

# V. Options for Dealing With Natural Gas Shortage on an Interim Basis During 1975-76

## INTRODUCTION

The long-term direction to be taken by the Nation's natural gas policy depends upon the way in which Congress amends the Natural Gas Act. However, there are a number of legislative and administrative options open to deal with the natural gas shortage of the winter of 1975-76 on an interim basis if necessary, in the event Congress has not passed legislation dealing with the long-term problem. Most of these interim options will have longer term implications which will need to be identified, and some of them may be relatively incompatible with certain forms that amendments to the Natural Gas Act may take.

Natural gas shortages have developed over a number of years and even if new long-term legislation were to be passed tomorrow, some imbalance between supply and demand would likely persist for some period into the future. This implies that even after a long-term natural gas policy is put in place, transitional procedures still will be desired to deal with the period during which balance is being restored. Most of these transitional procedures are related to the interim approaches which the Congress could use to deal with the natural gas shortage this winter. The purpose of this analysis is to focus on interim measures to deal with the coming winter. It will not deal with the amendment of the Natural Gas Act since the character of that amendment is unknown.

Although these options are principally Federal actions the various States and localities can play an important role since they are most experienced in dealing with their differing supply and demand characteristics. Options concerned with conservation, fuel allocation procedures, and restructuring of curtailment priorities may be particularly appropriate in this context and utilization of their agencies in helping to carry out such measures may substantially enhance their effectiveness.

The interim options which can have some practical impact on the shortage during the winter of 1975-76 can be grouped into four broad categories. They are:

1. Options which increase gas supply;

2. Options which reduce the demand for gas;
3. Options which redistribute the available gas within the United States in order to reduce severe regional shortages; and
4. Options which lessen the impact of the shortages on users.

A number of options which would appear, initially at least, to fall into one of these four categories may not be practical options for the winter of 1975-76, since they require sufficiently long lead times for implementation and hence cannot reasonably be expected to be effective during this period of time. This is particularly true of many of the proposals for increasing the supply of gas such as additional import of liquefied natural gas by tanker or the installation of liquid hydrocarbon based, synthetic natural gas facilities. These options are best dealt within the context of the longer term natural gas policy.

There are few short-term options which attempt to increase the total supply of gas which do not deal with alleged irregularities in natural gas production. One such action—an acceleration of the certificate approval process by the Federal Power Commission to connect offshore gas reserves—is already a part of the Federal Power Commission's existing jurisdiction under law and needs no legislation for its implementation. There are, however, other options (which are classified in the category of redistribution of available gas) which would have a secondary effect of increasing gas production for the winter since in some cases geographically scattered pockets of surplus have developed and more may be created. These surpluses might be drawn on for some increased production if such surplus gas could be effectively distributed.

A second group of options—those designed to reduce the demand for gas—could respond to legislative and administrative initiatives. These would include mandatory limitations on the utilization of natural gas whether in specified applications, such as boiler fuel or in installations having dual fuel capability, or more general limitations such as strong measures devoted to the conservation of gas.

The third group of options are designed to more effectively distribute the available gas.

They can be further subdivided into those options which alter distribution by means of price and those that do so by administrative allocation. That natural gas shortages in the interstate market are not uniformly distributed was documented in Chapter II. In the intrastate market, shortages which appeared for a time within the past 2 years now seem to have become short-term surpluses. As a result some proposals for reallocation of gas to eliminate shortages tend to look to the intrastate market to provide some relief. This is true for both price-oriented options and those which feature administrative allocation. The latter also tends to look on those interstate pipelines whose supply position is better than average.

Among the price-oriented options are those which would permit either the interstate pipelines or industrial users to enter the intrastate market and compete freely for intrastate supplies on a price basis. The reinstatement of 180-day limited term sales to interstate pipelines is one such proposal. Another, which the FPC has proposed is rulemaking RM 75-25 which would permit industrial users in certain categories to buy intrastate gas free of price control and have it transported to facilities by way of interstate pipelines,

Reallocation schemes which depend upon administrative intervention rather than the use of price include the institution of pipeline to pipeline allocation procedures, short-term preemption of intrastate gas supplies for the interstate market, or suggestions for substantial modification to national curtailment priority schedules.

The fourth category of options are those which are designed to lessen the impact of the shortage on users. Among suggestions in this category are improvements in availability of alternative fuel—especially propane which has been under FEA allocation procedures. These procedures have provided disincentives for the importation of propane. Another group of options would include approaches providing either capital or tax incentives to speed the conversion of existing gas-using facilities to alternative fuels. Other proposals are designed to provide temporary relief from environmental restrictions to increase the flexibility of using alternative fuels.

These four categories appear to include the principal options which are available to reduce the shortage and/or its impacts for the coming winter, although the list is not meant to be exhaustive. Each of these options is discussed in the following text. A description of the option is

given, its relative effectiveness in dealing with the shortage is discussed, and its usefulness at various depths of shortage is indicated. Finally, the effect each option may have on potential long-term solutions is outlined.

## CONSERVATION

### Description

**The goal of this option is to encourage by the most effective means possible, the reduction of natural gas consumption by residential, commercial, and industrial consumers.**

### Discussion

The potential of energy conservation in reducing the gap between supply and demand of natural gas is quite large. For example, the total volume of natural gas used by residential and commercial consumers during the winter of 1974-75 was about 4.5 trillion cubic feet. A 10 percent reduction would yield 450 billion cubic feet which would exceed this coming winter's projected incremental shortfall. Although the nonuniformity of the gas shortage may not permit full use of a volume this size if it were available, there would still be significant impact on reducing the shortfall.

Conservation can be effective within all time frames. It can have short-term effects through cutbacks in gas consumption by action such as reduction in thermostat settings, relatively easy housekeeping measures, and elimination of ornamental gas lighting. It can have an impact within the next 12 months by such things as increased insulation in existing structures and pipes transmitting hot gases and fluids and sealing up heat leaks in buildings. It can have longer term impacts through such actions as utilization of more efficient gas consuming equipment and industrial processes, and recovery of waste heat from gas fired furnaces.

In the immediate future the principal emphasis will probably have to be measures to curtail gas consumption, particularly in the high priority residential and commercial uses, rather than measures to increase energy efficiency. The difficulty here is in convincing these consumers to curtail their use. One method demonstrated to overcome this difficulty has been by using economic penalties to restrict gas consumption. Another method has been through collective action on the part of a community in order to have enough gas to maintain jobs. An example of the latter occurred in Danville, Va., in 1974-75.

These actions appear to be useful for short run emergencies but they will become less effective as curtailments deepen as there is a limit on how much a person is able to cut back.

The most lasting conservation programs seem to be based on more efficient uses of energy, since virtually no economic or social pressure exists to return to less efficient practices. To bring this about, particularly in the residential sector, will probably require a series of incentives dealing with economic and institutional factors. An effective program in this context requires a clear understanding of existing institutional, jurisdictional, economic, and other barriers, however, it is possible that some measures, such as tax incentives for insulation, could have a significant effect for the winter of 1976-77.

In the industrial area, capital or tax incentives can be useful in accelerating the installation of more efficient equipment, heat recovery devices, and other fuel-saving measures. There is a potential pitfall, however, in that decisions may have to be made as to whether particular equipment changes made under this plan are primarily for conservation or to replace old equipment. Since a number of motives can be present for any equipment change or modification, care should be taken to see that such a program is not abused.

Conservation is one of the few options which can be effective even if curtailment levels deepen over the next several years since most other options depend on redistribution of gas. As gas supply decreases less is available for redistribution.

Finally, conservation appears to be compatible with any of the approaches to long-term changes in the Natural Gas Act. In any event, conservation was judged by many members of both panels to be one of the more promising options in dealing with both the short- and long-term gas shortage.

## **180-DAY EMERGENCY SALES OF NATURAL GAS**

### **Description**

**This alternative would allow interstate pipelines to purchase natural gas on the intrastate market, either from producers directly or from intrastate pipelines. The purchase would be limited to 180 days with automatic abandonment of the sale and transportation of gas at the end of the period.**

### **Discussion**

This option, in any of a number of variations, appears to be one of the more favored methods of dealing with this winter's emergency. One such variation is to allow the parties involved to set the price and allow the pipeline to pass-through the price to the ultimate purchaser. Another variation which is receiving considerable attention is to set a ceiling price which would correspond in some manner to prevailing intrastate prices.

Currently, there is gas available from intrastate markets and it is expected to be available this coming winter. The quantities are uncertain but some of the more optimistic estimates are that 1 billion cubic feet per day maybe available. This volume is about 50 percent of the 300 billion cubic feet incremental gas shortage estimated for this winter. Surplus natural gas in the intrastate market could be sufficient to help alleviate the most serious shortages. For example, Transcontinental Gas Pipe Line Company estimates its curtailments have increased by 300-400 million cubic feet per day for the forthcoming winter. Thus, if gas estimated to be available from the intrastate market were directed to this pipeline, many of the problems which are likely to occur on the Transco system could be solved. Analysis of FPC data shows that about 1 billion cubic feet per day of natural gas was purchased by interstate pipelines from intrastate markets during the winter of 1973-74, when 180-day emergency purchases were allowed. In this connection a recent U.S. Supreme Court action (October 14, 1975) has left unchanged a lower court decision which denies the FPC the power to grant 180-day emergency purchase at essentially unregulated prices. In effect, the courts state that this is deregulation which is beyond the present authority of the Commission.

Emergency purchases and transportation for 180 days could also be structured to allow gas utilities to trade with one another. This can be quite useful in stimulating short-term distribution of natural gas to areas needing it most. Such arrangements would be useful in providing a means to take advantage of weather diversity among various areas. Contracts between gas utilities must be made on very short notice because the availability of excess gas is uncertain.

If curtailments were to deepen, the 180-day purchase option would become relatively less effective if the total volume of excess gas is fixed. Under the variation which does not set a ceiling on prices, the cost of the excess gas will probably

rise in some relation to the diminishing supply. If the price is fixed, it would seem that other incentives to move the excess gas would have to be applied. If the shortage deepened, producers may be increasingly less inclined to sell excess gas under a ceiling price (in hopes of future changes in these prices) and the incentives may have to be strengthened.

The ultimate consumer of gas under this plan would see some increase in the price of natural gas although not to the full extent of the intrastate prices since these would be rolled into the lower-priced flowing gas. It is quite possible that the fuel costs to the consumer purchasing gas in this manner, even at intrastate prices of **\$2.00** per Mcf, would be less than if the user had to purchase equivalent amounts of SNG, LNG, and/or propane to make up for gas deficiencies. This would depend on the prices of these supplements to a given buyer and the transportation and distribution costs of the emergency intrastate gas.

Finally, emergency sales for the case where a ceiling price is not set are compatible with a long-term solution that tends toward deregulation, since it is limited deregulation. In addition, they would not necessarily prove harmful, because of their limited duration, if legislation dealing with the long-term problem tightens or extends regulation over the natural gas industry. For the case that price ceilings are set as a provision for emergency sales, a natural transition for legislation maintaining or extending regulation is provided.

## **DIRECT PURCHASE OF NATURAL GAS**

### **Description**

**This options permits the direct purchase of natural g-as by the utlimate consumer from gas producers at prices comparable to those paid for new, intrastate gas. The pipelines and gas utilities would serve only as common carriers and not purchase the gas themselves.**

### **Discussion**

On August 28, 1975, in Order No. 533, the Federal Power Commission issued a policy statement which encouraged a modified form of direct purchase. These purchase arrangements are to be certified by the Commission who would not reexamine the contract price set by the

parties but would determine whether the ultimate use of the natural gas was of a high priority. In addition, the volumes of gas purchased under this order could not exceed the amount curtailed. The Commission also stated that gas utilities could not act as agents for a group of purchasers such as small commercial and/or residential consumers.

The Task Force felt that the direct purchase plan was an option that could have a positive impact in relieving some of this winters gas shortage. Several reservations were expressed, however, as to the plan as it now exists. The primary difficulty seems to be the limitations on who could purchase the gas. Because high initial costs might be required, only the largest users could effectively take advantage of this option. Further, the exclusion of gas utilities would probably remove altogether most of the small industrial customers from taking advantage of this plan. There is the possibility, however, of the emergence of brokers entering the intrastate market for direct purchase of natural gas on behalf of a number of these small customers. This assumes that restrictions would not prohibit such activities and that the brokers could be regulated in the same manner as other direct purchasers. Another difficulty is potential delays in approving certification of these contracts. The Commission has expressed the belief that they will be able to expedite these matters in a timely fashion.

With regard to deepening levels of curtailment, the effectiveness will be similar to that of the 180-day purchase plan.

Since the volumes to be purchased directly are unlikely to be large, this policy is unlikely to influence significantly any of the long-term solutions to the natural gas shortage. Issues of equity may be raised depending upon the processes that obtain the volume of gas that becomes available after new natural gas legislation is passed, but, because, FPC Order No. 533 limits the purchase contract to 2 years, any inequity will be short lived.

Even with these possibilities, it is likely that Order No. 533 will have some positive benefit although the extent to which it will help this winter is unknown. If those companies which face plant shutdowns are most active in pursuing gas, which one would expect them to be, and the FPC expedites their applications, then some plant shutdowns are likely to be avoided. In this context, direct purchase may serve as an effective means of allocating emergency gas for critical uses.

## MANDATORY PIPELINE-TO-PIPELINE ALLOCATION

### Description

**This would provide legislation to grant authority to the Federal Government to instruct pipelines with adequate supplies of natural gas to deliver that gas to pipelines where serious and potentially disruptive shortages appear imminent.**

### Discussion

It is presently envisioned that pipeline-to-pipeline allocation will primarily cope with shortages in the interstate market by drawing on other supplies dedicated to the interstate market. This can be done without joining the major issue of preempting intrastate gas supplies for interstate use. Where interstate pipelines have some potential surplus delivery capacity going into the winter, allocating their gas to deficit pipelines in shortage areas could redistribute the total supply over this winter without causing any serious hardships on any other legitimate customers. However, to the extent that most pipelines will be in some curtailment this winter, the principal effect of such an authorization would be to permit the Government to authorize deeper curtailments on pipelines where curtailments were not in high-priority categories in order to protect the high-priority customers of another pipeline. This raises complex issues since the pipeline that has been able to protect some of its lower-priority customers through its own efforts would now have to deny those customers gas in order to provide it to a more severely affected pipeline. In addition, it should be noted that these transfers could increase the depletion rate of fields supplying the stronger pipelines as the latter attempt to make up natural gas transferred to weaker pipelines. This will affect future years by decreasing supplies faster than is now expected, making the situation even more severe for the winter of 1976-77. Therefore, while the effectiveness of this option would probably remain constant in the short-term if the curtailment deepened, it is likely to drop sharply and even become negative beyond this winter.

Pipeline-to-pipeline allocation has been highly controversial. Those who favor the ultimate Federal system of end-use controls for energy sources tend to favor pipeline-to-pipeline allocation to make sure the shortages are concentrated in low-priority customers and that high-priority

customers are protected by Federal regulation regardless of the accident of which pipeline system they are served by. On the other hand, a high percentage of the private industrial segment opposes pipeline allocation on the grounds that it strikes at some of the fundamental issues of Government control in the private sector of the economy.

A variation of this proposal concerns gas on Federal lands, primarily offshore. Presently the Federal Government takes a 16-2/3 percent royalty in cash payments. However, the possibility exists of taking the royalty "in kind" and allocating this gas to those pipelines in greatest need. This minimizes some of the issues raised above since now the Federal Government is dealing with its own gas and would not be allocating gas owned by the pipeline. One difficulty would be that such moves might tend to act as a disincentive for offshore exploration if the companies perceived the product value of the gas greater than the cash value of the royalty.

The extent to which mandatory allocations are compatible with various forms a new natural gas act could take depends on the extent of new supplies generated by that act. If they were not forthcoming, it may be necessary to retain mandatory allocation to manage a short supply of gas, regardless of whether it was deregulated or regulation extended into the intrastate market, until demand and supply come into balance,

## MODIFY CURTAILMENT PRIORITIES

### Description

**This establishes a set of curtailment priorities which will better protect critical uses of natural gas than presently exists. The Federal Power Commission now has the authority to set curtailment priorities. This proposed remedy could presumably be accomplished now by FPC action without the necessity of emergency legislation.**

### Discussion

The argument for revising curtailment priorities to better protect uses of natural gas which cannot be converted to alternate fuels is commonly voiced by those who have been threatened by loss of gas. This has been argued extensively in Federal Power Commission curtailment hearings and has been expressed by the industry representatives to the panel. One problem with suggested modifications of curtail-

ment programs is that they are usually proposed by advocates of a particular industry which view the recommended change as one which would protect them. Since elevation of one use into priority status can only be achieved by downgrading some other use, however, it is extremely difficult to get common agreement as to how to improve curtailment priorities in a just and equitable manner. Curtailment priorities designed initially to deal with large volume, low priority uses of natural gas are increasingly being applied to small volume, higher priority uses with the result that administration is more complex.

The issues raised in establishing curtailment priorities are perhaps some of the most complex in the entire natural gas situation. In determining who gets a limited supply of natural gas you often have advanced conflicting evidence to support a claim that one use is superior to another. Two of the important issues that must be dealt with are as follows:

1. What factors are to be used in determining priorities? Some of these include the value of the manufactured product (e.g., ammonia, goods for national defense), the immediate impact of a cutoff in gas (e.g., the size of the job loss), the feasibility of conversion to an alternate fuel (e.g., the cost), and the technical efficiency of the use of gas.
2. What are the long-term impacts of reserving gas for a particular use? Some of these include the effect a conversion will have on the use of other fuels (particularly imports), whether or not allowing a particular use will inhibit the most effective conservation options<sup>27</sup>, and whether eventual conversion has just been postponed to a point where it will be even more difficult and have even greater impacts.

The resolution of these issues is beyond the scope of this report. It is important that they be considered, however, so as not to create more problems than are solved in making a choice of curtailment priorities.

It would appear at this time that some improvement in curtailment priorities for the high-priority customers would be valuable. This, by itself, would help for only a limited period of time since curtailment levels have been steadily deepening. Such actions, however, if carried out in an effective manner could have long-term benefits even if supplies continue to decrease as natural gas would be increasingly reserved for those purposes for which it is best suited. As far

as new natural gas legislation is concerned, the same comments made in regard to the mandatory allocation apply here. One exception would be if deregulation were accompanied by a complete freeing-up of how gas is distributed. In this case the price mechanism would probably set the priorities.

## PREEMPTION OF INTRASTATE GAS

### Description

**This would provide legislation to authorize the Federal Government to exert authority over intrastate gas currently being sold in the intrastate market, and order its delivery to deficit interstate pipelines.**

### Discussion

The ability of the intrastate market, which is not regulated by the FPC, to outbid the interstate pipelines for natural gas has tended to concentrate the shortage in the interstate market. This has been one of the major identifiable results of current Federal regulation.

Of particular interest in this context is the very large volume of natural gas burned under electric utility boilers in the intrastate market, which was discussed in Chapter III, p. 13. It was noted there that a fraction of this gas which could be reliably counted on this winter, if preemption were to occur, depends on the claimed technical problems of these boilers. It is also necessary to assure oil availability which is a problem that would extend beyond this year. If all the boilers with dual-fuel capability could be modified to burn oil this entire winter and assuming no change in efficiency, the 480 billion cubic feet is equivalent to 85 million barrels of fuel oil. For the winter 1976-77 it is probable that the corrosion problems of many more boilers could be cleared up so that they may be able to operate on oil the entire winter. A critical consideration here may not be the time factor but the availability of sufficient generating capacity for units to be taken out of service for conversion. It could be expected, however, that preemption of natural gas from utility boilers could be more effective in 1976-77 than for this coming winter. Finally, if it is true that over the long-term, use of natural gas in a boiler is an inferior use of this fuel, then mechanisms to transfer this gas would assist in reserving natural gas solely for critical uses.

Preempting intrastate gas to solve this winter's problems might prove to be ad-

ministratively highly complex. Although there are a limited number of interstate pipelines whose curtailment practices are subject to FPC regulation, there are far more sellers of intrastate gas—in many cases to geographically adjacent purchasers—and it would require that a larger administrative machinery be put in place to accomplish such intrastate preemption.

A serious question that must be answered by a preemption scheme is compensation to the user who loses the gas. This could be determined rather directly if preemption was for a limited duration, but the calculation would be quite complex if it were permanent. In addition, there is the question of the price paid for the preempted gas by the new consumer. If it is allowed to rise to new gas prices (interstate or intrastate), large windfall profits would accrue to the seller. If it is not allowed to increase over the level paid the preempted customer, then mechanisms would have to be established to ensure that the gas is not held back from the market. The question of existing contracts is deeply connected with this price question. In this context, if the preemption is set to last only the length of the emergency, the question of how the original contract should be reinstated must be answered.

Preemption would likely have the largest environmental impact of any of the short-term measures. Air pollution will increase as more oil is used in place of natural gas and the potential magnitude of this conversion is greater than any other type for the next few winters.

With regard to potential forms of a new natural gas act, preemption would have much the same impacts as mandatory allocation and redefinition of priority schedules. Since preemption would place the intrastate market in the regulatory framework, it would tend to be more compatible with a long-term solution which extended price regulation in this market.

## **CAPITAL OR TAX INCENTIVES FOR CONVERSION**

### **Description**

**This measure would provide financial assistance to users faced with the necessity to convert to alternative fuels and/or who desire to install conservation equipment. Tax incentives or capital might be made available on favorable terms.**

### **Discussion**

Conversion to alternate fuels in many instances requires considerable capital and **installation time**. The principal limitation on effectiveness appears to be the time needed for installation, although capital availability is a serious, but not limiting restraint. If this is the case, the effectiveness of this option would likely be greater for periods after this winter. Indeed if curtailments increase, the incentive for carrying out conversion grows, and this option could have substantial long-term benefits by rapidly accelerating this measure. It is important to consider the effects of conversions financed under this plan. Exchanging one scarce fuel for another may not be the most effective way to carry out this option.

This approach seems to be compatible with any of the long-term methods of solving the natural gas problem and, as a result, might be considered as transitional procedures to be put into effect in any long-term amendment to the Natural Gas Act.

## **TEMPORARY STAY OF ENVIRONMENTAL RESTRICTIONS**

### **Description**

**High-sulfur coal and high-sulfur oil are more freely available than some of the lower-sulfur fuels. Customers whose natural gas supplies are curtailed might find it easier to convert if they had the ability to use higher-sulfur fuels on an emergency basis when gas was curtailed.**

### **Discussion**

Most of the users who could burn coal can also burn heavy low-sulfur fuel oil, to some extent. Unless the local logistics of refineries, distribution systems, and pipelines has not developed a supply capability in a particular region, therefore, it is unlikely that elimination of the environmental restrictions will have a very significant effect on the number of users who would have to shut down altogether. It would, however, have a significant price effect. For example, high-sulfur oil is much cheaper than low-sulfur fuel oil for those users who have to convert from natural gas and are able to use coal.

The principal impact with this options, however, is the effect on air quality. It is quite important to carefully evaluate the tradeoff of increasing air pollution with the benefits of

being able to use a wider range of alternate fuels before environmental controls are adequately developed.

The effectiveness of this option as it relates to the depth of curtailment is primarily dependent on the potential for conversion to alternate fuels which may not meet local environmental standards. As shortages grow, the need for conversion will increase, and if high-sulfur fuel can be used it will be less difficult to counter the effects of curtailment.

## **IMPROVE PROPANE, LNG, AND SNG SUPPLIES**

### **Description**

**This option involves removal of those barriers which hinder the development of fuel supplies which can directly substitute for natural gas.**

### **Discussion**

The potential for dealing with the projected shortfall this winter by alternate gaseous fuels is limited due to the time required to secure the supplies and build the facilities to handle or produce them. The most likely candidate is propane, which was discussed in some detail in

Chapter III. The task force expressed the view that the use of propane much beyond that already scheduled this year is unlikely due to the lack of onsite storage and transportation facilities. While SNG and LNG have a longer-term potential, they will not be able to add much this year over that already online. However, plants producing SNG from naphtha have a 1-to 3-year lead time and could have substantial impact in the winters following this one.

The principal difficulty with all these sources is that they depend primarily on imported fuel. In addition, the costs of SNG plants and LNG terminals are high which is also quite important with regard to SNG and LNG facilities. Conversion of liquid hydrocarbons to SNG involves some waste in that the conversion efficiency is about 80 to 90 percent. Therefore, the value of SNG must be weighed against the value of the liquid hydrocarbon feedstock, including the losses, as an additional factor in determining whether to proceed with an expanded SNG program of this type. Finally, the costs of these alternatives are quite high, \$2.50 to \$4.00 per Mcf equivalent, which will add substantially to industrial energy costs.

The use of these fuels is expected to increase over the next several years as natural gas supplies decline. Their effectiveness in providing relief to the natural gas shortages will depend on the ability to overcome the problems outlined in the previous paragraph.