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RESOURCES, COMMUNITY,  
AND ECONOMIC DEVELOPMENT  
DIVISION

B-211402

APRIL 11, 1983

The Honorable James McClure  
Chairman, Committee on Energy and  
Natural Resources  
United States Senate



Dear Mr. Chairman:

Subject: Analysis of the Administration's Natural Gas  
Decontrol Plan (S.615) (GAO/RCED-83-140)

This letter responds to your request of March 16, 1983, for our analysis of the Natural Gas Consumers Regulatory Reform Amendments of 1983 (S.615). Your office asked that we examine as many of the six questions you posed as possible by April 11 and respond to the remainder in a supplementary report to you and other Members of Congress which will be delivered at a later date.

The questions we address in this letter and enclosure are:

- The short-run impacts of S.615 on gas supply and prices. We have defined the short run as the period 1983-87.
- The extent to which increases in the price of old (low-priced) gas will be compensated by decreases in the price of other categories of gas.
- An analysis of the provisions of S.615 designed to influence the renegotiation of existing producer/pipeline contracts.

A full description of the scope, methods, and results of our review can be found in the enclosure to this letter. Because of the short time available to analyze the bill and report by April 11, certain limitations had to be imposed on our analysis. Specifically, many of our results are based on a GAO-developed natural gas supply/demand model. This model estimates the supply of and demand for gas separately and integrates the results to estimate wellhead prices and production. On the

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supply side, production is determined primarily by gas prices and past drilling activity. On the demand side, consumption is largely determined by gas prices and competition from other fuels in the residential, commercial, industrial, and powerplant sectors. Although our model has been used extensively in other GAO work and has been previously evaluated by both GAO and other technical experts, all models are a significant simplification of reality and so necessarily have a margin of error.

We obtained data from the Energy Information Administration for this analysis, and these data must also be interpreted cautiously. The information is on sales of the various categories of gas established under the Natural Gas Policy Act (NGPA) by individual producers to individual pipelines during 1982 and 1983. As such, it may or may not accurately reflect the longer term composition of gas sales. It also may or may not be an accurate indicator of reserve holdings. The amount of reserves held by each producer will determine the gains and losses from decontrol, but such data on reserves by NGPA category is not currently available. Finally, any analysis of a proposal--as opposed to an operating program--must necessarily rely on hypotheses and results generated from knowledge of the subject, economic theory, and expert judgment.

Because of the short time allotted for preparing this report and to facilitate comparison of our results with those published by the Department of Energy, we based our analysis on the Department's economic and energy assumptions. Use of these assumptions does not imply that we believe they are necessarily the best, and we plan to subject them to extensive sensitivity analysis and consider alternative assumptions in our followup report.

#### THE ADMINISTRATION'S PROPOSAL

According to the administration, S.615's objectives are to lower natural gas prices, provide a smooth and rapid transition to wellhead price decontrol, and allow producer-pipeline contracts to be changed to reflect market forces. In order to accomplish the objective of lower gas prices, S.615 provides for two types of price ceilings and a reduction in the required amount of high-cost gas pipelines have to buy. The transition to wellhead price decontrol would be smoothed by allowing new and renegotiated producer/pipeline contracts to be made without Federal Government control; allowing either producers or pipelines to unilaterally cancel any contract during 1985; and totally decontrolling all wellhead prices on January 1, 1986. Finally, contract renegotiation is meant to be encouraged by both the price ceiling and contract cancellation provisions.

IMPACTS ON PRICES AND SUPPLIES

Our analysis of S.615 using GAO's model and the assumptions outlined previously shows that it would lower wellhead prices 27 to 40 cents per thousand cubic feet (mcf) below those we project would exist under current law in 1983 and 1984. This advantage is somewhat offset as the lower prices provide less exploration incentives which result in lower supplies during the 2-year period. This lower supply combined with increased demand as the economy improves leads to a large increase in wellhead prices (27 percent, 70 cents per mcf in 1985) under the proposal. After 1985, prices under S.615 and current law would be about the same since average wellhead prices under both would be determined by the market.

S.615 would reduce prices of most higher cost gas during 1983 and 1984. These reductions would result in large revenue losses to producers selling this gas--amounting to as much as \$1.7 to 2.5 billion each year. These revenue losses could be offset to the extent that these producers also control low-cost gas and can renegotiate contracts with pipelines to raise the prices on their production of that gas.

IMPACTS ON OLD AND NEW GAS PRICES

Our analysis of S.615 indicates that the prices of old, low-cost and newer, high-cost gas which exist under current law would be roughly equalized under the administration's proposal. Equalization will be achieved most easily in cases where a producer supplies similar quantities of high and lower cost gas; these quantities could be "bundled" together and put under a new contract where prices would be equalized. However, direct "bundling" is not possible for much gas; none of the 20 large interstate pipelines could "bundle" more than one-third of their low and higher cost gas. Even without direct "bundling," however, owners of above-market-priced gas will have to lower their prices or face loss of sales. Producers having large amounts of low-cost gas will benefit as prices for their gas rise and producers with higher cost gas will lose revenue as prices for their gas fall.

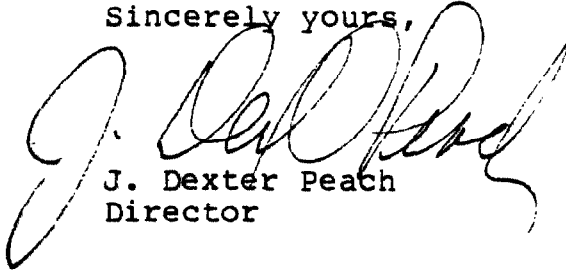
IMPACT ON CONTRACT RENEGOTIATION

Our analysis of S.615 showed that a price ceiling on gas could, by itself, provide a disincentive to renegotiate contracts on the part of pipelines. This is so because pipelines will still be able to receive low-priced "old gas" until at least 1985. However, this temporary advantage could be counterbalanced by pipelines' desires to maintain long-term supplies. On the other hand, the provision allowing contracts to be abrogated is clearly a strong incentive to both pipelines and producers to renegotiate to avoid losing sales or supplies in 1985.

As pointed out in the enclosure, there are a number of other questions we plan to address in a subsequent report. We also hope to provide additional information on the questions we have covered in this report.

Because of the time constraints, we did not obtain agency comments on this report. We do, however, plan to obtain comments on our subsequent report.

Sincerely yours,



J. Dexter Peach  
Director

Enclosure

ANALYSIS OF THE ADMINISTRATION'S  
NATURAL GAS DECONTROL PLAN (S.615)

Contents

	<u>Page</u>
SCOPE AND METHODOLOGY	1
Methods	2
THE ADMINISTRATION PROPOSAL--S.615	4
COMPARING ENERGY AND ECONOMIC IMPACTS OF CURRENT LAW AND S.615	6
Supply, Demand, and Price Effects	7
Prices	8
Effects of the purchased gas adjustment provisions	10
Revenue impacts from alternative gas cap levels	10
IMPACTS ON NEW AND OLD GAS PRICES	12
RENEGOTIATION OF PRODUCER/PIPELINE CONTRACTS	15
Why there is concern about natural gas contracts	15
Impacts of the gas cap on contract renegotiation	16
Market-out provisions	17



Analysis of the Administration's  
Natural Gas Decontrol Plan (S.615)

On February 28, 1983, President Reagan submitted "The Natural Gas Consumers Regulatory Reform Amendments of 1983" (S.615) to the Congress. Senator James McClure, Chairman of the Senate Committee on Energy and Natural Resources, requested that we analyze and report on S.615.

In subsequent discussions with the Chairman's office, we agreed to provide the requested information in two reports. The first, presented here, was to cover as many aspects as practicable, with a second supplementary analysis to be submitted at a later date.

SCOPE AND METHODOLOGY

The request included six questions, three of which are discussed here. These are:

- (1) The short-run impacts of S.615 on gas supply and prices. We have defined the short run as the period 1983-87.
- (2) The extent to which increases in the price of old gas<sup>1</sup> will be compensated by decreases in the price of other categories of gas.
- (3) An analysis of the bilateral market-out provisions<sup>2</sup> and other provisions influencing the renegotiation of existing producer/pipe-line contracts.

The Chairman's March 16 letter asked three additional questions which, as agreed with his office, will be covered in a subsequent report. They are:

- (1) The long-run impacts of S.615 on gas supply and prices. We will extend our analysis through 1990 in this case.

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<sup>1</sup>"Old gas" under the Natural Gas Policy Act is that gas which was flowing as of 1977 and whose price is set at very low levels.

<sup>2</sup>Market-out provisions would give either party to a gas purchase contract the right to break that contract on 45 days' notice as of Jan. 1, 1985.

- (2) The regional effects of the bill.
- (3) The response of old gas production to higher prices.

In response to other congressional requests, several additional questions will also be covered in future reports. These requests include questions concerning the effects S.615 will have on:

- (1) Gas exploration and development.
- (2) How much old gas there is and who owns it.
- (3) The windfalls and other effects that decontrol will have on major and independent gas producers.

### Methods

The three questions addressed in this report were analyzed using information relevant to all three. This information included the bill itself, supporting analysis which accompanied it, interviews with industry and Government officials, and the voluminous testimony presented before the Senate Committee on Energy and Natural Resources on March 9-12.

The analysis of the first question on the proposal's effects on the price and supply of natural gas was based on our gas supply/demand model which we developed for analyzing natural gas policy alternatives. Our recent report "Analysis of Natural Gas Pricing Policy Alternatives" (GAO/RCED-83-13) gives a detailed description of the GAO model. Basically, the GAO model estimates supply and demand separately and then integrates the results to estimate prices and production.

Specifically, conventional gas supplies were estimated according to the following logic: prices determine drilling rates which in turn influence reserve additions; these alter the proven reserve base; that base along with prices determine annual production. At each stage in this chain our econometric estimates were based on prices and other relevant factors. These factors included interest rates and historical trends in reserve-to-production ratios. Supplemental gas supplies were estimated outside the model through extensive interviews and review of current work in that area.

We projected gas demand as a function of price by dividing total gas demand into four subsectors--industrial, residential, commercial, and powerplant--based on an extensive data base from Government and industry sources. Gas demand for each subsector



was determined by projecting total fuel demand in each subsector, estimating and subtracting away the use of fuels other than oil and gas in each subsector, and estimating the split between oil and gas for the remaining fuel demand. These projections were based on extensive survey of gas users, particularly in the critical industrial and utility subsectors. Other considerations, such as the relative attractiveness of gas versus electricity for space heating, and regional limitations on gas transmission capacity, were also factored in.

The results generated by our supply/demand model are based on assumptions which underlie the Department of Energy's (DOE's) analysis of the bill. The most important assumptions made were:

- (1) Constant real oil prices of \$31.50/per barrel.
- (2) Real economic growth of 1.7 percent in 1983, 4 to 4.5 percent in 1984-85, and 3.4 percent in 1986-87.
- (3) No natural gas contract renegotiations in 1983 and 1984.
- (4) To the extent that the unregulated market would increase prices faster than inflation, the increases would be permitted under Federal Energy Regulatory Commission (FERC) regulation.

We utilized DOE's assumptions primarily to facilitate comparison of our results with DOE's. Use of these assumptions does not imply that we believe they are the best, or even fully appropriate. They do, however, represent a reasonable starting point and make comparison of results straightforward. Due to the limited time available to prepare this report, we were unable to do sensitivity analyses on the impact of changing these assumptions on DOE's and our results. Such analyses will be included in our subsequent report.

At this point we should emphasize that all results based on modeling are crucially dependent on the accuracy of the model and the assumptions underlying the results. As already noted, our model has been used extensively in other GAO work and has been previously evaluated by both GAO and other technical experts. Thus, we have confidence that it represents the dynamics of the natural gas market reasonably well. However, all models are a significant simplification of reality and so necessarily have a margin of error which should be kept in mind when interpreting the results.

Our analysis of the second question relied primarily on economic analysis of the natural gas market. Specifically, the analysis uses the supply, demand, and price results of the supply/demand model simulations which indicate the limits on what producers could charge and what pipelines would be willing to pay for supplies. We also relied on accepted principles of economic theory which show that, under workably competitive conditions, a product will tend to sell at the market-determined price.

To shed additional light on this question we obtained data from the Energy Information Administration (EIA) which show the most current sales of gas by the top 20 producers to 20 large interstate pipelines by Natural Gas Policy Act (NGPA) category. These data give some idea of the amount of old (inexpensive) and new (more expensive) gas each producer supplies to each pipeline and so indicate the potential to "bundle" together quantities of cheap and expensive gas. This bundling would make it easier for producers and pipelines to renegotiate contracts by raising prices on some gas while lowering prices on other gas.

The data we obtained from EIA must be interpreted cautiously. The data are filed by interstate pipelines with the FERC and represent projected purchases of natural gas for the next 6 months. EIA summarizes these data but does not validate them. Because the data concern sales of gas by individual producers to individual pipelines during 1982 and 1983, they may or may not be an accurate indicator of reserve holdings. The amount of reserves held by each producer will determine the gains and losses from decontrol, but such data is not currently available.

The third question concerning the effect on the renegotiation of contracts which the administration expects was addressed using information in our recent report "Information on Contracts Between Natural Gas Producers and Pipeline Companies" (GAO/RCED-83-5). This information was supplemented by the EIA data. Even with the drawbacks noted above, the data do provide an indication of the probabilities of windfall gains and losses to the various producers. The expectation of such gains and losses also provides incentives to renegotiate contracts.

#### THE ADMINISTRATION PROPOSAL--S.615

The administration's bill (S.615)--submitted on February 28, 1983--had several objectives. These included provisions to lower natural gas prices, provide a rapid transition to total wellhead price decontrol, and permit contracts between producers and pipelines to be changed to reflect free market forces. Hearings on the bill have taken place in both houses of the Congress, but as of this writing no votes have been taken on S.615 by either house's energy committee.

The administration believes that its proposed legislation will make gas prices responsive to the pressures of the market. Under this proposal, any new contract for natural gas purchases which is negotiated and existing contracts which are renegotiated will operate on whatever terms the parties agree and so be free of Federal price regulations. The administration contends that this proposal will protect consumers from rapid natural gas price increases because such contracts will embody lower prices than NGPA now allows. In addition, S.615 is supposed to encourage renegotiation of existing contracts and promote efficiency in gas purchasing, distribution, and use. The proposed legislation contains a number of provisions designed specifically to achieve these goals. These are:

- The gas cap, a transitional pricing mechanism for natural gas until it is removed from price controls. Pending contract renegotiation, or January 1, 1986 (when all remaining wellhead price controls are eliminated), gas that remains under NGPA regulation, except section 107 gas, will be subject to a price ceiling that is the lower of either the maximum lawful price under any existing section of NGPA or the gas cap price.
- The gas cap will be a monthly calculation of the volume-weighted average price of all new and renegotiated contracts. To reflect changing market conditions, this average price will be based on the prices estimated to be delivered during the second, third, and fourth months before the months for which the cap is published. Only gas delivered during the first 3 months of contracts newly entered or amended following enactment will be included.
- A price ceiling is placed on presently decontrolled high-cost gas which is the price for which it is selling on the date of enactment of the bill.
- The option of either party to a contract for the first sale of natural gas to terminate the contract ("market-out") during 1985. All contract terminations would require 45 days' advance notice and could not go into effect before January 1, 1985, or after December 31, 1985. Upon termination both parties to the contract would be released from all future obligations under the terminated contract. This option applies to preenactment contracts which have not been renegotiated.

- The limitation set on the amount of increases in purchase gas adjustment (PGA) costs which could be immediately passed through by pipelines to their customers. This section would impose a moratorium until 1986 on the prompt passthrough to natural gas customers of price increases that result from an interstate pipeline's paying higher prices for natural gas. A pipeline could increase the price to its customers to reflect higher acquisition costs for natural gas only if FERC approved recovery of such costs after a hearing in which it considered the question of whether these higher costs were just, reasonable, and prudently incurred.
- Natural gas purchasers have the right to refuse, until January 1, 1986, natural gas volumes in excess of 70 percent of availability from wells included under a first sale contract. Under some existing contracts pipelines are required to take a certain percentage of a well deliverability (usually over 70 percent) or pay for the gas not taken. Such requirements are called "take-or-pay" commitments.

S.615 has an impact on all gas categories of the NGPA. In this report we focus primarily on the following categories:

- Old gas (NGPA sections 104 and 106) composed of interstate gas found before 1977 and gas sold under "rollover contracts." (Section 106). Old gas is generally the lowest priced gas.
- New gas (NGPA section 102), new (post-1977) gas, which receives a 4-percent annual price increase above inflation.
- High cost gas (NGPA section 107), mostly gas found below 15,000 feet (whose price was deregulated in 1979).

#### COMPARING ENERGY AND ECONOMIC IMPACTS OF CURRENT LAW AND S. 615

In this section we focus on the impacts, at the national level, on average wellhead prices, supply, and demand from the pricing provisions of S.615. Specifically, we analyzed the effects of the reduction in take-or-pay requirements and the establishment of a new price ceiling through the gas cap.

Our analysis shows reductions in prices in 1983 and 1984 under S.615 as do the analyses published by the administration. Thereafter, our analysis shows that although prices climb under both S.615 and NGPA, prices under S.615 would be slightly below those under NGPA in 1985 and beyond. Finally, the lower wellhead prices during the first 2 years of the program depress gas discoveries. This reaction parallels the rapid reduction in exploration over the last 2 years as oil prices have fallen. The resulting lower supply results in a substantial price increase (27 percent above inflation) when the market clears in 1985 according to our model. DOE, on the other hand, projects an 11-percent price increase in 1985 under the bill.

#### Supply, demand, and price effects

Table 1 presents the supply, demand, and price results from our model for the years 1983-87 under NGPA and S.615. Several points should be kept in mind when reviewing the table. To simplify this part of the analysis and to keep comparability between our results and DOE's, we assume that all renegotiation of contracts under S.615 will occur in 1985. Thus, the numbers reported for 1985-87 under S.615 reflect a totally decontrolled market. Second, the prices reported for the NGPA case for 1985-87 include estimates of the most likely price increase from existing contract provisions. We found that under NGPA certain pipeline contract provisions could boost the cost of gas substantially as analyzed in our recent report entitled "An Analysis of Natural Gas Pricing Policy Alternatives" (GAO/RCED-83-13, Feb. 3, 1983). Third, as described earlier, there are three separate pricing provisions of S.615 which had to be incorporated into our analysis--the gas cap, take-or-pay reduction, and the cap on high-cost (section 107) gas prices. By reducing both the price and quantity of the highest priced gas consumed, these provisions lead to a reduction in average wellhead prices in 1983 and 1984.

Reducing take-or-pay obligations lowers the average cost of gas by reducing the amount of high-priced gas pipelines carry while increasing their volume of lower priced gas. The pricing impacts from reductions in take-or-pay requirements to 70 percent of deliverability were estimated in the following manner. EIA data on take requirements were used as a basis for the current take-or-pay levels.<sup>3</sup> We reduced the quantity of new gas to reflect the amount of new gas produced along with crude oil (associated gas). Then, we reduced the remaining quantities of new gas and high-cost gas by 16 and 8 percentage points, respectively, to achieve the 70-percent level. Finally, we increased the

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<sup>3</sup>"Natural Gas Producer/Purchaser Contracts and Their Potential Impacts on the Natural Gas Market," Energy Information Administration, June 1982, DOE/EIA-0330.

amount of gas included in the remaining NGPA categories by an equal amount so that the total amount of gas consumed in 1983 or 1984 did not change.

In order to determine a reasonable estimate for the gas cap, we compared our projection of the market clearing price under NGPA in 1985 (\$2.99 per mcf) with an earlier projection under total decontrol (\$2.90 per mcf). On this basis, we concluded that \$2.95 was a reasonable level. These price results--and all others cited in this report--are given in 1982 dollars. FERC estimates the gas cap at \$2.97 based on the current price of high sulfur fuel oil, and DOE projects the gas cap at \$2.95. Finally, it has been reported in the trade press that contracts for new natural gas are presently being signed at around \$3.00. With all these sources in substantial agreement, we decided that a gas cap of \$2.95 was appropriate for analytical purposes and would facilitate comparison with DOE's results.

The gas cap set at this level lowers the NGPA ceiling price for both section 102 and 108 gas, causing the average wellhead price to fall.

#### Prices

Table 1 indicates that the take-or-pay and gas cap provisions of S.615 have an immediate impact on average wellhead prices. Prices during 1983 and 1984, when these provisions are in effect, are 27 to 40 cents per mcf below those under NGPA. Although S.615 lowers prices in 1983 and 1984, prices under both cases narrow to within 2 cents by 1986, with S.615 resulting in a large price increase from 1984-85--27 percent as opposed to a 14-percent increase under NGPA. Prices under S.615 do, however, remain below NGPA prices throughout the period. In addition, prices continue to increase in real terms under both cases.

There are several reasons why our model shows a large (27-percent) increase in prices under S.615 in 1985. First, in our analysis 1985 is the first year in which prices are determined by market forces; that is, supply and demand. Secondly, we assume, as DOE does, that substantial economic recovery has occurred by 1985, increasing demand over current levels. Finally, while demand increases from 1983 on, lower prices under S.615 result in less exploration and lower supply than under NGPA. When combined, these three factors increase prices under S.615 in the following way: Lower prices and economic recovery in 1983 lead to increased demand and less supply. The excess supply is less than 0.5 trillion cubic feet (tcf) compared to 0.9 tcf under NGPA. By 1984, as economic recovery continues to increase demand while lower prices hold down supply, our model shows 0.2 tcf of excess demand. When this excess demand is free to express itself under a free market in 1985, wellhead gas prices will be bid up by 27 percent over 1984 levels.

Table 1

Prices and Supplies of Natural Gas  
Under NGPA and S.615  
1983-87

Price (note a)  
(1982 dollars per thousand cubic feet)

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
NGPA	2.70	2.98	3.40	3.58	3.76
S.615	2.43	2.58	3.28	3.56	3.71
Difference (NGPA - S.615)	+ .27	+ .40	+ .12	+ .02	+ .05

Quantities supplied and demanded  
(in trillion cubic feet)

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
	Supply/ Demand	Supply/ Demand	note b	note b	note b
NGPA	19.2/18.3	18.7/18.1	18.3	18.0	17.7
S.615	19.1/18.6	18.4/18.6	17.8	17.3	17.0
Difference (NGPA - S. 615)	0.1/-0.3	0.3/-0.5	0.5	0.7	0.7

a/National average wellhead price includes section 110 costs, severance taxes, and other taxes.

b/Supply and demand are equated in 1985 and beyond as the gas market is substantially decontrolled.

Under NGPA, in comparison, while demand grows in a similar manner, higher prices in 1983 and 1984 result in greater supplies. NGPA produces approximately 1 tcf of excess supplies in 1983 according to our model. By 1984, increased demand reduces this surplus to 0.6 tcf. As the economic recovery continues through 1985, this excess supply is absorbed. With demand and supply in balance, the 14-percent price increase which occurs in 1985 when the market clears under NGPA is almost totally due to pricing provisions of existing contracts.

#### Effects of the purchased gas adjustment provisions

Under S.615 a moratorium would be placed on current FERC regulations that normally allow pipelines to pass through purchased gas adjustments (PGA's) immediately. Until January 1, 1986, all PGA's which would have been immediately passed through to consumers would be allowed to increase only at the rate of inflation. Additional gas costs could be allowed by FERC following public hearings only if the costs were determined to be just, reasonable, and prudently incurred. We will address the administrative implications for FERC of the PGA limitation and other provisions of S.615 in a report requested by Chairman Sharp, Subcommittee on Fossil and Synthetic Fuels, will be published shortly.

In our analysis the PGA plus inflation ceiling of S.615 will not be operative in 1983 or 1984 because the market price in those years would be below the ceiling. However, in 1985 prices would exceed the PGA plus inflation ceiling. We assume, as does DOE, that in this case prices would be allowed to rise faster than inflation. FERC could reduce the price increase which occurs in 1985 by not permitting increases above the PGA ceiling if it found that such increases were not reasonable. However, doing so would have the effect of postponing the price fly-up until January 1, 1986, when all price controls are removed. We will discuss the effect on both pipelines and producers if FERC acted in such a manner in our followup to this report.

#### Revenue impacts from alternative gas cap levels

By forcing new gas prices below the NGPA ceiling, the gas cap may cause significant revenue losses for new gas producers. Table 2 illustrates the impacts by contrasting the NGPA section 102 ceiling price with our estimate of the cap. The potential revenue losses amount to between \$1.7 and \$2.5 billion in the 2 years. These estimates are a maximum since they could be offset to the extent that the price of old gas owned by these producers was increased by contract renegotiation. To the extent this happens, net revenue losses would be lower.



Table 2Maximum Potential Producer Revenue Impacts  
of Alternative Gas Caps (note a)

	<u>Price</u>		<u>Producer revenues loss (note b)</u>		
	<u>(1982 Dollars per mcf)</u>		<u>(billions of 1982 dollars)</u>		
	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1983</u>	<u>1984</u>
NGPA section 102	\$3.52	3.69	note c	\$ 0	0
GAO gas cap estimate	2.95	2.95	note d	1.7	2.5

a/This represents the maximum impact on producer revenues from a decline in NGPA section 102 prices. These impacts would be reduced to the extent that a producer had old (section 104) gas which he could, through contract renegotiation, sell for a higher price.

b/Based on GAO projection of 3.0 tcf of Section 102 gas in 1983 and 3.4 tcf in 1984.

c/Under NGPA, section 102 gas will be decontrolled on Jan. 1, 1985.

d/Although technically in force during 1985, all gas under new or renegotiated contracts will sell at market-determined prices in this year.

IMPACTS ON NEW AND  
OLD GAS PRICES

Since under S.615 both producers and pipelines have the option to market-out in 1985, it is plausible that renegotiation will lead to an equalization of old and new gas prices at a level reflecting market forces. Economic analysis indicates this is likely because if an owner of old gas cannot get the market price from its traditional pipeline, he can market-out and sell to another pipeline or end user at the going (market) rate. The same logic applies to new gas, only here the pipeline can market-out if the producer insists on an above-market price and seek supplies elsewhere. This type of market-out is not likely, however, since the producer will be selling his new gas to potential customers who can buy new supplies at the market price.

In cases where a producer sells similar volumes of high- and low-cost gas to the same pipeline, renegotiation will be easiest with the new gas price coming down and the old gas price rising symmetrically to the market price. In such cases, since the rise in old gas prices would be fully offset by the fall in new gas prices, the impact on average prices would be nil. Table 3 provides some indication of the extent to which producers and pipelines will be able to tradeoff or bundle old and new gas volume. The table provides, for each of the 20 large interstate pipelines, the percent of old gas supplied by the group of 20 largest gas producers and the percent which can be bundled. As can be seen in table 3, the ability to bundle old and new gas is not very large, with only 3 of the 20 interstate pipelines being able to bundle over 25 percent of the old gas supplied by the 20 largest gas producers. This indicates that a substantial amount of the gas moving to a market clearing price will not be offset though the bundling of old and new gas.

The results in table 3 should be viewed with some caution. First, the data only represents natural gas production from the top 20 producers. In some cases, pipelines acquired substantial amounts of old gas from smaller producers which could increase the total amount of old gas which could be bundled. Secondly, table 3 is based on mid-1982 data; since old gas is depleting faster than new gas the ability to bundle will be greater in 1985 than in 1982. Finally, since the PGA data is based on projected purchases of natural gas rather than reserves which will be produced over many years, it only provides an indication of whether bundling is possible. Since gas is sold under long-term contracts, only data on actual reserves can answer the question definitively. Such data was not available when this report was written.

In conclusion, under S.615 the price of new gas should have fallen and the price of old gas should have risen to the point

Table 3

Bundling Potential: The Percentage of  
Old Gas Price Increase Which Can Be  
Directly Compensated Through Price Reductions in  
More Expensive Gas (note a)

	<u>104 Supplied</u>		<u>Potential</u>
	<u>BCF (note b)</u>	<u>Percent</u>	<u>104 Bundled</u>
			<u>Percent</u>
Columbia Gas Transmission (10 producers note c)	172	69	33
Colorado Interstate Gas (10 producers)	47	35	29
Trunkline Gas (10 producers)	311	82	26
Transcontinental Gas Pipeline (12 producers)	212	60	20
United Gas Pipeline (15 producers)	178	69	19
Tennessee Gas Pipeline (14 producers)	527	86	16
Kansas-Nebraska Natural Gas (5 producers)	12	30	15
Texas Gas Transmission (4 producers)	227	75	15
Michigan-Wisconsin Pipeline (12 producers)	213	62	11
Transwestern Pipeline (10 producers)	36	51	11
El Paso Natural Gas (15 producers)	437	15	9
Florida Gas Transmission (5 producers)	57	79	7

	<u>Table 3</u> (cont.)		
Southern Natural Gas (9 producers)	117	55	3
Northern Natural Gas (9 producers)	208	50	3
Northwest Pipeline (10 producers)	33	53	3
Panhandle Eastern Pipeline (5 producers)	92	30	2
Northwest Central Pipeline (7 producers)	65	55	2
Natural Gas Pipeline (12 producers)	453	71	2
Texas Eastern Transmission (11 producers)	310	81	1
Consolidated Gas Supply (2 producers)	2	7	0

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a/Based on mid-1982 PGA filings with FERC summarized by EIA. For 20 large interstate pipelines provides the quantity and percent of old gas supplied by the 20 largest natural gas producers and the percent of this gas which can be bundled with new and high cost gas.

b/Billion Cubic Feet.

c/Number of large producers selling more than 1 percent of total 104 gas supplied to each pipeline.

where both approximate market clearing levels by 1986. Only in those limited cases where bundling is possible, however, will the impact on individual producer and pipelines be minimized.

In our view, the most important issue is the impact such presumed equalization of prices will have on both pipelines and producers. Since, as noted earlier, the distribution of old and new gas is far from uniform, there will be substantial winners and losers on both sides of the contracting table. We will examine this issue in more depth in our subsequent report.

#### RENEGOTIATION OF PRODUCER- PIPELINE CONTRACTS

Contracts for the purchase of natural gas at the wellhead specify the terms and conditions of the gas sale, and thus define the relationship between the producers of the gas and the purchasers--primarily pipeline companies. The thousands of existing contracts represent complex and varied agreements negotiated between thousands of producers and more than 100 interstate pipeline companies. These contracts have traditionally been long-term agreements--often extending 20 years or more.

#### Why there is concern about natural gas contracts

Once Federal price ceilings for about one-half of domestic gas expire in 1985 under NGPA, the pricing provisions of these contracts will determine the price to be paid for this gas at the wellhead, and therefore by the consumer. Assuming that contracts operate as written, there is concern that prices linked to the price of heating oil (an "oil parity" clause) or imported gas under a relatively few contracts will rise above what the market will bear. These, in turn, could trigger the clauses in many other contracts which tie their prices to prices being paid to other producers (a "favored nation" clause). In turn, this could cause high prices to spread rapidly among contracts covering deregulated gas.

Increasing gas prices at the wellhead because of the operation of contract clauses will increase a pipeline's acquisition costs for its gas supply and, thus, increase the cost of gas to its customers. As these increased costs plus normal charges for transportation and distribution push the retail price of gas to where it approaches or exceeds the price of residual fuel oil, price-sensitive industrial and electric utility customers could switch to this alternate fuel. Such a drop in industrial and electric utility gas demand and subsequent loss of pipeline load could lead to further increases in residential prices as fixed pipeline costs are spread over fewer sales.

Take-or-pay contract clauses have also had an effect on current natural gas prices and have been the subject of widespread concern. These clauses specify the daily, monthly, or yearly volumes of gas that the pipelines will purchase. Typically they require the pipeline to pay for the gas even if it is not taken. As has been extensively reported in the trade press and confirmed by DOE, pipelines have been reducing purchases of low-priced gas with low take obligations in order to meet their contractual requirements to purchase relatively expensive gas with high take obligations. This practice is a factor in increasing gas prices at a time when an oversupply of gas exists.<sup>4</sup>

The context in which renegotiation would take place under S.615 will play an important role in determining its extent. First, the renegotiation "window" between passage and the market-out period starting January 1, 1985 is narrow, a little more than a year at most assuming legislation would not be enacted before the fall of 1983. Second, both producers and pipelines are interested in maintaining long-term relationships; producers to ensure continued cash flow and pipelines to ensure continuing service to their customers. Both sides have historically sought such relationships, with contracts typically covering a 10- to 20-year period. Third, there is a very large number of producer/pipeline contracts which could be renegotiated--in the range of 30,000 for the interstate market alone.

As pointed out in the previous section on expected changes in old and new gas prices, whatever bundling of cheap and expensive gas that exists will facilitate price equalization. Bundling will also facilitate contract renegotiation as a producer directly bargains price increases in his old gas for price concessions on his new gas.

#### Impact of the gas cap on contract renegotiation

As explained earlier, we estimated the gas cap for 1983 and 1984 to be \$2.95 per mcf (in 1982 dollars). This is lower than what the maximum lawful ceiling price for NGPA section 102 gas would have been. Under these circumstances, the price cap would lead to reductions in prices paid for new gas. Producers of new gas would experience a loss of revenue and pipelines would experience a decrease in their gas acquisition costs, depending on the amount of such gas they purchase.

According to EIA data, the 20 major interstate pipelines purchased 43 percent of their new gas from the largest 20 producers and 57 percent from the smaller producers. Thus, it

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<sup>4</sup>U.S. GAO, "Natural Gas Price Increases: A Preliminary Analysis" GAO/RCED-83-76, Dec. 9, 1982.

appears that the smaller producers would suffer greater revenue loss as the gas cap forces new gas prices down. During the hearings held by the Senate Committee on Energy and Natural Resources in early March 1983, representatives of producer groups testified about the financial hardship that a rollback in new gas prices would cause them. Since producers made investment decisions and loan obligations to banks and investors based on higher NGPA prices, the producers asserted that a reduction in revenues would cause many producers difficulty in meeting their financial commitments. While this point is certainly plausible, the witnesses did not submit any specific evidence which would indicate the impact of decreased revenues.

If producers of new gas face a loss of revenues under the gas cap, they would have an incentive to renegotiate to secure increases in their low-cost old gas contracts to compensate for their new gas price decreases. However, until January 1, 1985, when producers have the option to unilaterally terminate contracts, pipelines would have little incentive to renegotiate contracts for old gas. This gas will be priced at about \$1.50 per mcf in 1984, well below the market clearing price (about \$3.00 per mcf) because it will still be under the NGPA ceiling. Thus, taken in isolation, the gas cap would provide a disincentive to pipelines for renegotiation.

While this disincentive is certainly present, all three contextual factors would work in the opposite way. Any advantage would be short-lived, and a pipeline would be risking a producer market-out. Finally, the sheer volume of contracts--into the thousands for some large interstate pipelines--provides a strong incentive to start renegotiations expeditiously.

#### Market-out provisions

S.615 provides that either party will be allowed to terminate a contract (market-out) as of January 1, 1985, for domestically produced gas that was executed prior to enactment. Energy Secretary Hodel testified that "the market-out provision is intended to assure that the price of gas reflects market conditions and to allow parties to contracts to solve problems, such as take-or-pay and oil-parity clauses, without the Federal Government imposing an arbitrary solution."

Under this provision, the producer and pipeline would have an incentive to renegotiate existing contracts that have terms which are unfavorable to one of the parties or risk the contract being terminated after January 1, 1985. Such contracts for a producer could include

--contracts for low-cost gas with prices below  
the average wellhead price and

--contracts for new gas with prices capped below the NGPA ceiling price.

Contracts which are unfavorable for a pipeline include

--contracts for high-cost (section 107) gas with prices that are above market-clearing levels and

--contracts that would be subject to a price fly-up upon decontrol because of the presence of various infinite price escalator clauses.

The market-out provision, together with the three contextual factors, clearly provide a strong incentive for renegotiation for the same reasons outlined in our discussion of the gas cap. In addition, if a contract is terminated, the proposed legislation permits a producer to sell the gas to another purchaser, including other pipelines, distribution companies, and industrial end-users. It also grants FERC power to order an interstate pipeline to transport the producer's gas to the new purchaser for a \$0.05 per mcf surcharge above regular tariffs. Thus a pipeline would not only lose a producer's gas, but it could still be required to transport it to a third party.