE will yield many insights which earlier studies by the FPC overlooked.

Nevertheless, if DOE proceeds expeditiously with its announced review and establishes a regulatory framework conducive to LNG import applications, the stage may be set for expanded gas supplies for U.S. consumers. If not, yet another promising source of interstate gas supply may become tied up by federal regulatory restrictions.

2. *Pipeline Imports From Mexico*

Mexico is also a potential source of imported natural gas for the

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tied to the price of imported fuel oil in New York Harbor, and was also subject to renegotiation every four years. Based on estimated yearly deliveries of 168 BCF, the increased cost of the new contract is thus a minimum of roughly $134 million per year. Trunkline LNG Co., *supra* note 40.

Administrative delays combined with environmental opposition have troubled the Easgogas LNG project as well and resulted in a virtually completed receiving terminal on Staten Island, designed to receive LNG destined largely for New Jersey consumers, remaining empty and unused during the 1976-77 winter gas supply emergency.

54. For example, the five recent liquefaction plants built at Kikda and Arzew, Algeria are estimated to cost roughly $1.5 billion. OIL & GAS J. 60-61 (1977). The new generation of specially-designed cryogenic tankers used to carry LNG may cost upwards of a hundred and fifty million dollars per ship.

55. When the Eascogas project to bring Algerian gas to the U.S. East Coast faltered due to regulatory delays, Sonatrach was quickly able to resell a large portion of the reserves to Western European companies. The Japanese presently import significant quantities of LNG from East Asian sources and thus are real competitors for Indonesian and Brunei supplies.

56. The importance of the need for certainty was underscored in COMPTROLLER GENERAL REP., THE NEW NATIONAL LIQUEFIED NATURAL GAS IMPORT POLICY REQUIRES FURTHER IMPROVEMENTS (1977).

future. On August 11, 1977, a group of six major interstate pipeline companies filed an application with the FPC for authority to import by pipeline up to two billion cubic feet of natural gas per day to be purchased from Petroleos Mexicanos (PEMEX), a Mexican state-affiliated oil and gas company. The asking price, based on a formula tied to the price of No. 2 fuel oil in New York harbor, was calculated to be about $2.60 per MCF. Following the creation of the Department of Energy on October 1, 1977, the Section 3 import application was transferred from the FPC to the office of the Secretary.

Despite the undisputed need for the new supplies, the Energy Secretary took the position that the $2.60 price was too high. While negotiations as to price were pending, Senator Adlai Stevenson (D-Ill.) on October 19, 1977, introduced Concurrent Resolution 59 expressing the sense of the Senate that the $2.60 price was "unreasonable" and urging the Export-Import Bank to refuse to assist in financing the project unless the gas was to be sold at a "fair and reasonable" price. As explained by Senator Stevenson: "In my judgment, this price is unreasonable. It is higher than present prices for imported natural gas and unregulated domestic gas. I do not believe Eximbank should go ahead with its financing until we are assured of a reasonable price for U.S. imports of gas from the project."[57]

Secretary Schlesinger stood firm on the price issue[58] and on December 22, 1977, PEMEX suspended its sales offer and announced it would not renew the tentative agreeent when it expired on December 31, 1977, and the parties have remained at a stand-off. While there is undoubtedly a good deal of bargaining involved on both sides,[59] and agreement may later be reached on the price term, the importance of additional supplies of more than 700 BCF per year—more than 5 percent of currently flowing interstate supplies —should not be underestimated.

D. SYNTHETIC NATURAL GAS (SNG) FROM LIQUID HYDROCARBON FEEDSTOCKS

Another gas supply option available to gas companies is the manufacture of synthetic natural gas (SNG). SNG plants convert a variety of liquid hydrocarbon feestocks (such as naphtha, propane, bu-

57. *Congressional Record*, S. Con. Res. 59, 95th Cong., 1st Sess., 95 CONG. REC. 17371 (1977). The Resolution was referred to committee and as of the end of 1977, no action had been taken.

58. DOE Staff had recommended that the price should be no higher than $2.16 per MCF, the price for Canadian pipeline imports.

59. Both sides have a strong bargaining position. Mexican gas represents an easily available new source of supply which the gas hungry U.S. markets could easily use. On the other hand, since it would be transported by conventional pipelines, the U.S. seems to be virtually the only market for gas which might otherwise be flared. However, an agreement to pay $2.60 for Mexican imports might trigger Canadian demands for comparable prices. Sooner or later an agreement will likely be reached.

tane, and natural gas liquids) into pipeline quality synthetic gas. Utilizing commercially proven technology, SNG facilities are particularly advantageous in view of the short lead times—some two to three years—needed to move from planning to online operation.

The final cost of the synthetic product is much more heavily dependent on feedstock costs than on capital or operating costs.[60] The quintupling of crude oil prices since 1973 has thus adversely affected the economics of SNG manufacture, pushing the price of a thousand cubic feet of SNG from around $1.50 in 1973 to some $3.50 to $4.50 or more today.

Under the Emergency Petroleum Allocation Act of 1973, 15 U.S.C. § 751 *et seq.* (Supp. III 1973), the Federal Energy Administration (FEA)[61] was charged with the responsibility for allocating refined petroleum products, including those products used as SNG feedstocks. In the competition for feedstock allocations, SNG use of naptha has consistently been given a lower priority than other users, particularly the petrochemical industry.

On July 31, 1974, the FEA, following a period of notice and public comment, added Special Rule No. 1 to Subpart A of the Mandatory Petroleum Allocation Regulations, 10 C.F.R. Part 211. The FEA's Statement of Policy accompanying the new regulation condemned SNG manufacture as a "thermally inefficient" use of energy resources and promulgated new SNG feedstock allocation regulations based on a policy which "in general discourages allocation of scarce petroleum resources to manufacturers of SNG."[62] Indeed, the agency explicitly recognized that its regulations, although allowing existing plants to continue to receive allocations for present production capacity, would effectively preclude the construction of new plants. "The FEA recognizes that . . . the statement of policy and the special rule issued today will operate to eliminate SNG manufacture from liquid hydrocarbon feedstocks as a supplemental supply alternative for the majority of [gas transmission and distribution] companies."[63] FEA suggested that the gas industry pursue other alternatives such as coal gasification and increased domestic exploration and resource development.[64]

FEA's assessment of the restrictive impact of its new policy has been borne out. Since the policy was implemented in August of 1974,

60. In some cases the cost of naphtha feedstock accounts for as much as eighty percent of the finished product cost.

61. Actually, the FEA did not come into existence until the Federal Energy Administration Act, 15 U.S.C. §§ 761-86 (Supp. 1975), was passed by Congress in 1974. At the time the EPAA was enacted, product allocations became the responsibility of the Federal Energy Office (FEO), an office within the executive office of the President. Under the Department of Energy Organization Act, the authority and responsibilities of the FEA wede transferred to the Energy Secretary. *See* DOE Act, *supra* note 14, § 301(a).

62. 39 Fed. Reg. 27910, 27911 (1974).

63. *Id.* at 27912.

64. *Id.*

not a single new plant has been constructed and a number of planned projects have been deferred indefinitely or cancelled, largely as a result of the inability to obtain access to a feedstock supply.

On July 20, 1976, FEA declared that naphtha was no longer in short supply, and amended its allocation regulations to decontrol all uses of naphtha *except for use in SNG manufacture.*[65] The restrictive policy was retained on the grounds that an environmental impact statement was required before naphtha could be decontrolled for SNG use.[66]

The Carter Administration recognized that FEA's restrictive SNG feedstock allocation policy was not consistent with the nation's energy needs and took initial steps to loosen the restrictions. The National Energy Plan published in April 1977 declared:

> The Nation's current policy toward synthetic natural gas (SNG) made from petroleum feedstocks is not satisfactory. Existing regulations favor the allocation of naphtha and other potential SNG feedstocks to the petrochemical industry, and effectively preclude their use by gas utilities. This policy has discouraged the construction of new SNG plants. Yet, the 13 SNG plants that were operating last winter provided the additional margin of natural gas supply that kept several areas of the country from shutting off residential users during the coldest months.[67]

Subsequently; FEA published its Final Environmental Impact Statement with respect to the use of petroleum feedstocks for SNG manufacture and conceded that its earlier finding that SNG was an inefficient use of resources had been wrong.

> The range of efficiencies of SNG for certain end uses has been found to be comparable to that of other fuels for the same uses. Despite the limitation of these determinations, in a reversal from the 1974 Statement of Policy, FEA does not find at this time that SNG produced from light petroleum products is significantly more inefficient for such end uses than alternatives compared.[68]

Despite the findings that (1) naphtha was no longer in short supply; (2) SNG use of naphtha is not inefficient compared to compar-

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65. *See* 41 Fed. Reg. 30096, 30097 (1976) specifically finding that "[n]aphthas . . . are not now in short supply."

66. FEA did not explain why an impact statement was not considered necessary prior to opening up access to naphtha on the part of all other users.

67. National Energy Plan, at 57 [hereinafter cited as NEP].

68. 42 Fed. Reg. 44554 (1977). The actual EIS findings on this point were far more favorable to SNG than implied by FEA in the notice. Exhibit 8.3-4 reprinted below as Table I indicated that for residential space heating and commercial water heating, the overall efficiency of SNG was *higher* than for any other non-gaseous fuel. SNG even ranked as a *more efficient use of resources than Alaskan* gas.

able alternative energy sources; and (3) SNG plants provide a crucial component of gas supply over the short term; FEA nonetheless *retained* controls on the use of naphtha for SNG manufacture, requiring all proposed plants to obtain an allocation assignment.[69] And while the revised regulations state that the 1974 Statement of Policy discouraging the construction of new plants no longer accurately reflects FEA policy,[70] they continue to impose numerous restrictions which were not applied to any other present or potential naphtha user. Included are requirements that certain feedstocks be imported, and that operators maintain a 30-day peak load supply of all feedstock in "readily accessible" storage. In addition, the volumes of feedstock allocated to the plant must be calculated so that, when added to all other projected sources of natural gas supplies, SNG production will just allow the plant owner to meet specified high priority gas uses under design winter conditions. The new regulations also require applicants for an allocation to submit information as to a "laundry list" of factors which FEA (now DOE) apparently will continue to take into account in determining whether or not to grant a feedstock allocation.[71]

Finally, the new regulations have put all potential SNG plant operators on notice that even if an allocation were granted, DOE will, in its discretion, review manufacturing operations under the scope of the allocation and *may unilaterally adjust or rescind* the allocation,

69. 42 Fed. Reg. 54403 (1977).
70. *See, e.g.*, 42 Fed. Reg. 44551 (1977).
71. (d) *New Applications.* Any application for adjustment or assignment shall contain, in addition to the information specified in §§ 205.24 or 205.34 of Part 205 of this chapter, the following information:

(1) The applicant's projected pipeline supply of natural gas for the period for which the allocation is sought.

(2) All other current and projected sources of gas supplies, including, but not limited to, underground storage, liquefied natural gas (LNG), propane air, SNG from coal, and the efforts the applicant has made to obtain such supplies.

(3) The projected demand for gas (design winter and other estimated—by voume and number of customers) in the appiicant's market area, by consuming sector (set forth by FPC priority or other readily identifiable categories with separate identification of industrial boiler fuel requirements), including estimates of that portion of the demand for which the SNG will be required.

(4) The projected rate of growth of gas consumption in the applicant's market area for each consuming sector.

(5) The projected schedule of curtailments of pipeline supplies of gas for the allocation period, and a description of any curtailment plan in effect for the market area to be served by the SNG plant and an estimate of the effect of such plan.

(6) A description of the rate structures of the SNG manufacturer including pricing policies for SNG and other supplemental sources of gas.

(7) A complete description of the proposed feedstock, including the supplier(s), volumes, prices, and technical specifications of the feedstock.

(8) The design and practical feedstock capacity of the SNG plant.

(9) The proposed product needed for BTU-enrichment requirements of the SNG plant, including source, volumes, and price.

(10) The proposed SNG plant fuel, including source and volumes.

(11) Other information which may be identified by FEA as necessary for a comprehensive evaluation of the application.

42 Fed. Reg. 54403, 54407 (1977).

hardly an encouraging prospect for someone contemplating the large investment involved in SNG plant construction.[72]

The DOE has now assumed FEA's authority over feedstock allocations pursuant to Section 301(a) of the DOE Act. Allocation descisions previously made by FEA have been delegated by the En-

TABLE I

Exhibit No. 8.3-4

COMPARISON OF OVERALL ENERGY EFFICIENCIES FOR SELECTED TOTAL TRAJECTORIES

TRAJECTORY	OVERALL EFFICIENCY (Percent)
RESIDENTIAL SPACE HEATING	
Imported LPG	62-70
Imported LNG	59-67
Offshore Natural Gas	56-64
SNG from LPG	55-63
SNG from Naphtha	55-63
Alaskan Gas (Arctic Gas Pipeline)	52-59
Distillate Fuel Oil	51-58
Coal	35
Residual Fuel Oil-Produced Electricity	27.5
Coal-Produced Electricity	24.0
Nuclear Power-Produced Electricity	18.5
COMMERCIAL WATER HEATING	
Imported LNG	57
Offshore Natural Gas	54.6
SNG from Naphtha	53
SNG from LPG	53
Alaskan Gas (Arctic Gas Pipeline)	50
Coal	45
Distillate Fuel Oil	44
Distillate Fuel Oil-Produced Electricity	27.4
Coal-Produced Electricity	23.1
Nuclear Power-Produced Electricity	18.0
PROCESS STEAM PRODUCTION FOR INDUSTRIAL SECTOR	
Distillate Fuel Oil	59
Imported LNG	57
Offshore Natural Gas	54.5
SNG from Naphtha	53
SNG from LPG	53
Alaskan Gas (Arctic Gas Pipeline)	50
Coal	45

SOURCE: Exhibit 8.3-4, Final Programmitic Environmental Impact Statement on the Allocations of Petroleum Feedstocks To Synthetic Natural Gas Plants (August 1977) at p.8.3-5.

72. (g) *Review.* Each firm operating an SNG plant shall be subject to review at the discretion of FEA to assure that the firm is continuing to operate the plant in accordance with the factual basis for and the terms and conditions of the allocation order and the applicable regulations. On the basis of such a review the FEA *may determine that adjustment or rescission of the allocation is appropriate.* Any such rescission or adjustment to an allocation order shall be upon reasonable notice given to all interested parties,

ergy Secretary to the Administrator of ERA.[73] While the new regulations appear to contain significant changes in former policy, it is still too early to tell whether they will be applied in such a way as to encourage or effectively discourage expansions of SNG manufacturing capacity.

III. EVALUATION OF THE CARTER ADMINISTRATION'S POLICIES CONCERNING GAS SUPPLIES

A. ADMINISTRATIVE IMPLEMENTATION

As indicated by the preceeding survey, the Carter Administration has brought little change to gas issues in 1977 and early 1978. What change there has been, has tended to further discourage development of available options for expanding gaseous fuel supplies.

Although the FERC is primarily an adjudicatory commission intended to be independent from the Executive Branch in deciding litigated cases before it, its members are presidential appointees and wield considerable policy-making authority. Nevertheless, FERC has in essence carried forward the prior policies of the FPC respecting supplemental supplies for growth. With respect to the "finders-keepers" policy for supplemental supplies developed by distribution companies, the *NOMECO* decision, *supra*, announced that a comparative needs test would be used in the future; only if the distributor needed the supplemental supplies more than other potential purchasers would Commission approval be forthcoming. And, the distributor would have the burden of demonstrating its greater need as part of the application.[74]

As detailed above, FERC has reaffirmed the FPC's policy of approving expansions of storage capacity only if the purpose of the new capacity is to serve existing load and not to add new customers.

FERC's use of curtailment cases to implement a policy toward new supplies and load growth remains ambiguous. And although the "saver's keepers" principle was explicitly adopted in the *Cities Service* proceeing, Congressional prodding was also involved.

The impact of the change in administrations might be expected to be felt more strongly on the issues of natural gas imports and

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with an opportunity for a hearing provided to the operator of the affected SNG plant.

Id. (emphasis added). As with the decision to reserve the right to issue supplemental orders in the *Pac Indonesia* LNG import case, the DOE's insistence on the need to "retain flexibility" introduces a significant new source of uncertainty and thereby increases the risks (and the costs) involved in planning, financing, and constructing new SNG manufacturing facilities. Whether existing policy will continue to discourage expansions in SNG capacity remains to be seen. At present, however, the odds are that DOE's policies toward SNG feedstock allocations will surely prevent SNG from playing as significant a role as might have been the case had SNG manufacture been treated on a par with other users.

73. 42 Fed. Reg. 60726 (1977) (DOE Delegation Order No. 0204-4, ¶ 1).

74. NOMECO, *supra* note 6, at 8.

SNG manufacture since decision-making as to the role of these supply sources is now directly within the DOE, a cabinent-level department. Initial action by DOE in these areas, however, has tended to impose *greater* restrictions on expansions of these supply alternatives than in the past.

Although DOE is still in the process of formally developing a comprehensive policy on LNG imports, its apparent adoption of incremental pricing in the *Pac Indonesia* proceedings, if applied to other projects, will undoubtedly act as a damper on new supplies. Similarly, the imposition of more stringent environmental conditions unrelated to safety concerns, and the express reservation of the authority to review the project and issue supplemental orders, will not encourage expanded LNG imports. Indeed, although the National Energy plan emphasized that the prior import recommendations of Energy Resources Council would be replaced by a "more flexible policy that sets no upper limit on LNG imports," the NEP then estimated that LNG imports may provide as much as .5 to 1.0 TCF of new supplies—*less than half* of the total amounts that would have been allowed under the prior guidelines under the Ford Administration.[75]

The inability of DOE to reach agreement with the Mexican government on a price for pipeline imports is further indication that the Carter Administration prefers a policy of allocating gas shortages by regulation rather than encouraging new supplies and allowing allocation by the price mechanism.

The NEP criticized the FEA's prior policy of discouraging the development of SNG manufacturing facilities through denial of feedstock allocations and announced that a federal task force would work with the gas industry to "identify those areas of the country where a limited number of additional SNG plants should be built to help meet the critical peak load needs for gas over the next 5 to 7 years."[76] Yet as of early 1978, there had been no decision by DOE of areas where new plants should be constructed. And while the petroleum feedstock allocation regulations restricting access by SNG manufacturers were indeed revised in September of 1977, the new regulations imposed a number of restrictive conditions not contained in the prior regulations, including provisions for review of operations "at the discretion" of DOE and possible rescission of the feedstock allocation.[77]

On balance then, the Carter Administration's policy towards supplemental gas supplies and load growth, as actually implemented

75. NEP, *supra* note 67, at 57.
76. *Id.* at 58. The NEP foresaw production of close to one trillion cubic feet of SNG a year in the 1980's. *Id.* This would represent an increase of some 500 percent from the 201 BCF of SNG manufactured during 1975.
77. *Id.* at 29.

during 1977, tended to discourage the development of new sources of gaseous fuels. That policy is even more pronounced in the proposed National Energy Act (NEA). The NEA, through a series of penalties and some incentives, would operate to force electrical utilities and industries to convert from gaseous fuels to nuclear power and coal. The rationale for this policy is the stated belief that natural gas production from traditional sources will continue to decline in the future and that residential and commercial markets can only be protected by forcing other gas users to burn non-gaseous fuels. The NEP states explicitly that:

> In the short term, the new sources of natural gas [Alaskan gas, OCS, "tight" formations, geopressurized zones, SNG, and imported LNG] will not be able to reverse the downward trend in total U.S. production. Supplies for the residential and commercial sector will have to be obtained by diverting gas from electric utilities.[78]

The variety of federal policies discouraging supplemental gas supplies and distributor load growth, developed on an ad hoc basis throughout the 1970's, have thus been embraced by the Carter Administration, and will apparently be integrated into a comprehensive policy which has as a stated consequence a rapidly declining role for gaseous fuels in the national energy picture. Whether such a policy is justified in terms of overall policy objectives is the topic to which we now turn.

B. THE UNDERLYING ASSUMPTIONS

The Carter Administration's policies limiting the development of supplemental gas supplies apparently attempt to achieve two basic goals. First, they seek to protect *existing* residential and commercial gas users from both shortages and higher prices. Second, and as a primary means to the goal of protecting those preferred customers, the Administration's proposals seek to husband known gas resources by effectively forcing other gas users to shift to alternate fuels.

Whether the Carter Administration's proposals will attain these goals in turn rests on the validity of two assumptions that are crucial to the program's success but rarely analyzed or discussed. The policies assume first of all that natural gas is essentially an *irreplaceable* physical resource in *fixed supply*, and which is being *rapidly* depleted. For example, the Energy Policy and Planning Office of the President has estimated that even with the higher well-

78. *Id.* at 19.

head price allowed under the President's proposals, domestic natural gas production would decline from 1976 production levels of 19.9 TCF to 16.9 TCF in 1978 and 16.6 TCF by 1980, before rising slightly to about 17.0 TCF by 1985.[79] If the Administration is correct in assuming that natural gas is a fixed and depleting resource for which there are no readily available substitutes, it follows that existing high priority customers should have first call on production, as provided for by the Administration's National Energy Act.

Implicit in the assumption that natural gas is essentially irreplaceable is the second key assumption of the Carter Administration policies: the expansion of electric generating capacity is preferable to the development of supplemental gas supplies. This implicit electric "bias" is seen most clearly in the fuel balances projected by the NEP. In residential and commercial markets, natural gas use is projected to increase only 5 percent from 1976 to 1985; use of electricity in these market sectors is expected to jump more than 33 percent.[80] In industrial applications, the Plan provides for minimal growth of two percent in gas use by 1985, while industrial use of electricity is expected to shoot up nearly 70 percent,[81] nearly thirty-five times as much. The fuels for this expanded electric generating capacity will be coal (projected to increase about 70 percent) and nuclear (to increase 280 percent).[82] In 1985 the NEP projects that coal will be the nation's premier fuel, as shown by Table II below.

TABLE II

Market Share Of U.S. Domestic Energy Supplies In 1985 Under NEP[83]

Fuel	Percentage of Supply
Coal	36%
Crude Oil	27%
Natural Gas	22%
Nuclear	10%
Other	4%
Refinery Gain	2%

The policy preference for electricity thus assumes in large part that the nation's abundant coal resources are best used in boiler fuel in coal-fired industrial facilities and for central station electricity gen-

79. EXECUTIVE OFFICE OF THE PRESIDENT, ENERGY POLICY AND PLANNING STAFF, NATIONAL ENERGY PLAN: OIL AND GAS SUPPLY 76 (1977). Without the plan, production is projected to decline from 16.9 TCF in 1978 to 15.9 TCF by 1985. *Id.* *See also* NEP, *supra* note 67, at 19.

80. *Id.* at 95.

81. *Id.*

82. *Id.* The magnitude of the percentage increase in nuclear power is due in part to the relatively low base of existing nuclear generating capacity.

83. *Id.* at 96 (figure IX-1) (totals may not add due to rounding).

eration. Similarly, the various incentives and penalties aimed at shifting industrial users of natural gas to direct applications of coal presupposes that this use of coal is preferable for industrial applications to alternative sources of gaseous fuels.

C. AN ASSESSMENT

These underlying assumptions are open to serious question. Indeed, in a number of instances they appear only weakly supported by the available evidence.

1. *The "Irreversible" Decline In Natural Gas Production From Traditional Sources*

"[N]either Government policy nor market incentives can improve on nature and create additional oil or gas in the ground."[84] While there are obviously physical parameters limiting natural gas reserves, the Administration appears to ignore the important economic parameters defining the resource base at any given time. Thus, in many instances the *unit* cost of producing a gas reservoir may be above prevailing price levels merely because the volume of reserves discovered by a given well is small in relation to the costs of drilling and production. In other words, in a very real sense, government policy and market incentives *can* and *do* "create" additional gas reserves by altering the boundaries of economic production.

The Carter Administration policies, however, appear to focus only on gas reserves producible at generally prevailing price levels in concluding that conventional production will fall to 16.9 TCF in 1978. In fact, however, natural gas production appears to be responding to the sharply increased price levels of recent years. Production apparently began to turn up during the fourth quarter of 1976, several months after the FPC tripled the ceiling price for new interstate sales in Opinion No. 770, *supra*.[85] More recently, DOE has estimated that marketed production through October of 1977 remained approximately .3 percent *above* the comparable 1976 levels.[86] If this trend continues—and in light of continuing record high levels of domestic drilling activity, this seems a reasonable assumption—production for 1977 would be roughly 20.0 TCF. The Administration's estimate of 16.9 TCF of conventional production in 1978 appears very seriously understated in light of these figures. Indeed if existing price levels

84. *Id.* at xi.
85. *See* FED. POWER COMM'N, GAS SUPPLY INDICATORS: FOURTH QUARTER 1976 AND ANNUAL SUMMARY (May 1977). Marketed production was up .3 percent over the same quarter in the preceding year—the first such increase since 1972-73.
86. ENERGY INFORMATION AD., MONTHLY ENERGY REVIEW: December 1977 at 25. To reach the Administration's 16.9 TCF estimate, production would have to plummet some 3.1 TCF or more than 15 percent in a single year. In contrast, the steepest yearly decline, experienced from 1974 to 1975, was approximately 1.5 TCF or under half as much.

are adequate to call out this level of supply in the prevailing climate of uncertainty as to future legislation affecting price and production, policies based on the assumption of a continuing rapid decline in production merit serious reconsideration.[87]

2. *The "Irreplaceability" Of Natural Gas Supplies*

Nor should conventional sources of gas supply alone be considered in assuming that the existing stock of natural gas is "irreplaceable". Over the short term, expanded storage and conservation may make more gas available to high priority users. Similarly, SNG facilities can be constructed and placed on line within two to three years to bridge the gap to when other supplies become available. Natural gas produced from such unconventional formations as Devonian shales may also make a significant contribution.[88] Other supply sources which are commercially feasible today, include imported LNG, pipeline imports from Mexico, and coal gasification.

The NEP states that "[t]he opportunities for supplementing domestic production of natural gas with imports are small."[89] As detailed above, if this is indeed the case, it is primarily because DOE (and the FPC before it) tended to discourage imports through regulatory delay, shifts in policy, and perhaps most importantly, through unwillingness to allow imports at prices in excess of current U.S. levels.[90] Understandably, it would be a difficult task to justify paying, for example, $2.60 per MCF for Mexican production while denying American producers a similar price. But the dilemma merely underlines the fact that, over the near term at least, the current gas shortages are fundamentally shortages of gas at politically acceptable price levels rather than shortages of physical resources themselves.

A variety of processes exist for manufacturing substitutes for

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87. The validity of the Carter Administration's assumption as to the size of the conventional resource base has also been drawn into question by the controversy surrounding the Market Oriented Program Planning Study (MOPPS) initially developed by ERDA in March and April, 1977. According to the initial draft, which was subsequently withdrawn, at well head prices of around $3.00 per MCF, production from a variety of high cost production areas would become attractive, expending the existing base of known reserves by tremendous amounts. *See Hearings on Market-Oriented Program Planning Study before the Senate Committee on Energy and Natural Resources*, 95th Cong., 1st Sess. (1978). The Study has been subjected to extensive review and a revised version is expected in the first half of 1978.

88. *See* OFFICE OF TECHNOLOGY ASSESSMENT, GAS POTENTIAL FROM DEVONIAN SHALES OF THE APPALACHIAN BASIS (1977).

89. NEP, *supra* note 67, at 16.

90. There are unquestionably substantial additional supplies of natural gas on the world market today. Unfortunately, the marginal price of additonal petroleum—a close substitute in many cases—is, of course, controlled by the Organization of Petroleum Exporting Countries (OPEC). As long as that price level for marginal energy supply is maintained, all other supplies of energy on the world market will tend to be priced at comparable levels. While DOE may believe that it is unfair for American consumers to pay a monopoly price for imports, the sad fact remains that the OPEC-imposed price is the price for hydrocarbon supplies at the margin. Unless and until that fact is changed, the prices of competing fuels will all tend to move towards the margin.

natural gas. SNG from liquid hydrocarbons is one such option which is available for the short term. But pipeline quality gas can also be made from coal, the nation's most abundant fossil resource. A number of recent studies estimate that a full scale coal gasification facility could produce high BTU gas at a cost of approximately $4.30 per million BTU[91] delivered to the user. While this is substantially above the current price for natural gas, it is significantly less expensive than a comparable quantity of electrical energy produced from coal.

Indeed, a memorandum to the Energy Secretary from DOE's Office of Policy and Planning states

> If the NEP and production incentives are not fully successful in making gas supplies available to priority users, HBG [high-BTU coal gas] delivered in the home at about $5.00 per million BTU's is preferable to electricity costing about $10 per million BTUs [sic] for priority use such as space heating.[92]

The memorandum concludes that

> without favorable federal action, no HBG project is likely to proceed. The ability to sell HBG at production cost is a prerequisite for any HBG project. This requires favorable FERC treatment allowing a full cost of production gas price and rolled-in pricing. . . . Loan guarantees and/or "all events" tariffs would encourage several projects which are presently proposed.[93]

Substitute gaseous fuels can also be made from a variety of renewable resources. Methane can, for example, be manufactured from horse or cow manure, from plant material grown and harvested specially for gas manufacture, or even from municipal garbage.[94] These biomass processes (producing a substitute gaseous fuel frequently termed "biogas") are in an earlier stage of development than coal gas and the economics of commercial facilities are not yet well defined.[95]

Nevertheless, the assumption that existing natural gas reserves are an irreplaceable resource which must be carefully husbanded for existing residential and commercial users appears ill-supported. In-

91. Production costs themselves would be on the order of $3.70 per million BTU's with transmission and local distribution costs making up the remainder. *See Prospects for Coal Gasification Information Memorandum* at 1 (internal DOE memorandum to the Secretary dated November 16, 1977).

92. *Id.* at 3.

93. *Id.* at 27.

94. *See, e.g.*, Wise, *Biomass: Progress and Plans* in ENERGY TECHNOLOGY IV: CONFRONTING REALITY, PROCEEDINGS OF THE FOURTH ENERGY TECHNOLOGY CONFERENCE IN WASHINGTON, D.C. 434-54 (1977); JACKSON, ENERGY FROM SOLID WASTE 106-24 (Noyes Data Corp. 1974).

95. *See, e.g.*, Wise, *supra* note 94, at 445-46.

deed, it is far too often forgotten that the gas distribution industry has depended on manufactured gas supplies for most of its century and a half existence.[96] It was only in the 1940's and early 1950's that natural gas production from Texas, Louisiana, and other Southwest areas was finally brought to the industrial Northeast. The most important advantage of *natural* gas over manufactured gas at the time was natural gas' lower cost.[97] As the economics of gas production have changed over time, the cost advantage of natural gas has been eroded.

3. *Existing Residential And Commercial Users Will Be Protected By Forcing Other Markets To Shift To Coal Or Nuclear Fuels*

This assumption follows from the belief that gas supplies are a fixed, depleting resource. But even if it is conceded that supplemental gas supplies may be readily developed as traditional natural gas reserves decline, it may be argued that existing residential and commercial customers should be protected from the higher costs of new supplies by reallocating to these preferred customers the low-cost, existing supplies, while forcing other customers to absorb the cost of higher-priced substitutes. This is, of course, precisely an object of the Carter Administration proposals.[98]

This approach, however, ignores the high costs associated with under-utilized pipeline capacity and in fact would unduly *increase* the cost to consumers as compared to a policy of developing additional supplies for new as well as existing customers.

The transmission and local distribution of natural gas are highly capital-intensive activities. A large portion of costs of gas at the burner tip are related to the fixed costs associated with constructing, operating, and maintaining the enormous investment in pipelines, compressor stations, and the like.[99] As a result, the unit cost of delivered gas tends to be sensitive to throughput, that is to say, the number of units over which the fixed capital-related costs are spread.

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96. The manufactured gas of this period had a substantially lower BTU content than natural gas. With the shift to natural gas over the past decades, the stock of gas-fueled equipment and appliances has been replaced with equipment which cannot easily make use of low BTU gas. Accordingly, the older technology for manufacturing gas cannot be used to produce pipeline quality gas sought today. Low BTU gas could be used in many industrial applications, however.

97. The low cost of natural gas initially was due in significant part to the fact that natural gas was largely a by-product of oil production. Until markets developed, it was often treated as an undesirable by-product for which the producer was happy to get even a low price. As more and more natural gas was discovered as a result of exploration specifically for gas, the by-product quality of natural gas disappeared. In addition, more refined exploration techniques in use today frequently allow exploration for natural gas reservoirs not associated with petroleum.

98. *See* NEP, *supra* note 67, at 94.

99. *See* 1 FED. POWER COMM'N, NATIONAL GAS SURVEY 60 (1975).

This need to make full use of capacity puts a premium on maintaining operations at a high load factor.[100]

The importance of this aspect of gas industry operations is magnified by the fact that residential and commercial gas sales consist largely of space heating requirements that vary sharply with corresponding swings in temperature. Utilities are under a legal duty to provide adequate service within their market area. Because the company must have adequate capacity to service its customers' peak-day temperature sensitive needs, substantial capacity will be unused during the remainder of the year. Unless the unused transportation capacity can somehow be filled during the offpeak season, existing customers that benefit from the capacity needed to serve their peak-day demands must pay for the excess "valley" capacity. To the extent capacity remains unused in off-peak seasons, the unit cost of the gas actually delivered will be higher than necessary.

The various operating and marketing practices designed to make use of this unused capacity are known as "load balancing techniques", and are an important part of gas company operations and planning.[101] Some of the more common practices include interruptible sales during off-peak seasons; storage (both as liquefied natural gas or "LNG" above-ground, and in suitable geological formations underground); year-round industrial sales which show little seasonable variation; and propane-air peaking facilities.

The combination of high capital costs and temperature-sensitive sales means that in many cases it may be cheaper for distribution company and consumer alike to purchase supplemental supplies of gas at a price in excess of flowing gas rates in order to increase the total units of gas over which the fixed costs are spread: filling the "empty pipe" with expensive supplemental supplies may reduce fixed costs per unit of throughput significantly. Put another way, there is a significant "surcharge" imposed by underutilization of pipeline capacity.[102]

Preventing a gas distributor from attaching new customers thus imposes significant cost on utility and consumer alike. As public utilities subject to extensive regulation of rates and service by state public utility commissions, distribution companies are given the *opportunity* to earn a rate of return prescribed by the appropriate regulatory

100. One definition of a company's load factor is the percentage ratio of *average* deliveries to *full capacity*. Thus, a distribution company with enough unused capacity to double its present throughput would be operating at roughly a 50 percent load factor.

101. Load balancing is of particular concern to gas distribution companies. While long-distance transmission lines can usually operate with a load factor in the 70 to 95 percent range, distribution companies, engaged in the business of ultimately making gas service available to temperature sensitive residential and commercial users, usually operate in the 35 to 50 percent range.

102. *See* BUREAU OF NATURAL GAS, THE FUTURE OF NATURAL GAS: ECONOMIC MYTHS, REGULATORY REALITIES (1976). The report estimates that the surcharge may rise to some roughly 83 cents per MCF by the year 2000 for residential consumers.

body. The utility is not, however, assured of earning the approved rate of return. If, for example, the company is unable to attach new customers to replace customers lost over time, earnings will fall. In addition, a decline in sales tends to increase the distributor's unit costs, thereby threatening its competitive position vis-a-vis suppliers of other sources of energy. Indeed, in light of the rapidly increasing costs of merely maintaining the existing system of distribution lines,[103] unit costs will increase even if sales only remain constant. Attrition of earnings imposes a further cost on the company when seeking financing as higher interest rates and increased coverage requirements may be imposed by the lender to compensate for the utility's less favorable earnings position.

A no-growth posture, if imposed indefinitely, could lead to a vicious circle where increasing unit costs induce some customers (primarily industrial and larger commercial users) to convert to alternate fuels, thereby decreasing distributor sales further and increasing the unit cost of serving the remaining customers. The increased costs in turn encourage more customers to convert to alternate fuels, thereby repeating the process. Further, since industrial sales tend to be far less sensitive to temperature changes than do residential and commercial loads, erosion of industrial markets requires a distributor to adopt alternate (and far more expensive) load balancing strategies.

The party that stands to lose most from an enforced policy of zero or negative growth is the residential and small commercial customer theoretically sought to be protected. This portion of the market has the least freedom to shift to alternative fuels due to the sharply higher relative costs of conversion.[104]

As costs escalate, the remaining customers must absorb ever increasing *unit* costs. Hence, as the utility's industrial and large commercial markets erode due to growth restrictions and the gas company's worsening competitive position, the increasing burden will tend to be imposed more and more on the remaining customers, which are increasingly the politically sensitive residential consumers.

Although it is difficult to quantify the extra costs associated with underutilized capacity, one study has estimated that in 1975 residential and commercial users paid over $1.1 billion more for the same volumes of gas than if pipelines had been operating at full capacity.[105]

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103. For example, according to the Handy Whitman Index of construction costs, the cost of installing gas mains increased nearly eighty percent from 1969 to 1976. This means that the cost of necessary replacement of old pipe is far higher than the original installation cost. If sales remain the same, unit costs will increase accordingly.

104. *See* Jensen & Stauffer, *Implications of Natural Gas Consumption Patterns for the Implementation of End-Use Priority Plans: Report To The Office of General Counsel, General Motors Corporation* in ARTHUR D. LITTLE, INC. STUDY.

105. H. ZINDER & ASSOCIATES, INC. FACTORS CRITICAL TO WELLHEAD PRICES FOR NEW NATURAL GAS SUPPLIES, INCLUDING THE CONSUMER BENEFITS OF SUPPLY ELICITING PRICES OVER THE INCREASING TOTAL COSTS OF CURTAILMENTS TO THE CONSUMER (1975) (Statement 2). *See also* BUREAU OF NATURAL GAS, *supra* note 102.

There are several alternatives to increasing residential and small commercial customers' rates to cover the increased costs of service. First, through its ratemaking powers, the state utility commission may force the utility's stockholders to bear at least a portion of these increased costs rather than allowing them to be passed along to consumers.[106] Alternatively, the state commission might order some type of "life-line" rate to be extended to certain small users, thereby requiring other users to subsidize those favored customers.[107]

Realistically, it is unlikely that the full brunt of cost increases will be imposed equally on all remaining customers. Political pressures to protect the small consumer may well result in some combination of forcing either the utility or the remaining large customers to shoulder a disproportionate share of the higher unit costs. Of course, if the situation went so far as to push the utility toward bankruptcy, subsidies of tax monies would be required to maintain "essential" services to the dwindling group of remaining customers.

The Carter Administration energy proposals would allocate new supplies of gas increasingly to residential and commercial users while allocating higher costs initially to industrial users. The "vicious circle" of increasing unit costs discussed above, however, will make that option counterproductive in the long run.

4. *Expansion Of Electrical Generating Capacity Is A Preferred Alternative For Increasing Domestic Energy Production*

This assumption of the Carter Administration policies is the basis for the variety of incentives and penalties designed to spur the development of coal and nuclear generating facilities. Similarly, it is primarily responsible for the NEP's projection of a nearly 50 percent jump in demand for electricity between 1976 and 1985.[108] The assumption that electricity is the best domestic alternative should be examined from the perspectives of economics, resource efficiency, environmental degradation, and social impact.

Economics. As with other fuels, the economics of electricity vary widely depending on several factors, including the market sector served.[109] While electricity may be less expensive than gas (on a BTU basis) for some industrial applications, many industrial uses involve

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106. For example, the Ohio Public Utility Commission has argued before the FERC that the shareholders of Columbia Gas Transmission Corporation should bear the costs of high-priced emergency gas purchased to meet customer needs resulting from the extraordinary cold 1976-77 winter.

107. "Life-line" rates are artificially low rates on a fixed level of energy consumption, designed to assure all users—regardless of income—a minimum affordable energy supply. Life-line rates have been implemented on at least an experimental basis in a number of states on either gas, electricity, or both.

108. NEP, *supra* note 67, at 95.

109. For example, in many cases large capacity industrial use of electricity costs less than residential use due to the ability to take power at a high load factor.

processes for which gas has a "form value" over and above its heating content.[110] For these uses it may be less expensive to pay a premium price for gaseous fuels than to replace existing equipment or redesign the manufacturing process.

Unquestionably, coal gas would be far less expensive for residential users than electricity (whether generated from coal or nuclear fuels). For example, Pacific Gas & Electric Company estimates that new coal-fired electric service will cost its residential consumers between $12.90 (for space heating) and $18.80 (for clothes dryers) per million BTU's.[111] Coal gas, however, would cost roughly half as much or $6.28 for space heating. Other studies estimate that the cost advantage of coal gas is even greater.[112]

In addition, although capital costs for coal gasification are high, they are only half what is required for comparable coal-fired electricity generating capacity.[113] Even LNG importation, which requires extensive capital investment in liquefaction facilities, specially constructed tankers and receiving terminals, appears significantly less capital intensive than electricity.[114] In view of the scarcity of capital available for energy development, this is a significant factor weighing against expanding electricity capacity in place of gaseous substitutes.

Resource Efficiency. Central station generation of electricity, whether from coal or nuclear fuels, is inherently an inefficient use of resources due to the need to convert the heat generated through combustion into electrical energy.[115] The NEP recognized as much, noting

110. Such "process" gas use is defined by the FPC as "gas use for which alternate fuels are not technically feasible such as in applications requiring precise temperature controls and precise flame characteristics." 18 C.F.R. § 2.78(c)(8) (1976). It has been estimated that natural gas is used in over 25,000 industrial applications, including such diverse operations as food preparation, soldering, brazing, and fabric finishing. *See* 5 FED. POWER COMM'N, NATIONAL GAS SURVEY 309 (1975).

111. James K. A. Harral, A Fossil Fuel Choice—to Manufacture Gas or Generate Electricity (Feb. 1976) (paper presented to the American Institute of Mining Engineers meeting in Las Vegas, Nevada). Due to the relatively higher efficiency of electricity for cooking, the cost advantage of coal gas for that application, although substantial, is not as great.

112. Several recent studies can be summarized as follows:

Cost of Useful Energy Consumed for Residential End-Use (dollars per million BTU)

	Coal Gas	*Electric*
PG&E	$6.28-13.97	12.90-18.80
AGA	$6.95	14.68
DOE	$5.00	10.00

It should be emphasized that although these estimates employ differing assumptions, they all give a large cost advantage to coal gas over electricity.

113. Capital costs for 250,000 MMBTU per day are estimated at $1.3 billion for coal gasification and $2.7 billion for coal-fired generating capacity. *See, e.g.*, AM. GAS. A. COMMERCIALIZING HIGH-BTU COAL GASIFICATION: THE RATIONALE FOR IMMEDIATE ACTION 13-14 (1977). Nuclear plants tend to be even more capital intensive than conventional generating facilities.

114. In DOE Op. No. 1, *supra* note 41, capital costs are estimated at roughly $2 billion for a project to import over 500,000 MMBTU per day.

115. A good explanation written for the layman is contained in Commoner, *A Reporter At Large: Energy*, NEW YORKER, Feb. 2, 9, & 16, 1976. *See also* Lovins, *Energy Strategy: The Road Not Taken*, FOREIGN AFFAIRS (Oct. 1976).

as follows: "To the extent that electricity is substituted for oil and gas, the total amounts of energy used in the country will be somewhat larger due to the inherent inefficiency of electricity generation and distribution. But conserving scarce oil and natural gas is far more important than saving coal."[116]

In a policy whose watchwords are conservation and efficient use of resources, more attention should be paid to making efficient use of *all* resources, including coal. Indeed, in view of the adverse environmental and social impacts associated with increased coal production, every effort must be made to use coal output efficiently.

Several studies—including those done under federal auspices—conclude that coal gasification is a much more efficient use of coal than electricity generation. DOE has estimated, for example, that a high BTU coal gasification plant producing 250,000 MM BTU per day would require some 8.3 million tons of coal per year, while roughly 9.3 millon tons per year, or 12 percent more, would be required to produce comparable amounts of usable electric energy.[117]

The inefficiency of electricity generation as compared to coal gasification is confirmed by the Final Environmental Impact Study published by FEA on the use of liquid petroleum feedstocks for SNG manufacture. While the overall thermal efficiency of coal gas (before end-use) is estimated at approximately 50 percent, the overall efficiency for coal-fired electricity is 25 percent.[118]

Environmental Impact. A fundamental principle of the NEP is that national energy policy should maintain protection of the environment.[119] While recognizing that every energy source has its disadvantages, the NEP states that it is necessary to recognize hazards and risks and "to reduce them to relatively low levels."[120] Indeed, the plan explicitly declares: "The Administration intends to achieve its energy goals without endangering the public health or degrading the environment."[121]

Increased generation of electricity is unlikely to best achieve these goals. As explained above, the generation of electricity is an inherently inefficient use of energy resources. But not only does coal

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116. NEP, *supra* note 67, at xiii.

117. *Prospects for Coal Gasification Information Memorandum*, *supra* note 91 at app. C. A similar analysis prepared by AGA estimates annual coal requirements to be 8 million tons for coal gas and 11.5 million for coal-fired electricity. AM. GAS. A., COMMERCIALIZING HIGH-BTU COAL GASIFICATION: THE RATIONALE FOR IMMEDIATE ACTION 14 (April 1977).

118. FED. ENERGY ADMINISTRATION, FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ON THE ALLOCATION OF PETROLEUM FEEDSTOCKS TO SYNTHETIC NATURAL GAS PLANTS 8.1-3 to 8.1-5 (1977). In fact, the overall efficiencies of *all* methods of synthesizing gas are well above the efficiencies of electricity generation, prompting the report to conclude that: "Regardless of generation method, electrcity is the *least efficient* source of energy, with an overall thermal efficiency between 18 and 28 percent." *Id.* at 8.3-1 (emphasis added).

119. NEP, *supra* note 67, at 27.

120. *Id.*

121. *Id.* at 67.

electrification consume coal inefficiently, it also requires huge quantities of water which is a particularly scarce and valuable resource in many parts of the West where coal will be utilized. Coal-fired generating capacity sufficient to produce 250,000 MM BTU per day would require over 30,000 acre-feet of water per year, roughly 500 *percent more* than a comparable capacity coal gasification facility.[122] Moreover, the coal-fired electric facilities would produce *seventy times* as much sulfur dioxide per hour.[123] Sulfur dioxide emissions could be cut to only seven times as much sulfur as for comparable gasification capacity, but at the cost of increasing water requirements substantially.[124]

While a similar direct comparison of coal gas with nuclear-fired generating capacity cannot be made due to the different fuels involved, rapidly expanding nuclear capacity obviously carries environmental risks, particularly concerning the still unresolved questions of plutonium reprocessing and waste disposal.

The environmental impact of other sources of supplemental gas supplies are generally less than for coal gasification.[125] Indeed, it may be that gasification of organic wastes could produce a net benefit in terms of undesirable waste products imposed on the environment.

Impact On American Society. The wisdom of shifting to electricity generation should also be assessed in terms of its disruptive impact on American society. The recent phenomenon of coal "boom towns" in Colorado, Montana, and other Western states may be but a foretaste of the disruptive impact of nearly doubling coal production by 1985. This potential for disrupting settled communities makes it all the more imperative that coal be used as efficiently as possible. As noted above, the use of coal in electricity generating facilities does not meet this standard.

IV. AN ALTERNATIVE APPROACH

The preceeding discussion is not intended to conclusively rebut the Carter Administration's energy proposals. It does serve, however, to illustrate the fact that the prior policies concerning gaseous fuels, as developed by the FPC and the FEA, even as revised and refined by the Carter Administration, are founded on factual assumptions which are open to serious question. An energy strategy built on such a dubious and untested foundation runs a grave risk of being resource

122. *Prospects for Coal Gasification Information Memorandum*, *supra* note 91, at app. C.
123. *Id.*
124. Addition of limestone scrubber would also more than double solid wastes.
125. Even imported LNG, the gas resource with the greatest potential for adverse environmental impact due to potential safety risks associated with transporting gas in liquid form, carries no risks of long-term impact that is comparable, for example, to nuclear waste products.

inefficient, unduly costly to the consumer and the environment, and directly contrary to the Administration's overriding policy goals.

With these basic policy goals in mind, this final section attempts to identify the fundamental problems now faced in formulating a policy for gaseous fuels which is factually sound and politically acceptable. In so doing, we sketch the outlines of an alternative regulatory mode which the DOE could adopt to preserve the option of a viable and dynamic future role for the interstate gas industry.

A. THE PROBLEM SUMMARIZED

The fundamental problem at the present stage in energy policy formation is that the *factual predicate* underlying the various assumptions and influencing policy choices has never been aired in a public forum where it can be probed and tested for consistency, accuracy, and completeness. While this may be a surprising conclusion in light of the extensive public debate over "the energy crisis," it is more readily understandable in light of the prior history of regulation.

Up until 1977, the entire natural gas policy-making process under the FPC proceeded by fits and starts, with no real consciousness of the need to have a generic policy to be applied in particular cases. The fundamental probelm at that time was the lack of an *institutional* structure capable of dealing with the policy problems. Dealing with the various issues on a case-by-case basis, the FPC generally opted for policies which at best did little to encourage expanded service and at worst, actively discouraged it. In part, this may have been due to a prudently conservative approach to the problem of load growth. But the no growth attitude implicit in so many of the Commission's actions stemmed as well from the statutorily mandated formal adjudicatory procedures. Typically, the Commission was presented by the industry with a specific project and exercised a veto-like power, either approving or disapproving the application. Although the Commission had ample authority to modify proposals or impose conditions on certificates, this was no substitute for an active, planning posture taken at the outset. In effect, the procedural and adversary process requirements of the Natural Gas Act placed the FPC in a passive and reactive posture.

This approach carried serious disadvantages. When each aspect of the supply puzzle was examined separately, in detail, and under adjudicatory procedures designed to allow for equal participation by all interested parties, the focus tended to be on the defects and disadvantages of each proposal. While this phenomenon may frequently occur when policy-making authority is fractured among different agencies, it may also arise when related issues are dealt with separately by a single agency. The constraint of judicial review based on the "substantial evidence" standard also exaggerated the negative aspects of each policy alternative, since disappointed parties were sure to focus judicial attention on the defects of the Commission's actions. In brief, formal adjudicatory procedures conferred disproportionate weight on the "nay sayers."

The Commission's jurisdiction, narrowly focused on the interstate gas transmission companies, was never broad enough to permit the FPC to gather the data required for informed policymaking. The press of dealing with the day-to-day workload of rate and certificate matters also made long-range policy planning a difficult process. In addition, the FPC was cut off almost entirely from the Executive Branch, making policy coordination even more difficult. This bifurcated institutional structure was exacerbated by the creation of the FEA in 1974.[126] The half-hearted attempt to coordinate policy through the Energy Resources Council was unlikely to succeed from the outset since the Council had no functional responsibilities. In administrative Washington, such "blue-ribbon" consulting bodies, lacking budgetary clout and a political constituency, tend to be institutional "lightweights."

With the creation of the Department of Energy in 1977, the *institutional prerequisite* for rational policymaking was set in place. The FPC, rechristened the FERC, was folded into a relatively independent niche within the new department, as were the FEA and large portions of the Energy Research & Development Administration (ERDA). While the DOE Organization Act clearly intends for the FERC to retain its independence as an adjudicative administrative tribunal, it is equally clear that Congress intended for the Commission to be far more intimately involved in policy coordination than in the past. Indeed, Congress apparently intended to make the FERC the *primary forum for public input* into the policymaking process as it impacts on the natural gas consumer. For example, under Section 404(a) of the DOE Act,[127] the Commission, in its discretion, may determine whether

126. Thus, while the FPC was concerned with allocating shrinking natural gas supplies and seeking to encourage some alternative sources of supply, the FEA was acting to preclude the use of naphtha and other liquid feedstocks for use in manufacturing synthetic gas.

127. The Section in full reads as follows:

REFERRAL OF OTHER RULEMAKING PROCEEDINGS TO COMMISSION

SEC. 404(a) Except as provided in section 403, whenever the Secretary proposes to prescribe rules, regulations, and statements of policy or general applicability in the exercise of any function which is transferred to the Secretary under section 301 of this Act, he shall notify the Commission of the proposed action. If the Commission, in its discretion, determines within such period as the Secretary may prescribe, that the proposed action may significantly affect any function within the jurisdction of the Commission pursuant to section 402(a)(1), (b), and (c)(1), the Secretary shall immediately refer the matter to the Commission, which shall provide an opportunity for public comment.

(b) Following such opportunity for public comment the Commission, after consultation with the Secretary, shall either—

any proposed rule, regulation, or statement of policy issued by the Secretary "significantly affect[s] any function within the jurisdicrion of the Commission" under *inter alia* the "core" sections of the Natural Gas Act. If the Commission makes such a determination, the Secretary "shall immediately refer the matter to the Commission, which shall provide an opportunity for public comment." Section 404(a). Following the comment procedure, the Commission is directed to "consult" with the Secretary and then either concur with the proposal, recommend changes or modifications, or recommend that the proposal be dropped entirely.[128] The Secretary must either follow the recommendations of the Commission in all respects, or order that the rule not be issued.[129]

The Commission's authority to act on its own initiative in this area is made explicit by Section 403 which authorizes the FERC to propose rules and statements of general applicability with respect to "any" function within the Commission's jurisdiction under Section 402.[130] Moreover, Section 403(b) provides that the Commission shall

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(1) concur in adoption of the rule or statement as proposed by the Secretary;

(2) concur in adoption of the rule or statement only with such changes as it may recommend; or

(3) recommend that the rule or statement not be adopted.

The Commission shall promptly publish its recommendations, adopted under this subsection, along with an explanation of the reason for its actions and an analysis of the major comments, criticisms, and alternatives offered during the comment period.

(c) Following publication of the Commission's recommendations the Secretary shall have the option of—

(1) issuing a final rule or statement in the form initially proposed by the Secretary if the Commission has concurred in such rule pursuant to subsection (b)(1);

(2) issuing a final rule or statement in amended form so that the rule conforms in all respects with the changes proposed by the Commission if the Commission has concurred in such rule or statement pursuant to subsection (b)(2); or

(3) ordering that the rule shall not be issued.

The action taken by the Secretary pursuant to this subsection shall constitute a final agency action for purposes of section 704 of title 5, United States Code.

DOE Organization Act, *supra* note 14, at § 404.

128. *Id.* at § 404(b).

129. *Id.* at § 404(c).

130. § 403 reads as follows:

INITIATION OF RULEMAKING PROCEEDINGS BEFORE COMMISSION

SEC. 403(a) the Secretary and the Commission are authorized to propose rules, regulatons and statements of general applicability with respect to any function within the jurisdiction of the Commission under section 402 of this Act.

(b) The Commission shall have exclusive jurisdiction with respect to any proposal made under subsection (a), and shall consider and take final action on any proposal made by the Secretary under any subsection in an expeditious manner in accordance with such reasonable time limits as may be set forth by the Secretary for the completion of action by the Commission on any such proposal.

(c) Any function described in section 402 of this Act which relates to the establishment of rates and charges under the Federal Power Act or the Natural Gas Act, may be conducted by rule-making procedures. Except as provided in subsection (d), the procedures in such a rulemaking proceeding shall assure full consideration of the issues and an opportunity for interested persons to present their views.

have "exclusive jurisdiction" with respect to any such proposal. And of course, the FERC retains the authority granted by Section 14(a) of the Natural Gas Act to investigate any facts to aid in enforcing the act or in order to obtain "information to serve as a basis for recommending further legislation to the Congress."[131]

Finally, the Secretary is empowered by Section 402(e)[132] to assign virtually any matter to the Commission, after public notice, thereby conferring jurisdiction on the FERC to hear and determine the matter.[133]

In brief, the Carter Administration, while succeeding in *creating* an institutional structure capable of gathering and digesting the information necessary for a national and well-grounded energy policy, has failed to *utilize* the administrative apparatus for the purposes for which it was created. Instead, the proposed National Energy Act was prepared in an overly hasty process prior to passage of the DOE Organization Act, and with almost no input from the great number of industry, environmental, and consumer groups with vital interests in the outcome. It is thus not surprising that the proposed legislation antagonized more than it pleased and ran into serious difficulties in the Congress.

> (d) With respect to any rule or regulation promulgated by the Commission to establish rates and charges for the first sale of natural gas by a producer or gatherer to a natural gas pipeline under the Natural Gas Act, the Commission may afford any interested person a reasonable opportunity to submit written questions with respect to disputed issues of fact to other interested persons participating in the rulemaking proceedings. The Commission may establish reasonable time for both the submission of questions and responses thereto.

Id. at § 403.

131. 15 U.S.C. § 717m. Under § 402(a)(2)(B), the FERC was granted all powers exercised by the FPC under, *inter alia*, § 14 of the Natural Gas Act.

132. § 402(e) provides as follows:

"In addition to the other provisions of this section, the Commission shall have jurisdiction over any other matter which the Secretary may assign to the Commission after public notice, or which are required to be referred to the Commission pursuant to section 404 of this Act." DOE Organization Act, *supra* note 14, at § 402(e). It also bears noting that the FERC has jurisdiction over any other matter required by law to be made "on the record after an opportunity for an agency hearing," or which the Energy Secretary determines ought to be. § 402(d) provides that:

> (d) The Commission shall have jurisdiction to hear and determine any other matter arising under any other function of the Secretary—
> (1) involving any agency determination required by law to be made on the record after an opportunity for an agency hearing; or
> (2) involving any other agency determination which the Secretary determines shall be made on the record after an opportunity for an agency hearing, except that nothing in this subsection shall require the functions under Sections 105 and 106 of the Energy Policy and Conservation Act shall be within the jurisdiction of the Commission unless the Secretary assigns such a function to the Commission.

Id. at § 402(d). Judging from these provisions, the FERC may be the primary forum for *public input* with respect to policy initiatives of the Department concerning *any* fuel It remains to be seen how these provisions will be used in practice.

133. It is not entirely clear what procedural model will govern these various types of administrative proceedings since the relevant provisions of Titles IV and V of the DOE Act are ambiguous on this point. Compare, for example, § 403(c) with § 403(d). Except for those proceedings for which full and formal adjudicatory procedures are required (e.g., for matters required to be made "on the record after an opportunity for an agency hearing"), the Commission is probably free to develop more flexible procedures. In view of the FPC's earlier attempts to develop such "hybrid" procedures, the FERC may be

The difficulties encountered on Capitol Hill were compounded by the lack of sound data and projections on which to base the policies which the Administration proposed to adopt. On what basis was the assumption made that traditional gas supplies will continue to drop precipitously in 1977 and thereafter, when available indicators point to a slight upwards trend? On what basis was it assumed that traditional supplies of natural gas cannot be gradually supplemented by alternative sources? On what basis was the decision made that the generation of electricity from coal should be preferred to the manufacture of synthetic gas from coal? Answers to these and similar questions are crucially important to assessing and justifying proposed energy policies for the future—yet they have never been tested in an appropriate forum.

B. A PROPOSED SOLUTION

A primary deficiency of the Carter Administration's policy proposals, as demonstrated above, is the lack of a factually supported consensus on the supply potential or viability of different sources of supplemental supplies of gaseous fuels. DOE has both the authority and the duty to fill this fundamental gap in its information base. The Department should therefore utilize its existing statutory authority to initiate an "on-the-record" proceeding in which policy assumptions affecting the appropriate role of gas in the nation's energy future may be laid bare and underlying factual assertions opened to challenge and rebuttal.

The *forum* for such a novel proceeding should be the FERC. As noted above, the Commission has the authority under the Natural Gas Act and the DOE Organization Act to conduct such a proceeding, either on its own intitiative or upon request by the Energy Secretary. The *function* of the proceeding should be (a) to test the validity of the "underlying assumptions" discussed above and (b) to generate the factual foundation necessary for informed judgments on the proper role of gas in meeting the nation's expanding energy requirements. Having conducted such an inquiry, both FERC and DOE could then reassess their respective policies, regulations, and legislative recommendations affecting the interstate gas industry's load growth possibilities and make such changes as are indicated.

Such a proceeding could be framed as a response to Section 801 of the DOE Act, requiring the President to submit to the Congress, not later than April 1, 1979 (and biennially thereafter), a National

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expected to continue the process, evolving an approach which provides for maximum public input without unduly tying up the decision-making process in formal evidentiary hearings. For a discussion of the FPC's hybrid procedures in the curtailment area, *see* WILLRICH, ADMINISTRATION OF ENERGY SHORTAGES: NATURAL GAS AND PETROLEUM 77-102 (1976).

Energy Policy Plan.[134] This legislation provides for the Plan to establish objectives, identify strategies to be followed to achieve such objectives,[135] and recommend necessary legislative and administrative actions to aid in achieving the goals set out.[136] In addition, the plan must include a report containing "whatever data and analysis are necessary" to support the objectives and policy recommendations set forth, as well as a "review and appraisal" of technologies, procedures, and practices employed to achieve the purpose of the Plan.[137]

Even if the proceeding were conducted outside the context of the required review process, it has several distinct advantages over present policymaking procedures. *First,* and most importantly, it provides for public participation and on-the-record discussion of the pros and cons of various alternatives to meeting the demand for gaseous fuels. The Carter Administration proposals were developed without the benefit of significant public input and have suffered as a result, both in terms of substantive accuracy and political acceptability. National energy policy, impacting on virtually every segment of American society, involves countless important political decisions and judgments, which are necessarily outside the parameters of computer models used by government planners. Especially when there is no consensus on the underlying facts and assumptions, policymaking in a democracy requires broad opportunities for public participation. No such meaningful opportunity was provided in the formulation of the Carter Administration's energy legislation.

Second, conducting a fact-finding and consensus-building proceeding prior to making concrete legislative proposals will help to avoid "locking in" certain technological choices—and excluding others—on the basis of very preliminary indications of which proposals have the greatest merit. The advantages and disadvantages of each alternative should be debated from the standpoints of economics, resource efficiency, environmental non-degradation, adverse social impact, and national security. In light of the tremendous diversity of supply-enhancing strategies for gaseous fuels that appear to be, or may soon become, technically and commercially feasible, there is an overriding need for a regulatory framework which encourages the exploration of as many options as possible. There is a real risk, however, that a regulatory policy aimed at restricting growth in gaseous fuels may put an end to the burgeoning innovation now underway. Thus a crucial issue which the proceeding must address is how to avoid eliminating long-term options during the time needed for research, development, and assessing actual commercialization of the various alter-

134. DOE Organization Act, *supra* note 14, at § 801.
135. *Id.* at § 801(b)(1).
136. *Id.* at § 801(b)(2).
137. *Ld.* at § 801(c).

natives. To a far greater degree than is usually acknowledged, the problem of alternative energy sources—for gaseous fuels as well as for other forms of energy—is that of finding the least costly mix of long-term supply alternatives; thus the problem involves at least as large a component of the economics of competing processes as it does of available physical resources themselves. For example, in reconciling short-term and long-term policy, federal regulation should not allow the present enormous investment in gas transmission and distribution facilities (as well as in gas-fired furnaces and appliances) to atrophy due to lack of sufficient supplies over the near term.

Third, despite its fairly limited experience with the more exotic gas substitutes, the FERC has a large staff with broad expertise in regulating the natural gas industry. In terms of evaluating the impact of various policy alternatives on the interstate gas consumer, it is probably wisest to rely on the agency with the greatest expertise in the general area, supplemented when necessary by experts from other branches of the Department. The ERA staff, for example, would presumably be the Secretary's delegate for presenting his views in such a proceeding.[138]

Finally, the FERC is the only energy agency with an explicit and long-standing primary *obligation to protect the interstate natural gas consumer.* As stated by the Supreme Court in the CATCO decision, "[t]he [Natural Gas] Act was so framed as to afford consumers a complete, permanent and effective bond of protection. . . ."[139] If the Commission is to discharge its duties under the Natural Gas Act, it thus must take a far more active role in developing energy policies which impact significantly on the interstate gas consumer.[140] Today's natural gas consumer may be tomorrow's biogas consumer; FERC should recognize that fact in discharging its statutory duty under the Natural Gas Act.

One of the primary legislative purposes in creating the DOE was "to provide for a mechanism through which a coordinated national energy policy can be formulated and implemented."[141] All branches of DOE are thus charged with responsibility for furthering the national

138. By paragraph 19 of DOE Delegation Order No. 0204-4, the Secretary designated the Administrator of the ERA as his delegate for intervening or otherwise participating in proceedings before the FERC. 42 Fed. Reg. 60726, 60727 (1977).

139. Atlantic Refining Co. v. Public Service Comm'n, 360 U.S. 378, 388 (1959).

140. The primary disadvantage of relying on the FERC as the forum of the landmark proceeding described above is the risk that the review process may be delayed by formal procedural requirements of the Natural Gas Act. As pointed out above, the statutory requirement of adjudicative proceedings has been a significant difficulty in the past. However, in view of the expanded jurisdiction and powers conferred by §§ 402, 403, and 404 of the DOE Act—especially with respect to informal rulemaking authority—it appears that the new Commission may no longer be required to follow the adjudicative model in all proceedings before it. While adjudication would still be required for the resolution of contested cases, more flexible procedures could probably be used in performing data gathering and policymaking functions. *See supra* note 133.

141. DOE Organization Act, *supra* note 14, at § 102(3).

interest in the creation and application of a sound energy policy. Accordingly, it is incumbent on the FERC to take the initiative to examine the factual foundations of proposed energy policies to insure that the nation's interstate gas consumers are protected. Presumptively, this goal—the primary responsibility of the FERC under the Natural Gas Act—will not be furthered by a policy which assumes (and thus tends to bring about) the rapid depletion of U.S. gas supply and which would maintain indefinitely the allocation of those supplies by federal mandate.

C. CONCLUSION

The most striking lesson that emerges from a study of federal policies affecting interstate gas supplies is the realization of the extent to which the gas shortage has been institutionalized through federal regulation. Beginning in the late 1960's, well before the "energy crisis" arrived, a variety of proposals were made to augment flowing gas supplies. Yet none of the supplemental sources has been allowed to make the contribution originally anticipated. The primary reasons advanced in opposition have been (1) unacceptable environmental impact (LNG imports); (2) unacceptably high projected price impacts on consumers, especially the residential and small commercial users (LNG imports, SNG, Mexican imports); (3) unacceptably high level of dependence on foreign suppliers (LNG and Mexican imports, SNG); and (4) discrimination against other gas consumers ("finder's keepers", increased storage, fixed base periods in curtailment cases).

Today's political climate calls for an ideal solution to energy shortages—a non-polluting, perfectly safe, domestic fuel, which can be provided in abundance and at a relatively low cost. But while Washington waits for the perfect replacement fuel to come along, the interstate gas industry is faced with eroding markets, diminished supplies and regulatory disapprovals or delay that cripple proposed new supply sources. The existing interstate gas consumer is burdened with supply interruptions and rapidly increasing rates, while the *potential* consumer is forced to rely on more expensive, less efficient and more polluting fuels.

Unless radically modified, federal policy will tend to ensure that gas shortages continue indefinitely, while available supplies continue to be allocated under federal supervision. More likely than not, the continuing "gas shortage" will become a self-fulfilling prophecy confirming government decision-makers in their view that electricity and the direct use of coal are the best answers to the nation's expanding energy needs.

The Department of Energy has the opportunity and the resources to review existing policies along the lines discussed above and to *utilize* regulatory powers to examine the factual basis for proposed policies rather than following the untested assumptions of an isolated group of government planners. Failure to reexamine the "accepted wisdom" underlying existing policies may impose significant and unnecessary costs on the economy and the environment generally—as well as on the captive interstate gas consumer.