United States Senate
COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS
WASHINGTON, D.C. 20510

February 4, 1974

TO: Members of the Committee on Interior and Insular Affairs and of the House-Senate Conference Committee on the Energy Emergency Act

FROM: Arlon R. Tussing, Chief Economist
Committee on Interior and Insular Affairs

RE: National Petroleum Council's "Required Prices for Crude Oil"

Senator Jackson and other members have recently cited the December 1972 study by the National Petroleum Council (NPC) (U.S. Energy Outlook) as evidence that, only a year ago, the producing industry regarded crude oil prices in the range of \$3.50 to \$4.50 per barrel as adequate to support the maximum practical level of exploration and development. The members have singled out particularly the attached Table 15 of the NPC report, U.S. Energy Outlook, which indicates a "required" price of \$3.65 in 1975, to support the NPC's most optimistic scenario (Case I). Because the latter figure was given in 1970 dollars, the equivalent price today would be about \$4.35, which is very close to the average price of "old" oil before the December increase authorized by FEO.

Vincent M. Brown, Executive Director of the NPC, has submitted a letter for the record, a copy of which is attached, protesting this use of the NPC study. He wrote Senator Jackson:

> "Your use of the domestic crude oil 'price' in 1975 of \$3.65 per barrel, as it appears in the study, is completely out of context. In addition, your citation of the NPC report to support your conclusion that 'these were the prices domestic industry said it needed only a little over a year ago to achieve the maximum level of domestic self-sufficiency' is patently incorrect. The report contains no such funding or conclusion."

Mr. Brown's criticism rests (1) upon the structure of the NPC's economic model and (2) upon the definition of "price" used in the tables.

In simple terms, the NPC's methodology was as follows for each of four "Cases" (and a number of sub-cases):

(1) A specific drilling rate was assumed;

(2) The cost of this drilling program gave the investment required;

(3) A specific "success rate" in drilling was assumed;

(4) The rate of production in future years was inferred from the success rate;

(5) The average crude oil prices were calculated for each year, that would give revenues equal to a given "return" (e.g., 15 percent) on the industry's invested capital, derived from the investment figures in (2).

Moreover, the measure which the NPC used for rate of "return on net fixed assets" bears little resemblance to the rate of return concepts management uses in evaluating "investment opportunities."

Mr. Brown's protest is correct to this extent: the NPC's naive economic model was not explicitly "designed to develop activity levels /drilling rates, etc./ or resulting supplies based on assumed prices or to quantify the incentives needed to realize the assumed levels of activity (p. 1)." In other words, its formal results were not, from the beginning, very useful in evaluating such factors as price controls, taxes, the rate of OCS leasing, or other policies that might affect either the drilling rate or the success rate. This is because these rates were already given as assumptions of the study.

An economic model designed to estimate the effectiveness of various policies toward the oil industry would have to differ from the NPC model in at least two respects: (1) it would have to recognize that the success rate depends upon the drilling rate (because of the tendency to explore and develop the best available prospects first), and (2) it would use a discounted cash flow rate of return concept rather than the balance sheet concept used in the table.

Notwithstanding the inappropriateness of the NPC's methodology to evaluating many important public policy questions, its report, U.S. Energy Outlook, did not hesitate to draw quantitative conclusions about prices, taxes and leasing rates as if these were logical inferences from the study. The table which

Senator Jackson cited was labeled "Average Required 'Prices'". The attached supporting table (no. 660) from the background report to U.S. Energy Outlook, "Oil and Gas Availability," is labeled "Average Unit Revenue Required Per Barrel of Crude Oil (Dollars Per Barrel)."

The text even more explicitly attempts to lead the reader to policy conclusions purportedly based upon the Council's "extremely technical study utilizing the judgement, experience and training of approximately 1,000 highly qualified professional people from both government and industry, including energy experts from outside the oil and gas industry."

> "For each fuel, the four principal supply cases estimated the average unit revenues or 'prices' required to support assumed ranges of activity levels, given an assumed range of investment returns. These analyses indicate that real energy 'prices' of domestic fuels at the wellhead or mine must rise significantly by 1985. Since the 'prices' cited for the fuels do not consider differences in quality, distribution costs or use characteristics, the 'prices' calculated in this study cannot be meaningfully compared with each other. The projected range of percentage increases in average 'prices' required to 1985 (in terms of 1970 dollars) over 1970 for individual fuels is indicated below:
>
> - Oil at the wellhead: up 60 to 125 percent
> - Gas at the wellhead: up 80 to 250 percent
> - Coal at the mine: up about 30 percent
> - U_3O_8: up about 30 percent.
>
> "The above ranges would imply an average annual increase in fuel 'prices' of 2 to 9 percent, though the rate of increase would not necessarily be uniform throughout the period to 1985 and would not be the same for each fuel. These are increases in real costs over and above inflation.
>
> "The required 'prices' calculated indicate a need for a sharp reversal of the declining real price trends that have been experienced for the last several years. Declining prices have reduced the attractiveness of this high-risk industry as is evidenced by the decline in both drilling effort and in reserve additions resulting from new exploration."

The NPC model's validity, or lack of validity, for measuring the effects of changes in tax policy depends on exactly the same factors as its validity for price analysis. Yet, the report's narrative did not shrink from quantitative judgments about the impact of tax reform:

> "Long-established tax provisions for the extractive industries have historically promoted the development of energy supplies. These tax features deal with percentage depletion applicable to coal, uranium, oil, gas, oil shale and geothermal steam, and those permitting current deductions of intangible costs for oil and gas. Adverse changes in such tax provisions would prove expensive for the Nation because they would reduce supplies and lead to higher costs and prices. For instance, complete removal of the statutory depletion allowance would necessitate an immediate 'price' increase on the order of $0.50 per barrel for all oil and $0.03 per thousand cubic feet (MCF) for gas; by 1985 it would necessitate increases of $0.90 to $1.00 per barrel and $0.05 to $0.07 per MCF in order to maintain a return on investment sufficient to generate and attract the capital needed to provide the supply projected. These 'price' increases are over and above the increased 'prices' indicated for the particular fuel cases in 1985 due to higher investment and operating costs."

As long as the numbers generated by the model supported price increases (rather than rollbacks), the NPC was willing, notwithstanding the many reservations in the text, to have readers think these numbers were meaningful.

> "The most effective economic incentive would be to allow prices to increase to the level at which the industry can attract and internally generate the risk capital needed to expand activity to its maximum capability. This requires both a fair return on total investment (e.g., return on net fixed assets), as well as the anticipation of attractive returns on current and future investments.
>
> "During the last 10 to 15 years, real prices of oil and gas at the wellhead have declined while real costs have been increasing. As a result, both drilling activity and addition of new reserves have declined rapidly. Assuming a 15-percent annual rate of return in constant 1970 dollars, 1985 average oil 'prices' may have to range from $5.06 to $7.21 per barrel, and 1985

> average gas 'prices' may have to range from \$0.31 to \$0.59 per MCF to support the activity levels assumed (Cases IA and IVA). If prices for gas found prior to 1971 are prevented from increasing by regulatory or contractual restrictions, the required 'price' in 1985 for gas found after 1970 would be on the order of 30 to 50 percent greater than the average 'prices' calculated.
>
> "Even a continuation of drilling activity along the current declining trend will require 'price' increases of about \$2.00 per barrel and \$0.15 per MCF by 1985 if the petroleum industry is to realize a 15-percent return on its net fixed assets."

In fairness to the NPC, no model or methodology can answer all questions equally well, and the NPC report is hedged with sufficient disclaimers to deter any careful reader from taking most of its projections, above all its price projection, at face value.

Yet, Senator Jackson did not, in his statement quoted by Mr. Brown, assert that the NPC "price" estimates were correct. He cited them as evidence of the levels industry thought one year ago would be necessary to support a sharp upturn in domestic investment and production. These figures were used by the NPC for exactly that purpose -- to propagandize for higher prices.

Taken precisely in the context of the whole report, which was used by the NPC to underpin the industry's defense of higher prices, oil import quotas, tax preferences, and which was endorsed by the Council as a whole, it is entirely proper to say, as Senator Jackson did, that "these were the prices domestic industry needed only a little over a year ago..."

TABLE 15

AVERAGE REQUIRED "PRICES" FOR OIL AND GAS—1970 CONSTANT DOLLARS
($/bbl or ¢/MCF)

	Actual*		Projected at 15% Return on Net Fixed Assets		
	1965	1970	1975	1980	1985
			High Finding Rates		
Crude Oil "Price" ($/bbl)					
Case I	3.26	3.18	3.65	4.90	6.69
Case II	3.26	3.18	3.63	4.73	6.18
Gas Field "Price" (¢/MCF)					
Case I	17.8	17.1	26.7	33.7	43.6
Case II	17.8	17.1	26.2	31.8	39.8
			Low Finding Rates		
Crude Oil "Price" ($/bbl)					
Case III	3.26	3.18	3.67	4.95	6.60
Case IV	3.26	3.18	3.57	4.39	5.28
Gas Field "Price" (¢/MCF)					
Case III	17.8	17.1	27.9	37.8	53.0
Case IV	17.8	17.1	26.6	31.6	38.7

* Bureau of Mines' actual date, unadjusted for rate of return.

H.R. 9681 - EMERGENCY PETROLEUM ALLOCATION ACT OF 1973

Points for Special Emphasis

1. Program Flexibility

   In order to avoid freezing in statutory terms a mandatory policy, the Committee has recommended that the Executive be assigned the responsibility for crafting the program in accordance with Congressionally defined objectives.

2. Time Frame

   The President is specifically directed and required to promulgate a regulation within 15 days of enactment, to be effective 15 days thereafter. Much of the work has already been done and a program is already drawn and awaits only the President's decision to act.

3. Price Controls

   The bill would require that the program determine the prices of products or the methods for determining equitable prices of these products. It will not be necessary to set specific prices but merely an equitable method for determining price levels (such as a specified percentage markup).

4. Products Covered

   The program requires the allocation of crude oil, residual fuel, and refined petroleum products. Refined petroleum product means gasoline, kerosene, distillates (including Number 2 fuel oil), LPG (propane and butane, but not ethane), refined lubricating oils, or diesel fuel.

   The program would reach both the refiner and producer level (exclusing stripper wells). The Committee expects the President, in applying controls, to exercise care not to discourage production.

5. Objectives (See Sec. 4(b) of the bill.)

   The objectives are not set forth with any order of preference in mind. The President is given flexibility so that so that the goals may be attained collectively "to the maximum extent practicable."

   The President is directed to allocate products to refiners and marketers in amounts equal to those that they obtained in 1972, but this is qualified by reference to the goals set forth in Sec. 4(b). A requirement that domestic production be confined within the United States is qualified by a finding that such allocation be both practicable and necessary to accomplish these goals.

6. Federal Trade Commission Reports

   The Federal Trade Commission is directed to monitor the program and report to the Congress on its effectiveness so that Congress can receive an evaluation from an objective body with experience in the field.

Council Hails House Election Reform Bill

A campaign reform bill passed by the House in the midst of the presidential impeachment crisis was endorsed by the AFL-CIO as the most effective legislation with a realistic chance of enactment this year. It would set strict limits on the amount that any candidate for federal office can spend to get elected—either directly or through campaign committees.

It would impose equally stringent ceilings on the amount that an individual or committee could contribute to a candidate or spend on his behalf. And no contribution over $100 could be in cash—with up to one year in prison for violators.

The House bill would also firm up public financing of presidential campaigns through the checkoff of tax dollars, and it would provide limited matching grants for presidential primaries.

As the *Memo* went to press, the final version of a campaign reform law remains to be shaped in a House-Senate conference committee. The Senate passed a campaign spending bill last year.

Although the bill does not provide for public financing of congressional campaigns, the AFL-CIO Executive Council said its enactment would be "a strong step" toward the goal of effective campaign reform, "although it does not meet it completely." It expressed the "practical legislative assessment" that no more sweeping bill could be passed this year.

The statement adopted by the council at its summer meeting in Chicago cited the disclosures of "one political abuse after another in the years since Watergate." It noted that the Senate twice passed election reform legislation.

The bill passed after an amendment was defeated which would have imposed harassing reporting procedures on labor's and other voluntary groups' political activities.

Oil Ripoff

The magnitude of the profits ripoff enjoyed by the major oil corporations over the past year is revealed by their earnings reports for the first half of 1974, as compared to the same period last year.

The increases range from a modest 22 percent for Standard Oil of Ohio (Sohio) to an astronomical 403 percent for Occidental. Not all the companies have reported, but here's a tabulation by order of the volume of 1974 profits after taxes:

Oil Corporation Profits After Taxes

Company	*1973 1st Half*	*1974 1st Half*	*Up*
Exxon	**$1,020.0 Million**	**$1,560.0 Million**	**53%**
Texaco	**531.6**	**1,050.0**	**97%**
Mobil	**340.0**	**626.0**	**84%**
Standard, Calif.	**335.0**	**578.0**	**73%**
Gulf	**360.0**	**540.0**	**50%**
Indiana Standard (Amoco)	**242.5**	**469.0**	**106%**
Shell	**169.8**	**246.4**	**45%**
Sun Oil	**97.6**	**218.2**	**124%**
Continental	**99.2**	**209.6**	**111%**
Phillips	**89.8**	**204.7**	**128%**
Occidental	**31.9**	**160.4**	**403%**
Cities Service	**67.3**	**122.6**	**82%**
Ashland	**60.4**	**85.7**	**42%**
Marathon	**40.7**	**80.8**	**99%**
Sohio	**59.8**	**72.9**	**22%**

Meanwhile, as working families pay 50 to 65 cents or more per gallon at the pump for gasoline, the House Ways and Means Committee is readying a so-called "tax reform" bill. If Congress doesn't kill the 22 percent oil depletion allowance that has helped send oil corporation profits soaring, members of the House and Senate will be parties to the oil ripoff.

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