

HOUSE/SENATE FINANCE COMMITTEE MINUTES - 1967-1982 2806

This same group generally has bearish expectations regarding supply, too. They anticipate non-OPEC production rising significantly and the return of Iran and Iraq as major producers. Most importantly, they assume that OPEC will not be able to limit its members' production efforts. They foresee cut-throat price competition among OPEC members trying to sell enough oil to meet their budgetary needs.

The other party in the debate, which has more bullish views on oil prices, identifies the current recession and inventory liquidation as the more prominent reasons for current slack demand. They generally anticipate that the economy will pick up steam towards the end of the year and that inventories will have reached satisfactory levels around the middle of the year. Thus, they expect demand to slowly increase over the year.

The bulls feel that OPEC will not break down in the face of reduced demand. Either demand for OPEC oil will be such that Saudi Arabia can soak up the glut by reducing its production³ or else in the face of sharp declines in demand, the sobering prospect of ruinous competition will restrain OPEC members from competing for market shares. There are signs that some OPEC members, including Nigeria, are preparing sharply reduced budgets.

OIL PRICE SCENARIOS

The two opposing views of prospective oil prices can be analyzed in three scenarios. Two scenarios, high demand and low demand cases, would have the common assumption that OPEC is able to keep the market roughly in balance through production and/or price reductions.

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3. 6 million barrels per day (BPD) is likely to be a floor that the Saudis would be very reluctant to penetrate because it would cut into their five year development plan, result in imports exceeding exports, and not provide sufficient associated gas for new industries according to "Petroleum Intelligence Weekly", January 25, 1982 issue. It appears that the Saudis are, as promised, letting the market determine their production levels, at least within limits. It is believed that producing companies underlifted by as much as 700,000 BPD in January from the official Saudi production level of 8.5 million BPD. However, some experts feel Saudi production levels would have to drop to around 4 million BPD to soak up excess capacity and also change price expectations that are resulting in inventory drawdowns and short sales by oil speculators.

The possibility that OPEC would lower official prices probably is less likely than cuts in production. Given the short-run inelasticity of demand, cuts in prices would leave members with less revenue from selling the same amount of oil and only exacerbate tendencies towards cut-throat competition. Cuts in production could be disproportionately borne by countries with revenue surpluses.

There are indications that present price levels and expectations are already showing the desired effect on long-run demand for OPEC oil. Many synfuels projects are being dropped or shelved indefinitely and deep-water drilling plans are being cut back. Sales of coal reserves are showing softness.

In any event, OPEC's pricing behavior is expected to be of secondary importance in determining non-OPEC prices. Because of declining markets, price leadership has passed to non-OPEC producers. Some of the important ones like the U.S. and U.K. have strong incentives to meet market declines with reduced prices; U.S. producers can shift profits to refining and marketing and so avoid windfall profits taxes on production. For OPEC governments to reduce prices poses difficult budgetary and political problems each time it becomes necessary.

Thus, in the first two cases, it can be assumed that prices generally follow the market with OPEC serving only to prevent runaway competition.

It is conceivable that OPEC could become so alarmed about long-run demand that they decide to lower prices well below current market levels in order to discourage conservation and fuels substitution. The enormous pressures this would place on deficit-ridden members to cheat on prices, not to mention the difficulty of achieving consensus on such a decision, make such a scenario unlikely enough that it suffices to consider only one additional scenario. This is one of a precipitous decline in prices due to cut-throat competition among OPEC members.

Practically speaking, prices, and thus Alaska revenues, could fall anywhere between the higher cases and the low case of a shattered OPEC. These points in between can represent the basic uncertainty about where the bottom of the market is or they can even represent the possibility of OPEC making a drastic reduction in price and somehow being able to hold the line at that point.

The detailed assumptions as to price in the three scenarios are:

High Case- high demand, OPEC intact

1) January - June, 1982

The spot market remains depressed due to weak demand, some OPEC cheating, and speculators' short trading. Consequently, Sadlerochit delivered prices drop from \$31.15 in December 1982 to \$29 for this period. (By comparison comparable Mid-East grades in January are trading at and are valued by refiners at \$27 to \$28 a barrel). With roughly \$10 in transportation costs subtracted from the delivered price, the Sadlerochit wellhead would be \$19.

2) July - December, 1982

- a) Demand picks up a bit as inventories reach satisfactory levels. OPEC makes production cuts and cheating abates, firming up prices. Sadlerochit wellheads rise \$1 a barrel.
- b) West Coast prices fall \$1.25 relative to Gulf Coast prices, resulting in a 70¢ reduction in Sadlerochit wellhead. Kuparuk and royalty sales responsible.

3) January - June, 1983

- a) World economies pick up. OPEC possibly raises prices by some amount less than inflation. Sadlerochit wellhead rises \$2 a barrel.
- b) Completion of the Panama pipeline raises Sadlerochit wellhead \$1.00 a barrel.

Medium Case- low demand, OPEC intact

1) January - June, 1982

- a) Markets generally weaker than high case. Sadlerochit wellhead averages \$18 a barrel for the period.
- b) West Coast prices fall \$1.25 relative to Gulf Coast, reducing Sadlerochit wellhead 70¢ further. Kuparuk responsible.

2) July - December, 1982

Even though inventories have been worked off, demand remains flat. OPEC production reductions help stabilize markets. No change in prices.

3) January - June, 1983

- a) Upward pressure on prices from gains in world economic activity, if any, is more than offset by continued conservation and fuel switching. OPEC continues price freeze. Sadlerochit prices decline \$2 a barrel.
- b) Completion of Panama pipeline raises Sadlerochit wellhead \$1.00 a barrel.

Low Case- demand irrelevant, OPEC shattered

The question here is "where is the bottom?". No one knows. William Brown of the Hudson Institute in a well-known article in "Fortune" suggested \$20 a barrel or conceivably \$15. Others have suggested \$22-\$28. This case arbitrarily picks \$20 in 1981 dollars and assumes the decline to that level occurs by the end of FY 83. A higher or lower bottom reached more or less quickly is just as defensible in the face of OPEC's demise.

With inflation at roughly 10% per annum, \$20 in 1981 dollars would be \$24 in 1983. Assuming the \$24 figure refers to Arabian Light, Sadlerochit might fetch only \$22 because of its lesser quality. This would be around \$12 at the wellhead. Roughly speaking, wellheads might then average \$17, \$15, and \$13 a barrel for the next three six month periods.

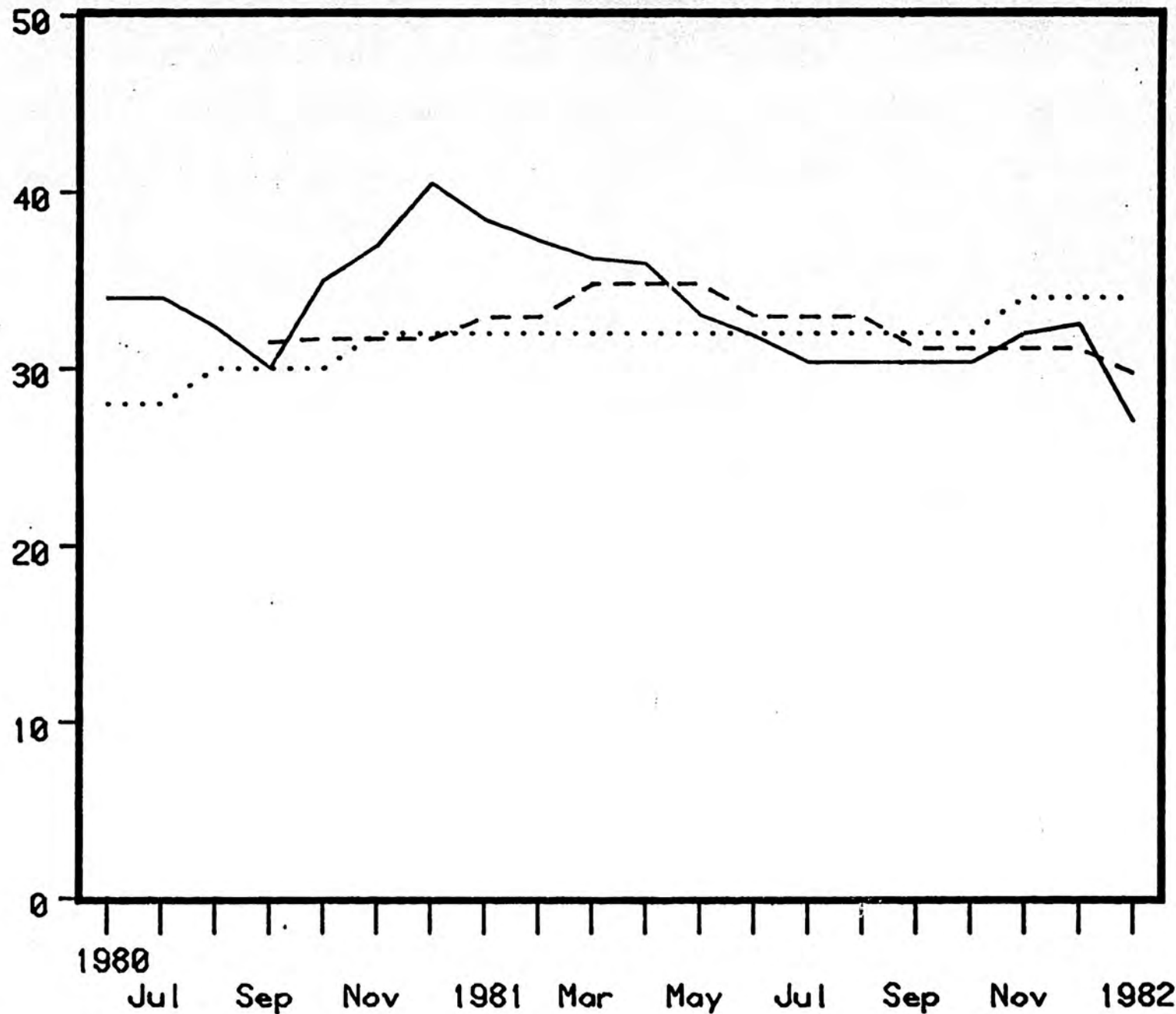
The wellhead prices implied by these three scenarios for Sadlerochit and Kuparuk are shown in Tables VI and VII.

INDEX TO TABLES

<u>SUBJECT</u>	<u>TABLE (S)</u>
General Funds Available for Appropriation	I
Petroleum Revenues	
High Estimate	II
Medium Estimate	III
Low Estimate	IV
Sadlerochit Windfall Profit Taxes (Current Statutes)	V
Sadlerochit Oil Prices	VI
Kuparuk Oil Prices	VII

OIL PRICES

Source: Petroleum Intelligence Weekly



— Spot Price
 - - - Sadlerochit
 . . . Arabian Light

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3/29/82

Table I
General Funds Available for Appropriation
(\$ Millions)

	<u>High Estimate</u>		<u>Medium Estimate</u>		<u>Low Estimate</u>	
	<u>Liquid General Funds</u>	<u>Total General Funds</u>	<u>Liquid General Funds</u>	<u>Total General Funds</u>	<u>Liquid General Funds</u>	<u>Total General Funds</u>
General Fund Balance 6/30/81 ¹	490.8	891.6	490.8	891.6	490.8	891.6
<u>FY 82</u>						
Revenue ²						
Royalty (Net of Permanent Fund)	1157.8	1157.8	1108.0	1108.0	1098.9	1098.9
Severance	1585.5	1585.5	1519.2	1519.2	1507.1	1507.1
Petroleum Corporate Income Tax	442.9	442.9	434.7	434.7	432.8	432.8
Property Tax	155.0	155.0	155.0	155.0	155.0	155.0
Other	506.0	506.0	506.0	506.0	506.0	506.0
Total Revenue	3847.2	3847.2	3722.9	3722.9	3699.8	3699.8
Lapse and Loan Repayments ¹	74.0	50.0	74.0	50.0	74.0	50.0
Appropriations ³	<u>(5609.1)</u>	<u>(5609.1)</u>	<u>(5609.1)</u>	<u>(5609.1)</u>	<u>(5609.1)</u>	<u>(5609.1)</u>
General Fund Balance 6/30/82	(1197.1)	(820.3)	(1321.4)	(944.6)	(1344.5)	(967.7)
<u>FY 83</u>						
Revenue ²						
Royalty (Net of Permanent Fund)	1211.3	1211.3	983.9	983.9	822.1	822.1
Severance	1655.5	1655.5	1320.5	1320.5	1132.9	1132.9
Petroleum Corporate Income Tax	393.9	393.9	372.6	372.6	337.7	337.7
Property Tax	157.7	157.7	157.7	157.7	157.7	157.7
Other	527.8	527.8	527.8	527.8	527.8	527.8
Total Revenue	3946.2	3946.2	3362.5	3362.5	2978.2	2978.2
Loan Repayments ¹	24.0	-	24.0	-	24.0	-
Appropriations ⁴	<u>(209.2)</u>	<u>(209.2)</u>	<u>(209.2)</u>	<u>(209.2)</u>	<u>(209.2)</u>	<u>(209.2)</u>
General Fund Available for Appropriation	2563.9	2916.7	1855.9	2208.7	1448.5	1801.3

-376-

3/29/82

TABLE I

- NOTES: 1. "Executive Budget, FY 83", Budget & Management, Office of the Governor
2. From Table II-IV except property tax and "other" from "Revenue Sources", Alaska Department of Revenue, January 1982 with \$15.0 in NPRA bonus revenue added to "other" for FY 82.
3. This is the figure in "Executive Budget, FY 83" increased by \$400 million in Permanent Fund appropriations that had been deleted and reduced by \$50 million that had been included for supplementals.
4. \$100 million for energy and \$101.2 million for municipal aid in Ch. 92, SLA 81 and 8.0 for senior citizen housing in Ch. 76, SLA 81.

-377-

3/29/82

TABLE II
PROJECTED PETROLEUM REVENUES
HIGH ESTIMATE
(\$ Millions)

	(1) <u>Sadlerochit</u>	(2) <u>Field Cost Settlement</u>	(3) <u>"Exhibit B" Price for In-Kind Oil</u>	(4) <u>Bonus from Royalty Auction</u>	(5) <u>Alaska Oil Co. Price Dispute</u>	(6) <u>Kuparuk</u>	(7) <u>Cook Inlet</u>	(8) <u>TAPS</u>	(9) <u>Total (Accrual Basis)</u>	(10) <u>Retro "Warts" & Windfall Deductions</u>	(11) <u>Total (Cash Basis)</u>
<u>FY 81</u>											
Royalty	1414.7	30.0	(Not used	--	--	--	60.7	--	1505.4	--	1491.3
Severance	1153.3	--	in this	--	--	--	26.8	--	1180.1	--	1169.9
Petroleum Corporate Income Tax	618.6	(2.8)	analysis)	--	--	--	18.3	203.0	837.1	--	860.1
<u>FY 82</u>											
Royalty	1402.2	--	17.0	35.0	(60.0)	37.3	112.3	--	1543.8	--	1543.8
Severance	1518.8	--	--	--	--	33.1	33.6	--	1585.5	--	1585.5
Petroleum Corporate Income Tax	421.0	--	--	--	--	13.7	19.7	144.5	598.9	(215.5)	442.9
<u>FY 83</u>											
Royalty	1423.7	--	5.1	--	--	83.8	102.5	--	1615.1	--	1615.1
Severance	1545.3	--	--	--	--	74.4	35.8	--	1655.5	--	1655.5
Petroleum Corporate Income Tax	224.2	--	--	--	--	14.3	6.7	80.4	325.6	--	393.9

-378-

3/29/82

TABLE III
PROJECTED PETROLEUM REVENUES
MEDIUM ESTIMATE
(\$ Millions)

	(1) <u>Sadlerochit</u>	(2) <u>Field Cost Settlement</u>	(3) <u>"Exhibit B" Price for In-Kind Oil</u>	(4) <u>Bonus from Royalty Auction</u>	(5) <u>Alaska Oil Co. Price Dispute</u>	(6) <u>Kuparuk</u>	(7) <u>Cook Inlet</u>	(8) <u>TAPS</u>	(9) <u>Total (Accrual Basis)</u>	(10) <u>Retro "Warts" & Windfall Deductions</u>	(11) <u>Total (Cash Basis)</u>
<u>FY 81</u>											
Royalty	1414.7	30.0	(Not used	--	--	--	60.7	--	1505.4	--	1491.3
Severance	1153.3	--	in this	--	--	--	26.8	--	1180.1	--	1169.9
Petroleum Corporate Income Tax	618.6	(2.8)	analysis)	--	--	--	18.3	203.0	837.1	--	860.1
<u>FY 82</u>											
Royalty	1343.3	--	17.0	35.0	(60.0)	32.8	109.3	--	1477.4	--	1477.4
Severance	1457.0	--	--	--	--	29.3	32.9	--	1519.2	--	1519.2
Petroleum Corporate Income Tax	413.3	--	--	--	--	11.8	18.3	144.5	587.9	(215.5)	434.7
<u>FY 83</u>											
Royalty	1150.0	--	5.1	--	--	66.5	90.3	--	1311.9	--	1311.9
Severance	1257.8	--	--	--	--	59.5	32.3	--	1320.5	--	1320.5
Petroleum Corporate Income Tax	206.0	--	--	--	--	10.4	4.0	80.4	300.8	--	372.6

-379-

3/29/82

TABLE IV
PROJECTED PETROLEUM REVENUES
LOW ESTIMATES
(\$ Millions)

	(1) <u>Sadlerochit</u>	(2) <u>Field Cost Settlement</u>	(3) <u>"Exhibit B" Price for In-Kind Oil</u>	(4) <u>Bonus from Royalty Auction</u>	(5) <u>Alaska Oil Co. Price Dispute</u>	(6) <u>Kuparuk</u>	(7) <u>Cook Inlet</u>	(8) <u>TAPS</u>	(9) <u>Total (Accrual Basis)</u>	(10) <u>Retro "Warts" & Windfall Deductions</u>	(11) <u>Total (Cash Basis)</u>
<u>FY 81</u>											
Royalty	1414.7	30.0	(Not used	--	--	--	60.7	--	1505.4	--	1491.3
Severance	1153.3	--	in this	--	--	--	26.8	--	1180.1	--	1169.9
Petroleum Corporate Income Tax	618.6	(2.8)	analysis)	--	--	--	18.3	203.0	837.1	--	860.1
<u>FY 82</u>											
Royalty	1333.7	--	17.0	35.0	(60.0)	30.7	108.9	--	1465.3	--	1465.3
Severance	1446.9	--	--	--	--	27.4	32.8	--	1507.1	--	1507.1
Petroleum Corporate Income Tax	412.0	--	--	--	--	10.8	18.1	144.5	585.4	(215.5)	432.8
<u>FY 83</u>											
Royalty	958.3	--	5.1	--	--	51.4	81.4	--	1096.2	--	1096.2
Severance	1056.5	--	--	--	--	46.5	29.9	--	1132.9	--	1132.9
Petroleum Corporate Income Tax	165.8	--	--	--	--	7.0	1.9	80.4	255.1	--	337.7

- 320 -

3/29/82

NOTES TO TABLES II - IV:

1. Royalty = production X in-value price X .125; source: Table VI.
 FY 81 Severance = production X (in-value + field cost) X .875 working interest X .1225 tax X ELF; source: Table VI, except ELF from Col. 6, Table 5 "Fiscal Analysis of the Proposed Backstop Tax Legislation", Gregg Erickson, May 1981.
 FY 82-83 Severance = production X (in-value price + field costs) X .875 X .15 tax; source: Table VI.
 FY 81 Income Tax = (production X (in-value price + field costs) from Table VI less royalty and severance from above less windfall profits tax from Table V less other deductions from "Erickson" Table 9) X (.11 + .094)/2 average tax rate.
 FY 82 Income Tax = FY 81 formula X (1.0 + .39)/2 average apportionment tax collections relative to AS 43.21.
 FY 83 Income Tax = FY 82 formula with substitution of .094 tax rate and .39 apportionment factor.
2. Field cost settlement at 42¢ per barrel on 979 million barrels of pre-1980 production and 55¢ per barrel on 277 million barrels of production for first half of calendar 1980 compared to company charges of 64¢ per barrel.
3. 50¢ surcharge on in-value price for June 1981 applied to 28,000 BPD of in-kind sales to Golden Valley/North Pole for FY 82 and FY 83 and on 75,000 BPD to Alaska Oil Co. and 55,000 of royalty auction crude for first half of FY 82.
4. Average bonus of \$2.39 on 55,000 BPD for first half of FY 82 plus \$11 million in settlements from companies failing to take 30,000 BPD.
5. "Revenue Sources", Department of Revenue, January 1982.
6. Royalty = production X in-value Kuparuk price from Table VII X .125.
 Severance = production X (in-value price + field costs) X .1225 tax rate X .875 working interest.
 Income Tax = (production X (in-value price + field costs) less severance and royalty from above less other deductions from "Erickson" Table 10) X (.11 + .094)/2 tax rate X (1.0 + .39)/2 apportionment factor for FY 82 or .094 tax rate and .39 apportionment factor for FY 83.
7. Royalty = oil production from Col. 2, Table 12 "Erickson" X (Sadlerochit in-value price plus \$10 per barrel for FY 82 and FY 83 and controlled price of \$13.59 for FY 81) X .125 plus gas royalties from "Petroleum Production Revenue Forecast", Department of Revenue, December 1981.
 Severance = oil production X prices X .1225 for FY 81 or .15 for FY 82 or FY 83 X .875 working interest X (ELF factors of .36 for FY 81, .23 for FY 82, and .27 for FY 83 as calculated from date in "Petroleum Production Revenue Forecast") plus (gas severance taxes from "Petroleum Production Revenue Forecast").
 Income Tax = (Oil production X price plus gas production X gas price from Table 12 "Erickson" less royalty and severance from above less additional deductions from Table 12 "Erickson" less windfall profit tax derived from Line 5, Table 17 "Erickson") X (.11 + .094)/2 tax rate for FY 81 and X (1.0 + .39)/2 apportionment factor for FY 82 or X .094 tax rate and .39 apportionment factor for FY 83.
8. Income Tax = net income from Col. 8, Table 11, "Erickson", except FY 83 estimates which use \$2193.7 million net income based on a tariff of \$6.08 to account for Exxon's reduced tariff X (.11 + .094)/2 tax rate for FY 81 and X (1.0 + .39)/2 apportionment factor for FY 82 or X .094 tax rate and .39 apportionment factor for FY 83.

(CONTINUED)

-381-

3/29/82

NOTES TO TABLES II - IV (CONTINUED):

9. Sum of columns 1 through 8.

10. Windfall profits tax of \$2,016.2 million for FY 81 at an average tax rate of $(.11 + .094)/2 = \$205.7$ FY 81 tax benefit for this deduction. This is lagged one quarter of a year to put the benefit on a collections basis using \$18.9 million from "Erickson" Table 17, Note 2 as the value of windfall deductions for the last quarter of FY 80.

"Warts" deductions for FY 81 and prior years have a value of \$83 million according to the Department of Revenue fiscal note for FCCS SB 524 which is adjusted by $(.11/.094)$ for 1/2 year at .11 tax rate.

In addition, there is a retroactive assessment of the .11 tax rate against the first quarter of calendar 1981's collections of \$280.3 million which would not otherwise be picked up by lagging collections one quarter = $(.11/.094) \times 280.3 = 280.3$.

All three items are cash adjustments to FY 82 because the FY 81 cash totals in col. 11 are actual collections.

11. FY 81 = actual collections.

FY 82 and FY 83 royalty and severance = Col. 9.

FY 82 and FY 83 income tax = Col. 9 income tax lagged one quarter plus Col. 10.

- 383 -

3/29/82

TABLE V
SADLEROCHIT WINDFALL PROFIT TAX ESTIMATES

(1)		(2)			(3)	(4)			(5)		
WORKING INTEREST PRODUCTION (Millions of Barrels)		WELLHEAD PRICE PER BARRELL			WINDFALL BASE PRICE	NET WINDFALL (\$ MILLIONS)			WINDFALL PROFITS TAX (\$ MILLIONS)		
		HIGH	MEDIUM	LOW		HIGH	MEDIUM	LOW	HIGH	MEDIUM	LOW
FY 81	479.2	\$20.50	\$20.50	\$20.50	\$13.69	2880.2	2880.2	2880.2	2016.2	2016.2	2016.2
FY 82	479.2	20.27	19.42	19.28	14.92	2162.8	1818.8	1762.1	1514.0	1273.1	1233.5
FY 83	479.2	20.80	16.80	14.00	16.65	1680.4	60.6	--	1176.2	42.5	--

NOTES:

1. Assumes production of 1.5 million BPD less 1/8 royalty exempt from windfall profits tax.
2. From Table VI.
3. Table 7, Col. 3, "Fiscal Analysis of the Proposed Backstop Tax Legislation," Gregg Erickson, May 1981.
4. (Col. 1 X (Col. 2 - Col. 3)) - (Severance taxes from Tables II - IV) (Col. 2 - Col. 3)/Col. 2.
5. Col. 4 X .7.

-384-

3/29/82

TABLE VI
SADLEROCHIT CRUDE
ACTUAL AND PROJECTED PRODUCTION AND PRICES
FY 81 - 83

	ACTUAL			PROJECTED				
	Production (Millions of Barrels)	In-Value Royalty Price	Field Costs Per Barrel	Production (Millions of Barrels)	In-Value Royalty Price			Field Costs
					High	Medium	Low	
FY 81	552.1	\$ 20.50	\$.58					
<u>FY 82</u>								
July	47.1	21.99	.62					
August	47.1	21.63	.62					
September	45.8	21.25	.62					
October	46.9	21.52	.62					
November	46.0	21.42	.62					
December	46.7	21.24	.62					
First Half FY 82	279.6	21.51	.62					
Second Half FY 82				273.8	\$19.00	\$17.30	\$17.00	.67
Total Production				553.4				
Average Prices					20.27	19.42	19.28	.64
<u>FY 83</u>								
First Half FY 83				273.8	19.30	17.30	15.00	.67
Second Half FY 83				273.8	22.30	16.30	13.00	.72
Total Production				547.6				
Average Prices					20.80	16.80	14.00	.70

-385-

3/29/82

TABLE VII
KUPARUK CRUDE
PROJECTED PRODUCTION AND PRICES
FY 82-83

	<u>Production (Millions) of Barrels</u>	<u>In-Value Royalty Price</u>			<u>Field Costs</u>
		<u>High</u>	<u>Medium</u>	<u>Low</u>	
<u>FY 82</u>					
Total Production	15.70				
Average Prices		\$19.00	\$16.75	\$15.63	\$.64
<u>FY 83</u>					
First Half FY 83	14.60	18.75	16.75	13.63	
Second Half FY 83	18.25	21.75	15.75	11.63	
Total Production	32.85				
Average Prices		20.42	16.19	12.52	\$.70

NOTES: See text sections on "West Coast Market" and "Oil Price Scenarios". These numbers assume Kuparuk is sold at West Coast prices and are related to Sadlerochit as follows:

- 1) equal to Sadlerochit with no change in West Coast price differential;
- 2) 55¢ less than Sadlerochit if West Coast prices drop \$1.25 since Sadlerochit drops 70¢ and Kuparuk \$1.25; Panama pipeline does not change the differential between the markets;
- 3) \$1.37 less than Sadlerochit in the low case on the assumption that distressed markets eliminate any wellhead price differential for the West Coast market.

PREPARED BY:
Legislative Finance
2/24/82

- 386 -

3/29/82

Table 1
LIQUID GENERAL FUNDS
(\$ millions)

	<u>30% Confidence</u>	<u>50% Confidence</u>
Balance Forward 6/30/81	490.8	490.8
<u>FY 82</u>		
Oil Revenue	3,102.1	3,124.6
Other Revenue	<u>661.0</u>	<u>661.0</u>
	3,763.1	3,785.6
Lapse and Loan Repayments	74.0	74.0
Appropriations	<u>(5,609.1)</u>	<u>(5,609.1)</u>
Balance Forward 6/30/82	(1,281.2)	(1,258.2)
<u>FY 83</u>		
Oil Revenue	1,276.6	2,141.4
Other Revenue	<u>685.5</u>	<u>685.5</u>
	1,962.1	2,826.9
Lapse and Loan Repayments	24.0	24.0
Appropriations	<u>(209.2)</u>	<u>(209.2)</u>
General Funds Available	495.7	1,383.5

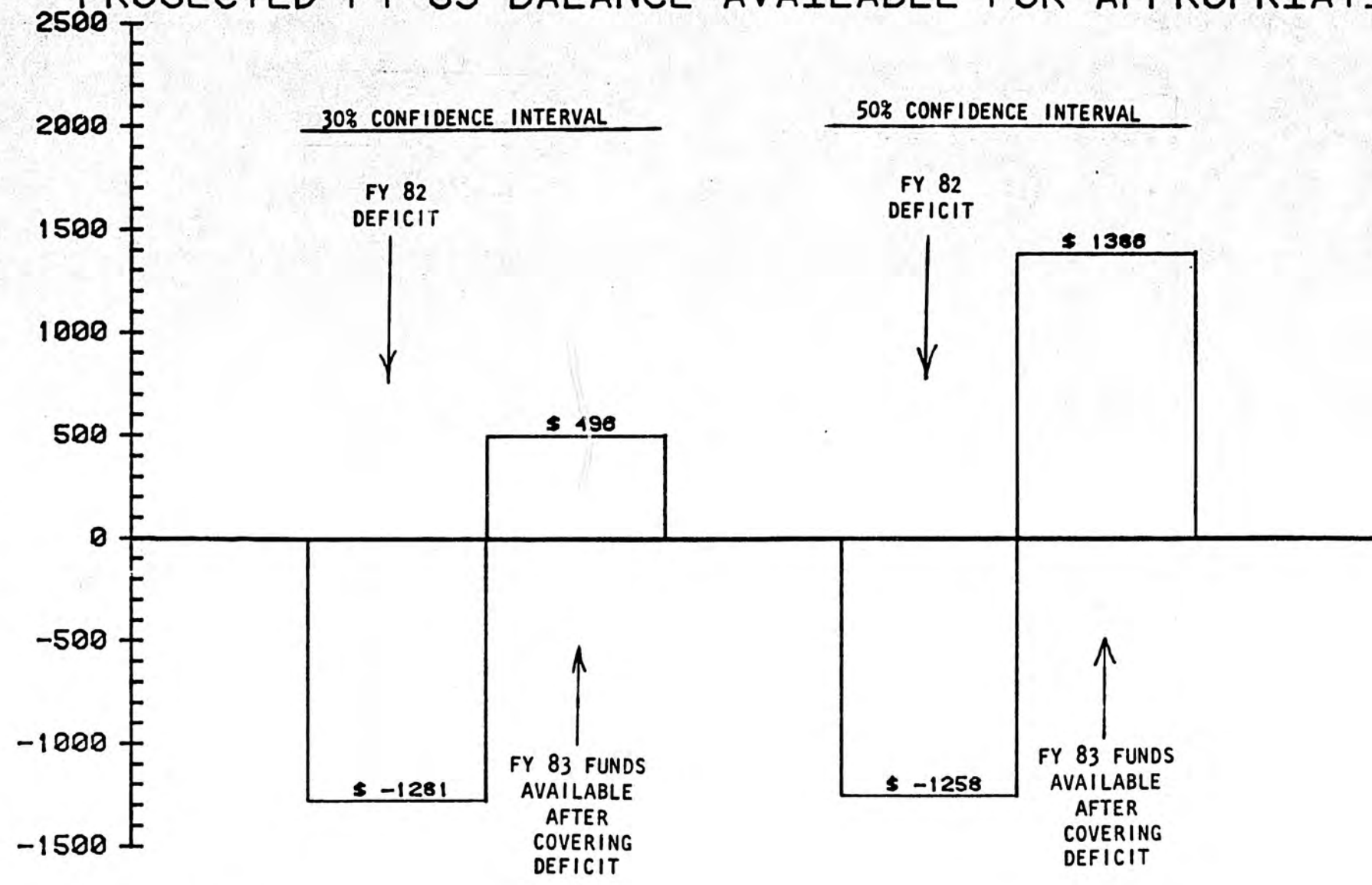
Attachment #3

-388-

MILLIONS OF DOLLARS

FIGURE 1

FY-82 GENERAL FUND BALANCE FORECAST & PROJECTED FY-83 BALANCE AVAILABLE FOR APPROPRIATION

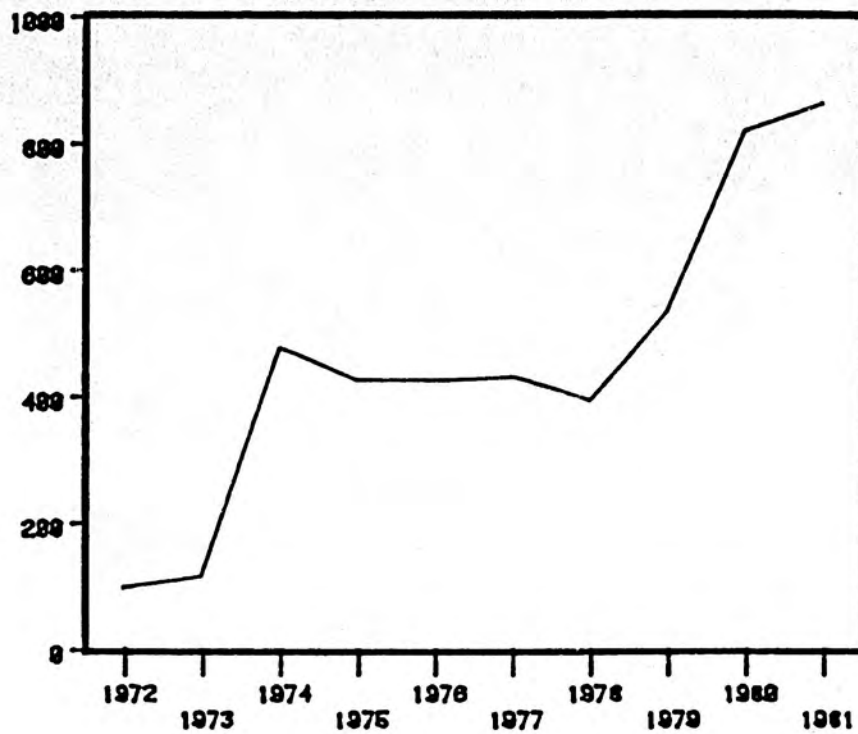


ERICKSON & ASSOCIATES
28 MARCH 1982

3/29/82

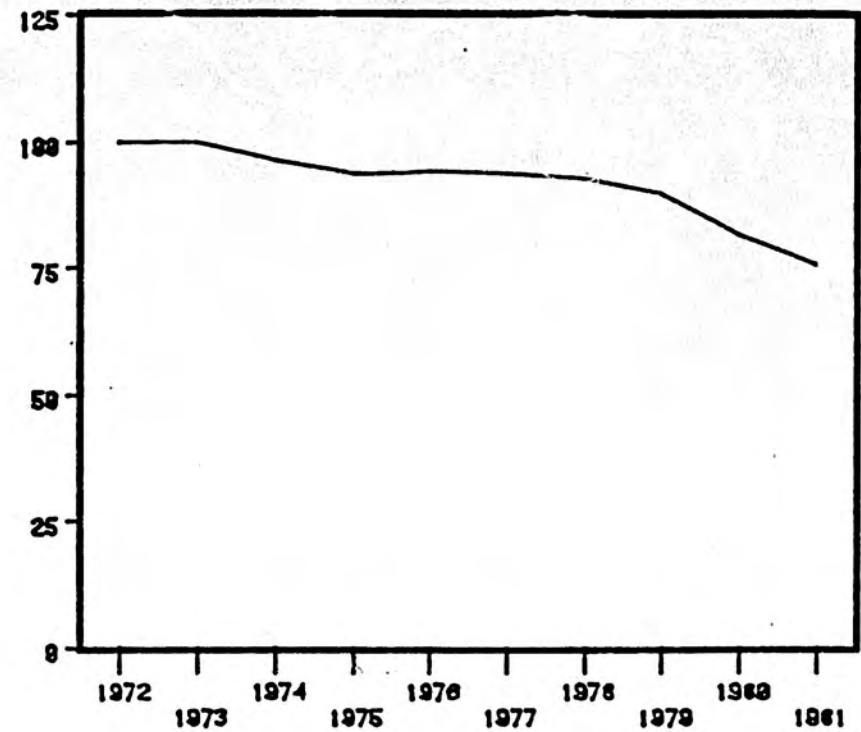
FIGURE 2

INDEX OF THE REAL COST OF PETROLEUM
FOR OECD NATIONS (1972=100)



ERICKSON & ASSOCIATES
26 MARCH 1982

INDEX OF OIL INPUTS PER UNIT OF GROSS DOMESTIC PRODUCT
FOR OECD NATIONS (1972=100)



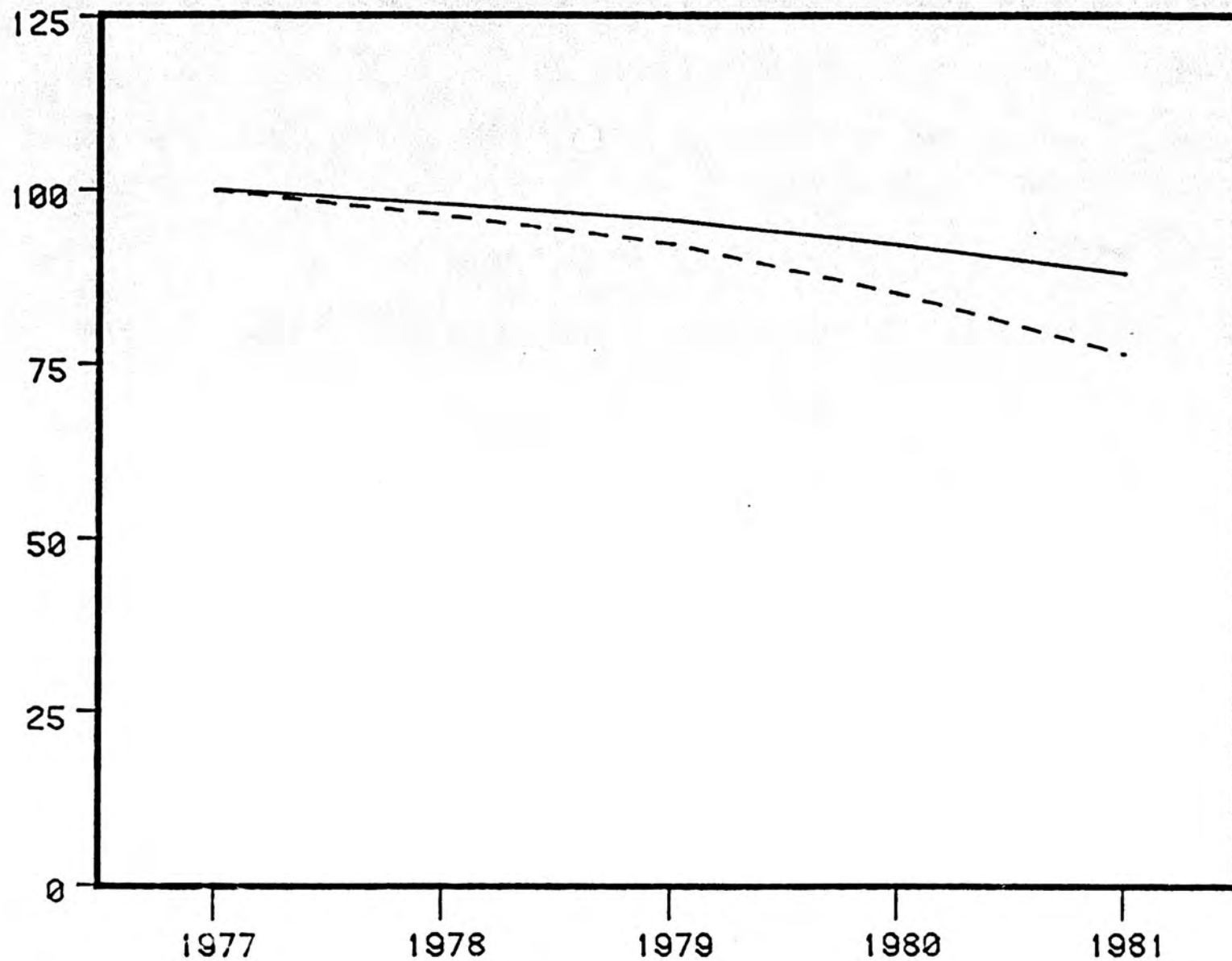
ERICKSON & ASSOCIATES
26 MARCH 1982

-389-

3/29/82

FIGURE 3

INDICES TO TOTAL ENERGY & OIL ENERGY INPUTS
PER UNIT OF U.S. GNP (1977=100)



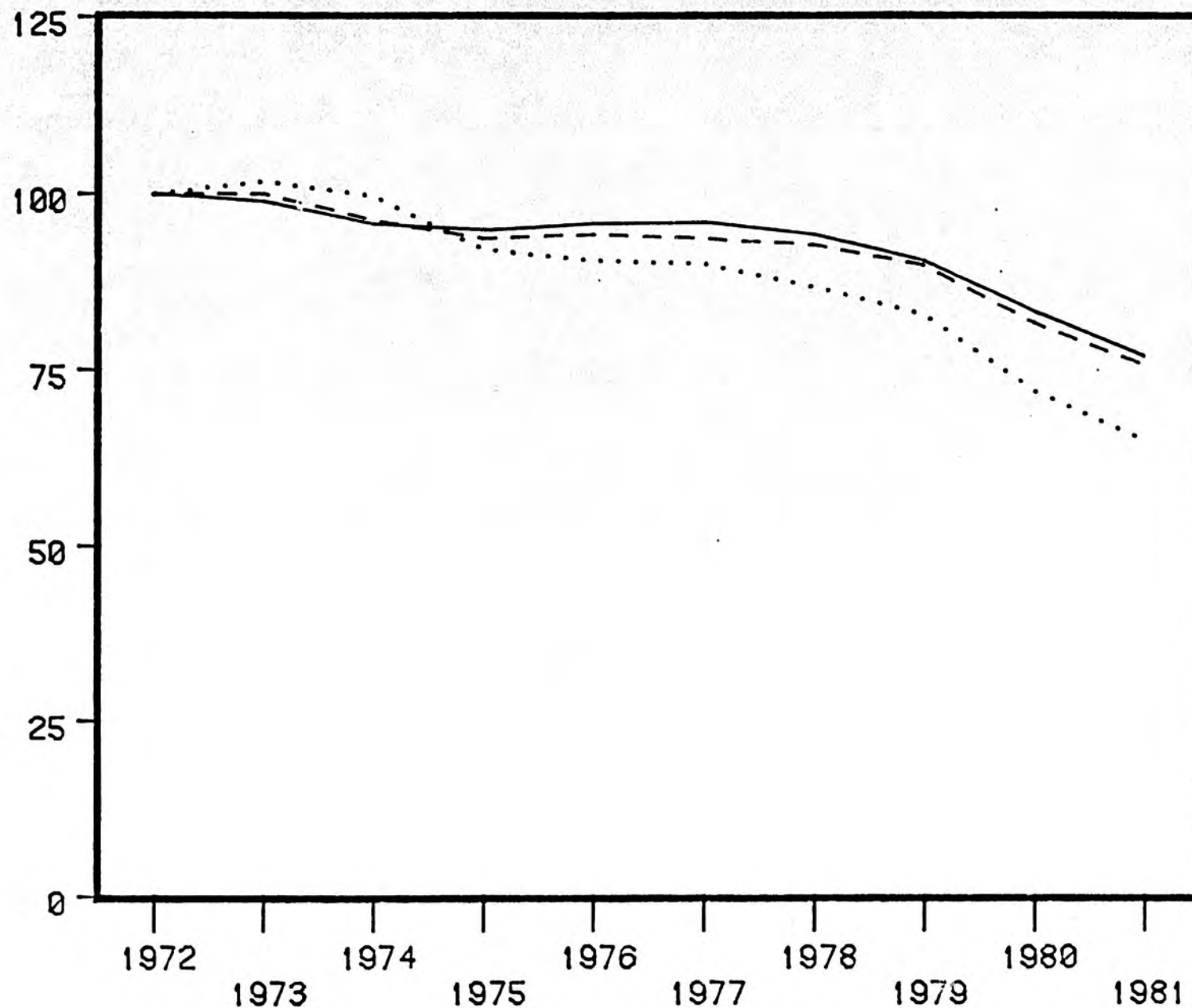
—— TOT. ENERGY/GNP
---- OIL ENERGY/GNP

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28 MARCH 1982

-390-

3/29/82

**OIL ENERGY INPUTS PER UNIT OF GROSS DOMESTIC PRODUCT
IN THE U.S., OECD NATIONS, AND JAPAN (1972=100)**



— UNITED STATES
 - - - - - OECD NATIONS
 JAPAN

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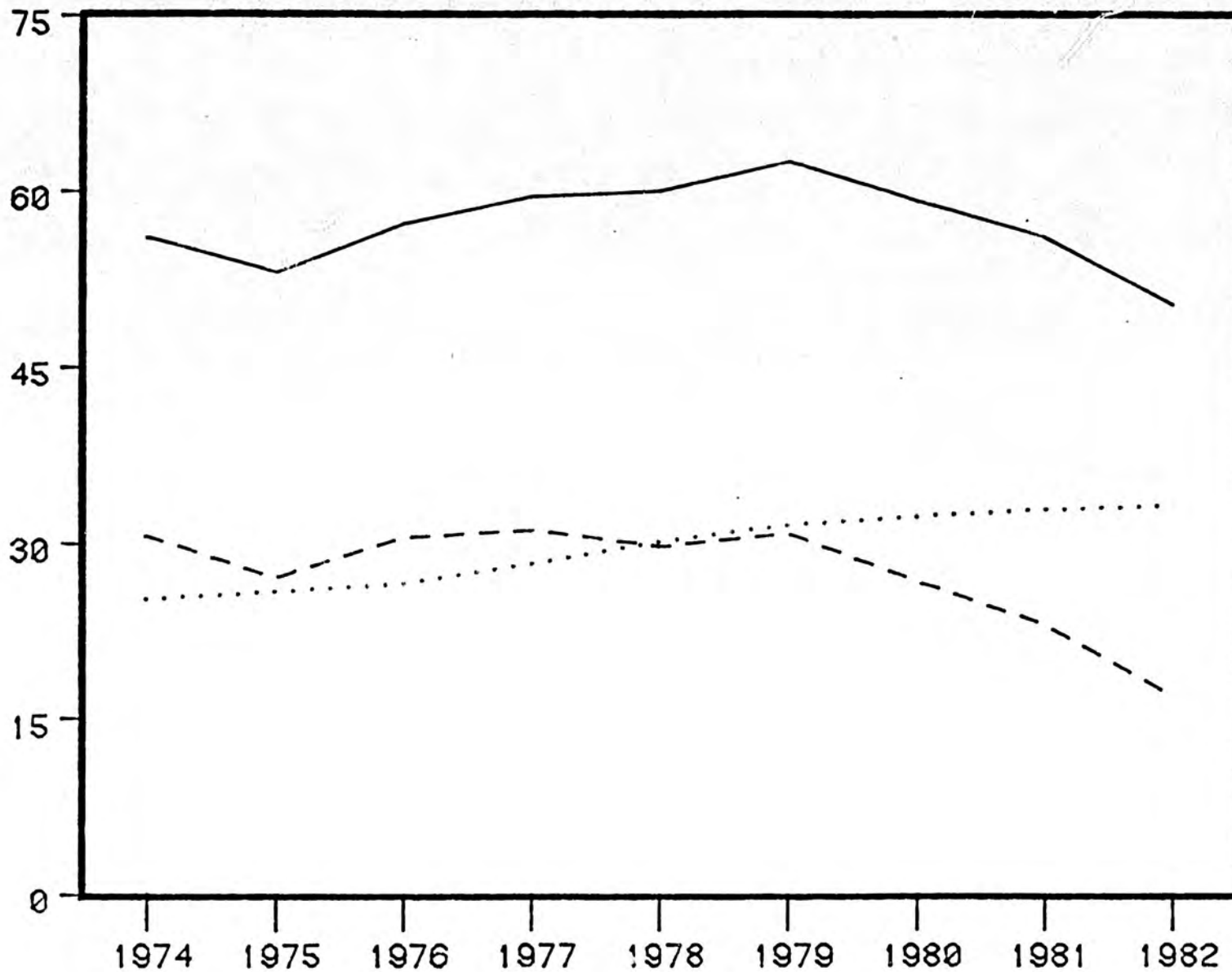
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FIGURE 5

OPEC OIL PRODUCTION COMPARED TO TOTAL WORLD PRODUCTION
1974-1982 (MILLIONS OF BARRELS PER DAY)

MILLIONS OF BARRELS PER DAY



— WORLD TOTAL
- - - OPEC PRODUCTION
..... NON-OPEC PROD.

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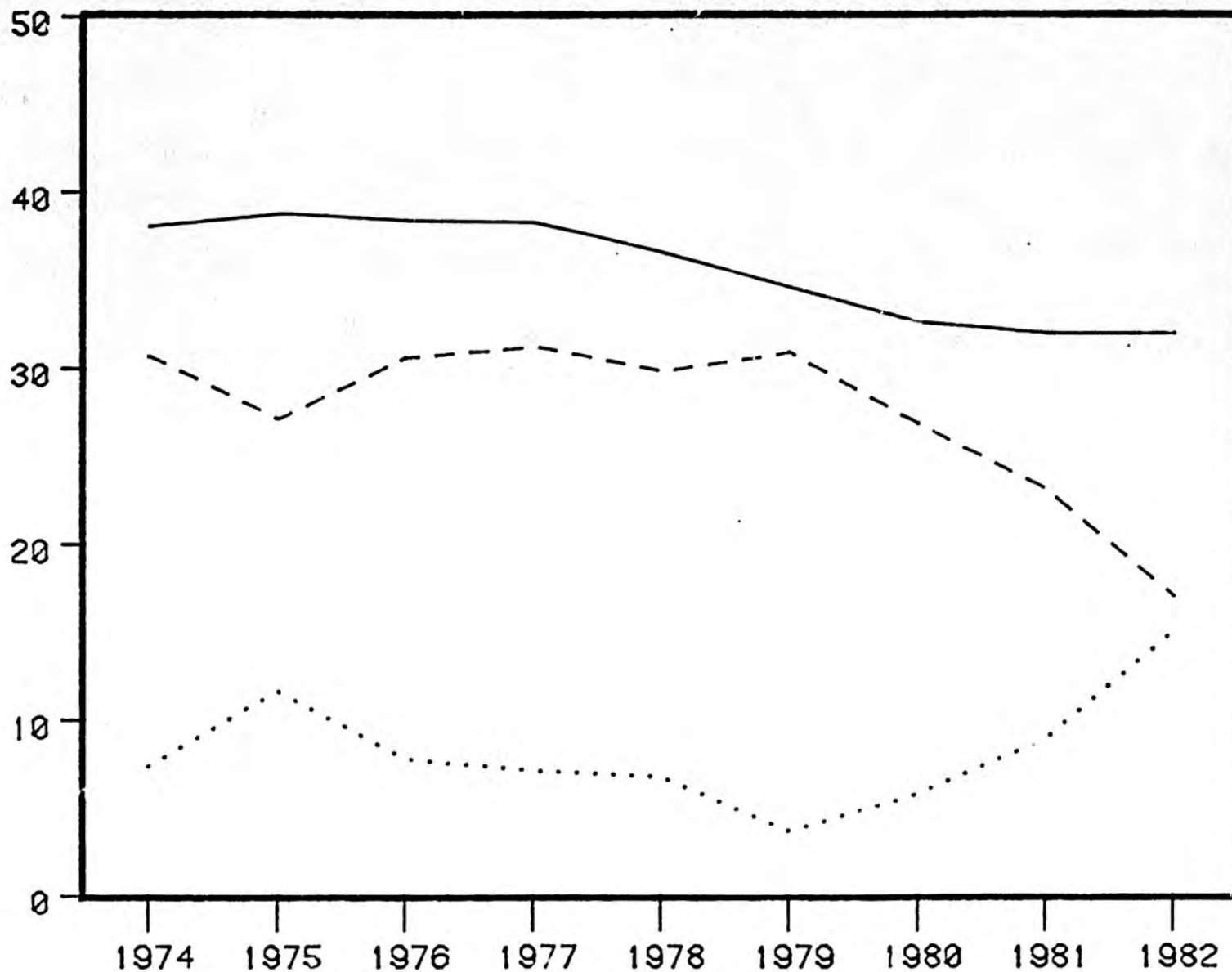
-392-

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FIGURE 6

OPEC PRODUCTION, PRODUCTIVE CAPACITY, & PRODUCTION 'OVERHANG'
1974-1982 (MILLIONS OF BARRELS PER DAY)

MILLIONS OF BARRELS PER DAY



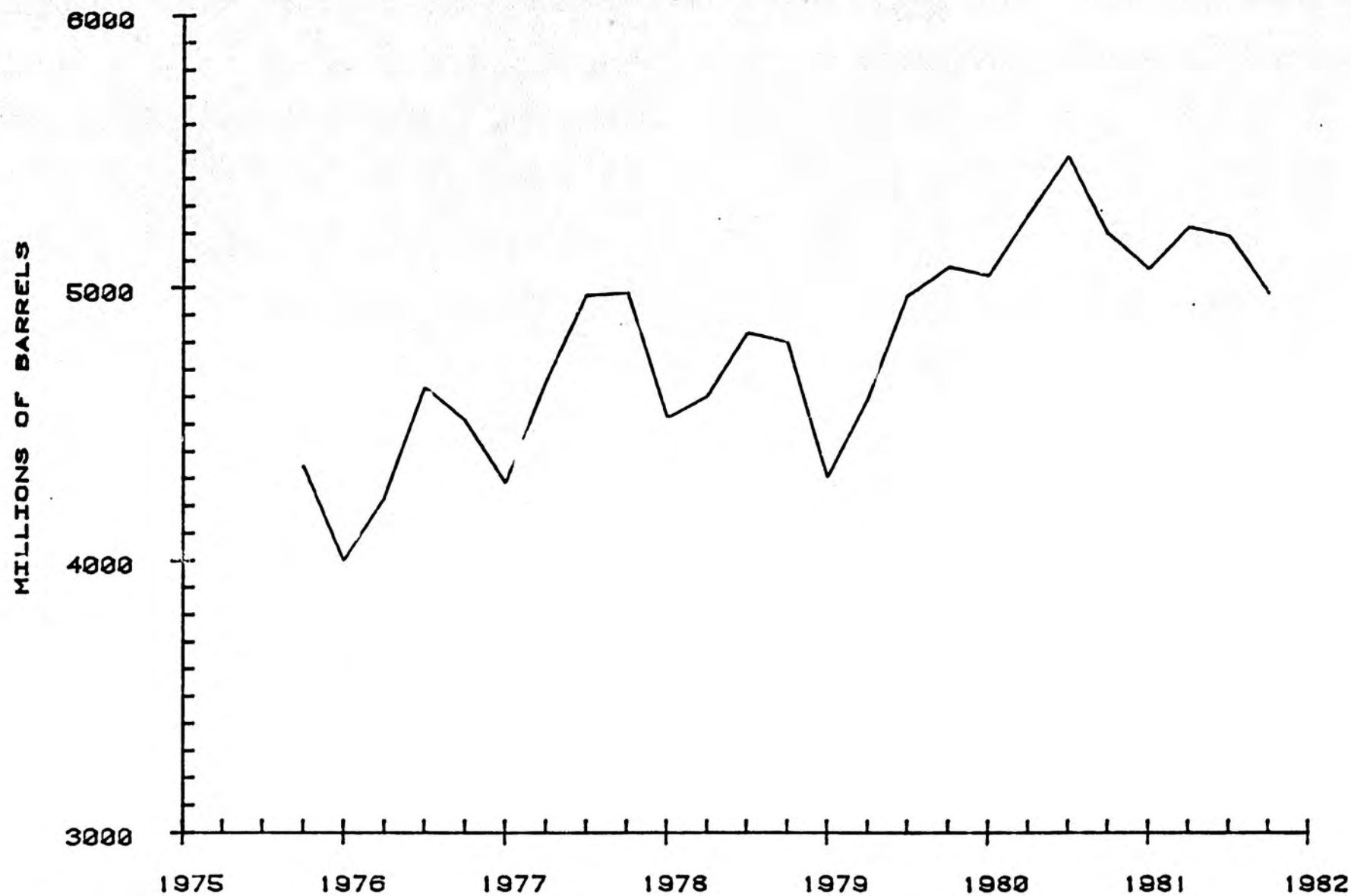
— OPEC CAPACITY
- - - OPEC PRODUCTION
..... PROD. OVERHANG

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-393-

3/29/82

FIGURE 7
WORLD OIL STOCKS
INCLUDING OIL AT SEA



YEARS BY QUARTERS

4TH QTR. 1975 TO 4TH QTR. 1981

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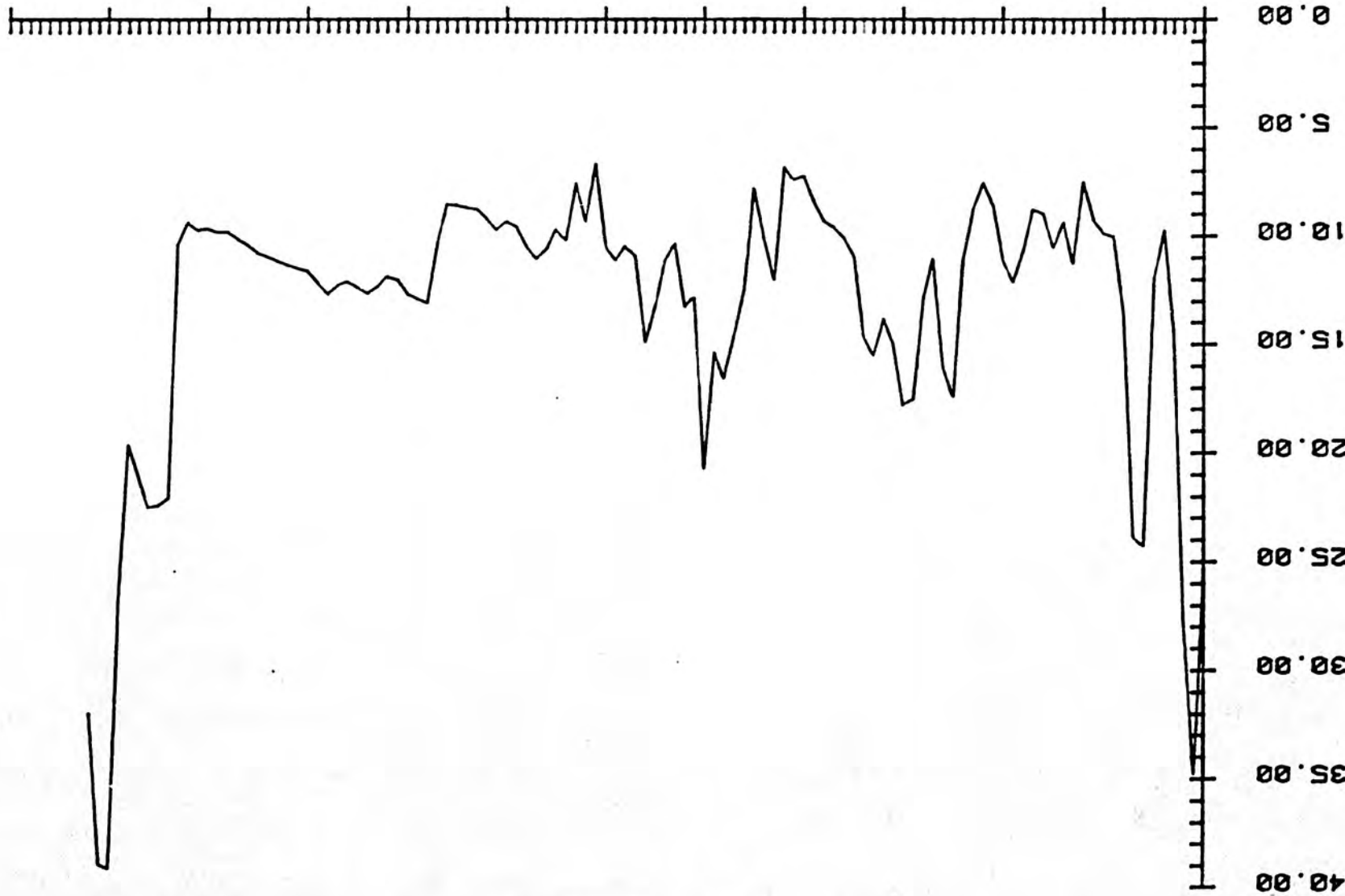
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-568-

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28 MARCH 1982

1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990



U.S. CRUDE OIL PRICES - 1870 TO 1982
(IN 1982 DOLLARS)

FIGURE 8

General Subject: (attached agenda)

Included in book for Informational

Log #	PURPOSES	Description	ONLY
001	Members present:	Adams, Montgomery, Fuller, Cotten, Bettisworth, Meekins, Cuddy	
	call to order	8:05	
015	Milt Barker, Fis. Anal.	LFD Revenue Estimates (attach)	Since Estimates were done:
		Basis on med + low estimate because:	
		(1) Prices have continued to fall	
		(2) demand has dropped	
		(3) inventories - 3-6 mos.	
		(4) economy turn around hasn't happened.	
		Recovery probably won't be til 3rd Quarter.	
		Drew took into acct 100 m\$ reduction in interest revenue which I did not.	
		Do that to my estimates.	
124	Meekins - Relationship revenues available.	FB2 v. FB3 x Barker - Drew average estimate	
	30%	1,228.7 m\$ Available for approp.	
148	Adams clarification	law to repeal Permanent Fund	
151	Adams Future Forecast?	Barker ^{Hq} 600 m\$ Rev. not related to wellhead	
		per year - Could add approx 2.1 B. from wellhead.	

General Subject: _____

Log #	Description
180	Barker comments on wellhead
192	Meekins questions - Barker scenarios. / Response
217	Cotten - Avail for approp. Rev. 30 Percentile figure, Approp last year for F83, Cotten
	~~2.09.2~~ Barker 609.2 m
	350 m Rainy Day Acct.
	Cotten - what else can be appropriated?
	Barker 400 m in illiquid assets
	reappropriate prior approp. or bonds
282	1 Adams - also any cap. approp.
288	Cotten - suggest this allows us other avenues then taking from Permanent Fund
	Brief Discussion (Meekins, Adams, Cotten)
304	Adams - suggest to look @ to keep up with world oil prices? Barker WJS, Revenues Quarterly, Trade Journals,
320	Gregg Erickson, Economic Consultant
	Sam VanBacker, Lars Cramer - Associates
	oil market & effect on AK. - uncertainty.
	Explanation of charts.
	Estimate of Petroleum & A Revenues for AK.

General Subject: _____

Log #	Description
	1.4 B - Funds Avail. for approp. 50% confidence per % Breakdown - Attached - table D) oil prices are going to go down - questions are how far + how fast,
452	Predictions, Market where St. sells oil = using less energy - less oil energy, & substituting other types of energy. Demonstrates how flexible consumers are to changes in price. Conservation efforts - hopeful theory is they are playing out. U.S. + Japan - use of energy Japan reduced 25%; U.S. 15%. Japan shows alternatives for conservations are not used up
575	Meekins question - Erickson - 1980 graph started turning down - reasons for fuel efficient auto's developed in '75 '76. Changes in insulation '75 - ... Meekins comments - Prices going down.
645	Erickson response - Responsive demand is slow / Responsive supply is also slow.
655	Erickson - graph - "analyzing what will happen in next 15 mos. did fee - analysis over 110 yrs, average price of oil = 13\$ a barrel. The trend has been flat -

General Subject: _____

log #	Description
545	Remarkable stability in long run - Volatility in short run. Average change in price from year to year - 15%. Taking out portion when Texas R.P. Commission controlled price - 26%. Conclude no one has ability at present time to really control price of oil - to control, have to control output. Believe OPEC has ability to control decline in prices.
	Tape change - Side 2
001	Erickson Arco development of Cobarca(?) 95% of oil produced today has marginal operating costs. means you don't drop much production out of supply when price falls. Demand - long ^{range} ~~term~~ capital - ^{investments} doesn't change overnight - can't expect demand to suddenly increase if price falls. That is what causes wide oscillation.
13	Forecast Possibilities. (1) Saudi Arabia ~~with~~ ^{maintain} control of market (Hurlbert arrived)

General Subject: _____

Log #	Description
244	Markets - just as much psychology as economics
264	Meekins - chart showing supply + demand ? Erickson since '74 Total world oil production has declined rapidly. in Response to conservation efforts + OPEC decreased production / non-OPEC increased production. OPEC has held price up by cutting production.
325	Effects of shut-in Production. cutting production
408	Inventories. Conclusion - inventories normally build this time of year - not building as rapidly. Feel long term trend - inventories increasing. There is not only a production overhand but an inventory overhead -
449	Cotten. likely companies will be selling @ prices that vary widely ? Average weighted price less meaningful then ? Erickson variability has been a characteristic of those prices. + Carney arrived + Sam (Ericsons Assoc) comments - ^{there is a} seasonal fluctuation in AK N.S. oil also.

General Subject: _____

log #	Description
536	Adams estimation of stock? Erickson who knows how much of ^{15 m barrels} amount being shut in right now is glut - don't know. Sam? Stock data is not very good at all. Erickson believe no one knows how much oil stock.
548	Meekins: change in tax structure last year? Erickson one of 3 reasons for big deficit ^{last} year last year analysis of tax structure was that it would bring in same amount of money. As price went up, tax bill would give more money. As price went down you get less.
596	Halford follow-up question on tax structure. Erickson. differential on 2 bills
622	Hurlbert. Public in conservative mood, not using more oil? Erickson agreed/comments.
644	Recess 9:30 am

HF0329821300

HOUSE FINANCE COMMITTEE

March 29, 1982

1:00 p.m.

Tape HFC 82-27, Side 2, #645

PRESENT

The following members of the committee were present:

Representatives Adams, Montgomery, Meekins, Cotten, Chuckwuk, Bettisworth, Cuddy, Fuller, and Hurlbert. Representative Haugen and Carney were absent.

Chairman Adams called the House Finance Committee hearings on world oil prices and projected state revenues back to order at 1:00 p.m. on March 29, 1982.

TAPE NUMBER

SUBJECT

HFC 82-27, Side 2
#645 to end

GREGG ERICKSON, Economic Consultant, Juneau.
Questions/answers from Committee Members.

HFC 82-28, Side 1
#001 to #365

GREGG ERICKSON, (continued)

HFC 82-28, Side 1
#365 to end
HFC 82-28, Side 2
#001 to #164

JOE DONAHUE, Deputy Commissioner,
Department of Revenue.
(see attached testimony -- attachment #1)

HFC 82-28, Side 2
#164 to end
HFC 82-29, Side 1
#001 to #258

MILTON LIPTON, Petroleum Economist
W.J. Levy Consultants Corporation.
(Transcript of testimony follows.)
Questions/answers from Committee Members.

HFC 82-29, Side 1
#258

ADJOURNMENT -- 3:58 p.m.

ALASKA DEPARTMENT OF REVENUE
DISCUSSION OF MARCH REVENUE FORECAST
MARCH 29, 1982

JOSEPH K. DONOHUE
DEPUTY COMMISSIONER, TAXATION
DEPARTMENT OF REVENUE

LAST FRIDAY THE DEPARTMENT OF REVENUE RELEASED THE RESULTS OF ITS MARCH REVENUE FORECAST WHICH SHOWED A SHARP DOWNWARD REVISION IN PROJECTED NEAR TERM REVENUES. THAT REDUCTION IN NET UNRESTRICTED REVENUES TOTALED ALMOST \$1.7 BILLION LESS FOR THE FY 82-FY 83 PERIOD THAN THE DEPARTMENT HAD PREVIOUSLY FORECAST FOR THE SAME PERIOD IN JANUARY. THIS DECREASE IS A FUNCTION OF BOTH THE STATE'S TOTAL DEPENDENCE ON PETROLEUM REVENUES WHICH ARE IN TURN DIRECTLY RELATED TO THE PRICE OF CRUDE OIL AND TO THE FACT THAT THE WORLD CRUDE OIL MARKETS HAVE RECENTLY BEEN IN A STATE OF TOTAL DISARRAY.

THOSE MARKETS REMAIN HIGHLY UNSETTLED IN THE WAKE OF THE ABRUPT PLUNGE OF CRUDE OIL PRICES \$4 TO \$5/BBL DURING THIS LAST QUARTER. THE SUDDEN REACTION OF THE MARKET TO OVERSUPPLY CONDITIONS WHICH HAVE BEEN WORSENING OVER THE LAST TWO YEARS CAUGHT MANY ANALYSTS BY SURPRISE AND HAS SPAWNED NUMEROUS ARTICLES IN BUSINESS MAGAZINES AND NEWSPAPERS PREDICTING THE DEMISE OF OPEC AND HERALDING THE RETURN OF INEXPENSIVE CRUDE OIL. OPEC MET IN SPECIAL SESSION ON MARCH 19th AND 20th IN AN ATTEMPT TO COORDINATE A RESPONSE TO THE WORSENING PRICE SITUATION BUT THEIR REDUCTION IN THE OPEC PRODUCTION CEILING TO 17.5 MILLION BARRELS A DAY WAS SEEN BY MOST ANALYSTS AS BEING INEFFECTUAL GIVEN THE CURRENT LOW LEVELS OF DEMAND AND THE IMMENSE WORLD INVENTORIES.

AS A RESULT, THE MARCH 1982 PETROLEUM REVENUE FORECAST PROJECTS AVERAGE EXPECTED REVENUES WHICH ARE DRAMATICALLY LOWER THAN THOSE PROJECTED IN DECEMBER, 1981, WHEN IT WAS EXPECTED THAT PRICES WOULD FALL

ON AVERAGE \$1.00 TO \$1.50/BBL. OVER THE NEXT 12 MONTHS. ALTHOUGH JANUARY PRICES FOR ANS AT PUMP STATION ONE AVERAGED OVER \$21.00/BBL., CURRENT POSTED PRICES BY SOHIO OF \$27.75 AT THE GULF COAST AND \$27.50 AT THE WEST COAST SUGGEST PRICES FOR MARCH WILL AVERAGE CLOSER TO \$18.00/BBL. MARCH SPOT MARKET QUOTES AS LOW AS \$26.00/BBL. SUGGEST PRICES WILL DROP FURTHER OVER THE NEXT SEVERAL MONTHS.

SHORT TERM (FY 1982 - FY 1983)

THE PRIMARY FACTORS INFLUENCING OUR SHORT TERM FORECAST INCLUDE EXTREMELY WEAK DEMAND FOR CRUDE OIL WHICH PERSISTS EVEN IN THE FACE OF FALLING PRICES AND RELATIVELY HARSH WEATHER CONDITIONS IN NORTHERN HEMISPHERE COUNTRIES AND WHICH CONTINUES TO CONFOUND THE CURRENT SUPPLY IMBALANCE IN WORLD CRUDE OIL MARKETS. CONSIDERABLE UNCERTAINTY EXISTS ABOUT WHEN AND IF DEMAND WILL TURN AROUND. CONFLICTING REPORTS ABOUT THE RATE OF CRUDE OIL STOCK DRAWDOWN ABOUND, AND THERE IS DISAGREEMENT AMONG THE EXPERTS ABOUT THE EXTENT TO WHICH THE GENERAL ECONOMIC RECESSION IS DAMPENING DEMAND AND THE EXTENT TO WHICH PRICE INDUCED CONSERVATION AND FUEL SUBSTITUTION HAVE RESULTED IN STRUCTURAL CHANGES IN THE DEMAND FOR PETROLEUM AND PETROLEUM PRODUCTS. THE PRESIDENT OF EXXON HAS BEEN QUOTED AS CHARACTERIZING SPECULATION ABOUT THE FUTURE FOR CRUDE OIL DEMAND AS SIMILAR TO SOLVING RUBIK'S CUBE WITHOUT THE INSTRUCTION MANUAL.

OPEC'S RECENTLY ANNOUNCED INTENTION TO LIMIT THEIR PRODUCTION TO 17.5 MILLION BBLs./DAY IS PERCEIVED BY THE DEPARTMENT TO BE INSUFFICIENT TO BRING SUPPLY AND DEMAND INTO BALANCE AROUND THE CURRENT MARKER PRICE OF \$34.00 FOR SAUDI ARABIAN LIGHT CRUDE OIL. IN THE UNITED STATES, CRUDE OIL STOCKS CURRENTLY AVAILABLE IN PRIVATE HANDS AND IN THE STRATEGIC PETROLEUM RESERVE AMOUNT TO 629 MILLION BARRELS OR ENOUGH OIL TO GO

8 MONTHS WITHOUT IMPORTING A SINGLE BARREL OF OIL AT CURRENT LEVELS OF DEMAND. FOR THIS REASON MARCH 1982 PROJECTIONS ASSUME ON AVERAGE VERY LOW PRICES FOR CRUDE OIL THROUGH FY 1983. IN ADDITION GIVEN THE CURRENT IMPASSE WITH RESPECT TO RESOLUTION OF THE TRANSALASKA PIPELINE TARIFF ISSUE EITHER BEFORE FERC OR BY NEGOTIATED SETTLEMENT WE HAVE LEFT THE PIPELINE TARIFF AT THE CURRENT \$6.00/BBL. THROUGHOUT OUR FORECAST HORIZON. THIS REPRESENTS AN INCREASE OF NEARLY \$1.00/BBL. OVER OUR DECEMBER 1981 PROJECTION WHICH HAD ASSUMED SOME RESOLUTION BY JANUARY 1, 1983. THIS TENDS TO FURTHER LOWER OUR PRICE ASSUMPTIONS FOR THE WELLHEAD PRICE OF ALASKA NORTH SLOPE CRUDE. AVERAGE EXPECTED TOTAL PRODUCTION REVENUES FOR FY 1982 ARE DOWN 9 PERCENT OR \$301 MILLION FROM DECEMBER 1981 PROJECTIONS INCLUDING AN 8 PERCENT DROP OF \$139 MILLION IN PROJECTED SEVERANCE TAX COLLECTIONS AND A 10 PERCENT DROP OF \$161 MILLION IN PROJECTED ROYALTY PAYMENTS. AVERAGE EXPECTED TOTAL PRODUCTION REVENUES FOR FY 1983 ARE DOWN 39 PERCENT OR \$1,384 MILLION INCLUDING A 38 PERCENT DROP OF \$699 MILLION IN PROJECTED SEVERANCE TAX COLLECTIONS AND A 39 PERCENT DROP OF \$685 MILLION IN PROJECTED ROYALTY PAYMENTS.

INTERMEDIATE TERM (FY 1984 - FY 1986)

FOR THE INTERMEDIATE TERM, THE RECENT HISTORY OF THE 1970'S WOULD SUGGEST THAT OVER THE NEXT FIVE YEARS WE CAN EXPECT GENERALLY MODEST PRICE GROWTH FOR CRUDE OIL WITH THE POSSIBILITY OF MAJOR SUPPLY INTERRUPTIONS CAUSING SHORT TERM PRICE RUN UPS. THE MARCH 1982 FORECAST PROJECTS THAT CRUDE OIL PRICES WILL BOTTOM-OUT IN FY 1983 AND SUBSEQUENTLY RISE SLOWLY THROUGH FY 1986. ALTHOUGH SIGNIFICANT WEAKNESS IN PRICE SEEMS LIKELY IN THE SHORT RUN, PRICES SHOULD INCREASE OVER TIME DUE TO:

FIRST, THE TENDENCY OF THE MODERN WESTERN ECONOMIES TO INFLATION RAISES THE COST OF FINDING AND PRODUCING NEW OIL RESERVES, INCREASES THE COST OF ALTERNATIVE ENERGY TECHNOLOGY, AND PUTS PRESSURE ON OWNERS OF CRUDE OIL RESOURCES TO INCREASE PRICE TO PRESERVE THEIR FINANCIAL WEALTH.

SECOND, THE FACT THAT THE MAJORITY OF ACCESSIBLE PROVEN CRUDE OIL RESERVES LIE IN THE POLITICALLY VOLATILE MIDDLE EAST OR THE SOVIET UNION, AND THEREFORE, WESTERN NATIONS REMAIN SUBJECT TO THE RISK OF MAJOR SUPPLY DISRUPTIONS.

THIRD, CRUDE OIL WILL COST MORE AS THE STOCK OF KNOWN RESERVES IS EXTRACTED AND INCREASINGLY MORE EXPENSIVE SOURCES OF OIL ARE EXPLORED AND PRODUCED.

THE REAL UNCERTAINTY OVER THE INTERMEDIATE TERM IS WHETHER AND WHEN VIGOROUS DEMAND GROWTH WILL RESUME. TO A CERTAIN EXTENT THE TREMENDOUS CRUDE OIL PRICE INCREASES OF THE LAST DECADE HAVE RESULTED IN STRUCTURAL CHANGES IN ENERGY USE, E.G., THE SWITCH TO FUEL EFFICIENT AUTOMOBILES, BETTER INSULATED HOMES, AND UTILITY FUEL CONVERSIONS. THESE DEVELOPMENTS SUGGEST VERY LOW DEMAND GROWTH. IT IS ALSO QUITE POSSIBLE THAT STABLE OR FALLING REAL OIL PRICES WILL ACT AS THE PRIMARY STIMULUS TO AN ECONOMIC RECOVERY OVER THE NEXT FEW YEARS WHICH SUGGESTS RENEWED DEMAND GROWTH. THE FACT REMAINS THAT IN A VERY SHORT TIME MOST ANALYSTS HAVE COME FULL CIRCLE FROM A VIEW OF DEMAND PUSHING UP AGAINST LIMITED SUPPLY TO ONE OF "DEMAND CONSTRAINED" PRODUCTION.

THE RECENT DOWNTURN IN OIL PRICES HAS ILLUSTRATED QUITE DRAMATICALLY THE EXTENT TO WHICH STATE REVENUES ARE SUSCEPTIBLE TO SWINGS IN THE WORLD MARKET ON THE DOWNSIDE AS WELL AS THE UPSIDE. FOR THIS REASON IT IS FELT THAT, GIVEN FUTURE UNCERTAINTY ABOUT PRICE, THE COSTS OF ERRING ON THE HIGH SIDE ARE GREATER THAN BEING TOO CONSERVATIVE. THEREFORE, FOR FY 1984 AND BEYOND THE DEPARTMENT WILL BE REPORTING REVENUES

CORRESPONDING TO THE 30 PERCENT CUMULATIVE DISTRIBUTION AS OUR SINGLE POINT ESTIMATE OF FUTURE COLLECTIONS.

THESE RISK ADJUSTED PETROLEUM PRODUCTION REVENUES FOR FY 1984 ARE PROJECTED TO BE \$2380 MILLION, A DECREASE OF \$1979 MILLION OR 45 PERCENT FROM DECEMBER 1981 PROJECTIONS. FY 1985 PETROLEUM PRODUCTION REVENUES ARE PROJECTED TO BE \$2820, A DECREASE OF \$2339 MILLION OR 45 PERCENT FROM DECEMBER 1981 PROJECTIONS. FY 1986 PETROLEUM PRODUCTION REVENUES ARE LIKEWISE PROJECTED TO DECREASE 44 PERCENT FROM DECEMBER 1981 PROJECTIONS.

LONG TERM (FY 1987 - FY 1998)

THE LONG TERM PORTION OF OUR FORECAST COVERS THE PERIOD OF FY 87 THROUGH FY 98. THE MOST SIGNIFICANT FACTORS AFFECTING STATE OF ALASKA PETROLEUM PRODUCTION REVENUES DURING THIS PERIOD ARE:

- 1) THE EFFECT OF A PROLONGED PERIOD OF CHEAPER CRUDE OIL ON THE DEMAND FOR THAT PRODUCT;
- 2) THE EFFECT OF LOWER CURRENT PRICE EXPECTATIONS ON THE TIMING OF FURTHER EXPLORATION AND DEVELOPMENT OF POTENTIAL AND KNOWN HYDROCARBON BEARING PROVINCES IN ARCTIC ALASKA;
- 3) THE TIMING AND EXTENT OF DECREASED PRODUCTION AT PRUDHOE BAY;
- 4) WHETHER OR NOT THE ALASKA NATURAL GAS TRANSPORTATION SYSTEM IS BUILT.

REVENUES ARE EXPECTED TO INCREASE IN TERMS OF NOMINAL DOLLARS UNTIL FY 1989, BUT INFLATION WILL GREATLY REDUCE THE PURCHASING POWER OF THE DOLLARS IN THE FUTURE. THE SIGNIFICANTLY REDUCED ASSUMPTIONS FOR LONG RANGE PRICE GROWTH AND THE DECISION TO REPORT REVENUE PROJECTIONS LESS THAN THE CALCULATED MEAN RESULT IN FY 1987 - FY 1997 REVENUES WHICH ARE DOWN 51 PERCENT OR \$42 BILLION.

IN ADDITION TO THE IMPACT OF THESE ASSUMPTIONS ON ROYALTY AND SEVERANCE TAX REVENUES, TWO OTHER SIGNIFICANT ITEMS SHOULD BE MENTIONED:

1. STATE INVESTMENT EARNINGS FOR FY 83 HAVE BEEN REVISED DOWNWARD FROM \$315 MILLION TO \$200 MILLION FOR A DECREASE OF \$115 MILLION DUE TO THE FACT THAT THE GENERAL FUND BALANCE WILL BE LESS THAN PREVIOUSLY CALCULATED.

2. REVENUES FROM THE STATE'S CORPORATE INCOME TAX WILL ALSO BE SIGNIFICANTLY REDUCED. THE ESTIMATED PETROLEUM CORPORATE INCOME TAX REVENUES FOR FY 82 HAVE BEEN REDUCED BY \$29 MILLION (FROM \$713 TO \$684 MILLION) AND FOR FY 83 THEY HAVE BEEN CUT BY \$46 MILLION (FROM \$304 MILLION TO \$258) FOR REASONS RELATED TO THE PROLONGED PERIOD OF OVERSUPPLY BUILT INTO THE DEPARTMENT'S LATEST FORECAST. FINALLY, EVEN THE ESTIMATED GENERAL CORPORATE TAX REVENUES HAVE BEEN REDUCED BY A TOTAL OF 5 MILLION DOLLARS FOR THE FY 82 - FY 83 PERIOD DUE TO THE IMPACT OF THE FEDERAL ECONOMIC RECOVERY TAX ACT OF 1981 WHICH ALLOWS MORE RAPID DEPRECIATION METHODS WHICH ARE INCORPORATED BY REFERENCE INTO STATE LAW.

IN SUMMARY, THE DEPARTMENT OF REVENUE'S MARCH FORECAST PROJECTS THE FOLLOWING NET UNRESTRICTED REVENUES:

	<u>FY 82</u>	<u>FY 83</u>	<u>Total</u>
Jan. 82	4,335.8	4,133.7	8,469.5
March 82	4,044.4	2,747.7	6,792.1
	<u>-291.4</u>	<u>-1,386.0</u>	<u>-1,677.4</u>

THE NEWS IS SOBERING -- BUT IT SHOULD PROVIDE US ALL WITH SOME VERY VALUABLE LESSONS CONCERNING THE DIFFICULTIES AND RISKS OF TRYING TO ENGAGE IN LONG TERM DEVELOPMENTAL PLANNING WITH A REVENUE BASE TOTALLY DEPENDENT ON INTERNATIONAL MARKET FORCES WHICH ARE BEYOND THE STATE'S CONTROL. IN THE SHORT TERM AT LEAST, THE REVENUE DECLINE PRESENTS PRIMARILY A PROBLEM OF REDUCED EXPECTATIONS REQUIRING A REALISTIC REAPPRAISAL OF STATE SPENDING PRIORITIES AND FUNDAMENTAL DEVELOPMENTAL NEEDS.

MILTON LIPTON
PETROLEUM ECONOMIST
PRESIDENT, W.J. LEVY CONSULTANTS CORPORATION

I have planned as always to tell you how pleased I was to be invited back but after listening to the previous testimony before this committee I am not so sure that it is an unadulterated pleasure. I am also struck by how similar the projections of the various witnesses was, particularly as they are based upon an expectation of world oil prices. When you are all done with your various projections, I did not hear anyone saying that there was any substantial probability of a world oil price any higher over the next year or eighteen months than something in the low 20's. Of course, I am struck always by how rapidly conventional wisdom tends to turn around. It wasn't so many years ago that we heard most commonly expressed the fact that the world was going to be running out of oil by the middle 1980's if Saudi Arabia did not produce 20 million barrels a day of oil. Now what we hear most commonly expressed is that we are facing surpluses into the 1990's and beyond and that there is no hope of holding world oil prices unless Saudi Arabia produces something under six million barrels a day. I think it is fair to say that all of us tend to see the future through the prism of the present.

We are conditioned by what we are seeing close as to what we are experiencing. I think it is also fair to ask what the dramatic changes in basic circumstances might be that we suddenly see the world turned topsy turvy in such a short period of time. I suspect that I probably have less interesting things to tell you than you have questions to ask and so I am going to run through, relatively quickly, what I consider to be some of the highlights dealing with why we are where we are and then where do I think we are going from here. I am going to talk first about what we consider to be the reason for where we are and secondly, where do we go from here.

What are the causes of the present crisis of falling prices? A crisis of declining prices. We know about crisis of rising prices but all of a sudden for the first time in the modern petroleum age, we are concerned with the crisis of falling prices. Some of them are very obvious. There is conservation. This has caught hold and burgeoned over the years as a reaction against the explosive price increases of 1973 and 1974 and again in 1979 and 1980. There is the substitution of other forms of energy for petroleum.

There is the economic slow down which has taken place, not just the recession of recent years, but the general expectation most widely held that once oil prices shot up to the explosive heights that they did, that the economic rates of growth of the industrialized world would slow down. One was no longer projecting the historic rates of growth but two to two and one half percent was the best that we could hope for, half of what it

had been previously. This was all because of the big increase in oil prices and the interposition of economic recession which came in 1975 and 1976 and again in 1980-81 into 1982. The overhang of inventories is another.

We have all of these things and none of them together would have brought us to where we are. It took the combination of all of them, the juxtaposition of conservation, substitution, economic slow down recession and the overhang of inventories plus the particular role which Saudi Arabia played in 1981 which has brought us to where we are today.

I want to say a few words about Saudi Arabia in this whole area within OPEC and as a swing force with respect to international oil movements and prices. First of all, for the sake of emphasis, Saudi Arabia does not have an oil policy and never did have an oil policy. Saudi Arabia has political purposes and it will utilize its oil policy from time to time in order to serve its political purposes. Secondly, the major political purpose of Saudi Arabia, like that of any government, is to perpetuate itself and in this case represents a dynasty. In that respect they believe, and believe correctly, that the most important defense of the Saudi-Arab position in the world depends upon the importance of the their oil to the industrialized world. The industrialized world needs Saudi-Arab oil. The Arab world around them covets Saudi-Arab oil revenues. It is the industrialized world that is so keenly interested and concerned about the uninterrupted flow of oil from Saudi Arabia, yesterday and today and years into the future, that has the same ideas as Saudi Arabia about stability in the Middle East.

Most of their Arab neighbors are much more interested in instability having their own pretensions and their own objectives. Should these objectives ever be exercised in the form of paying Arabism the way Nasser tried to promote it or the radicalism of an Iraq or a Syria would leave the Saudi Arab dynasty tremendously exposed. Therefore, their major concern is that they be seen and understood to be a constructive force for the industrialized world which is why they have ever since 1974 pitched their own oil policy towards moderating explosive price increases. Also, except in the case of the Arab oil embargo in 1973-74, towards trying to assure the industrialized world that they can be counted on to supply the essential needs of industry in the industrialized world if something goes wrong elsewhere.

Opposition towards price increases and the ability to supply when other things go wrong is the way in which the Saudi's have presented themselves to the industrialized world. They were not altogether successful in projecting this image, not in 1975, 1977, 1979 or 1980 but in 1981 they saw the opportunity. The opportunity arose out of the conjuncture of other circumstances which I was talking about. The fact that we had conservation, slackening of demand, substitution and an overhang of inventories. The Saudi's took advantage of this to try to bring

down the extremely high prices of the more militant members of OPEC who had gotten away with it in 1979 and 1980 during a period of tight crude oil balances. They did that by underpricing and overproducing. The purpose was clear and the money and circumstances of the time was able to come to the United States and appear on nationwide television and say "we Saudi Arabia engineered the glut". The ability to do this was based on the fact that the rest of the Arabic world was in disarray. Iran, a Moslem country but not Arabic, was in the throes of a revolution. Iraq and Iran were at war, etcetera.

They were able to do it and in fact they effectuated their policy by underpricing and overproducing and through the major part of 1981 they were in fact producing 10.4 million barrels per day with the obligation of their off-takers to lift and dispose of that oil. For awhile the preferred off-taker in Saudi Arabia, whether he be an American company or the Japanese, were twice blessed with oil in 1980 when other people were short and with low cost oil. By 1980 it became a mixed blessing when you considered what to do with that amount of oil which is being put upon you at a time when there is surpluses all over the world. For awhile you have surplus refining capacity so you put it through refineries and since it is the lowest cost oil in the world you can sell it competitively. The effect, of course, is to weaken market prices in every major market that Saudi-Arab oil reached whether direct or indirect. These companies had access to very large volumes of low cost oil whereby weakening product prices and after awhile there is no place to go with the product so the products themselves go into inventory. After awhile there is no more room for product inventories and this surplus production goes into crude oil storage. When crude oil storage is filled you charter empty tankers and fill with crude oil and move it to Southeast Asia or the Carribean and you have floating storage.

The Saudi's effected their purpose. They forced the more aggressive members of OPEC to come down with their extreme prices and by August, even though OPEC did not formalize the reunification of prices that Saudi Arabia had been shooting for, they had achieved it. Following the August meeting of 1981, Saudi Arabia stated they were going to reduce their production to 9.5 million barrels per day. By December of 1981, Saudi Arabia had reduced their production more but had reduced production too little, too late and not convincingly enough. The statement was that they were reducing their ceiling on production and did not say openly and specifically that they were cutting back their production and telling our off takers that they can't lift more than this particular volume which is going to balance the market. The upshot was that 1981, as a result of this policy on the part of Saudi Arabia designed to bring extreme prices down but carried out their underpricing and overproduction, changed completely the character of the year 1981. 1981 was started with an overhang of inventories of over 5 billion barrels. There was a tremendous overhang of high cost inventories that confronted the

whole world. Everyone anticipated that 1981 would be a year of adjustment the way 1975 and 1976 were and that inventories would be worked off in the course of the year. In fact, because of the Saudi-Arab policy there was virtually no liquidation of inventories in the course of 1981. The sum total was maybe at the rate of one to one and a half million barrels a day which means that inventories were reduced between 350 million and 500 million barrels. We ended 1981 with inventories of over five billion barrels which is about 100 days supply which is twenty days more than the rate of inventory carriage we had in 1978.

It was this which brought us into 1982 with not only the accumulation of further declines in demand but an overhang of inventories which had been high cost in 1981 but which became intolerable in 1982. The conventional wisdom had by then changed around so thoroughly that with surpluses foreseeable into the future and prices having no way to go but down to carry inventories was intolerable. A barrel of inventories which you have in stock today is going to be worth less tomorrow so you get rid of them. There was a tremendous rate of inventory liquidation beginning early in January through February and most of them were product inventories. A lot of them were product inventories which don't show up on the inventory statistics because your secondary inventories are held by consuming groups. With this overhang of inventories, whose value is going to go down and that you can always replace because there is plenty of surplus refining capacity, can be replaced cheaper than what you had in stock so you sell the products. You can probably buy from somebody else with surplus products cheaper supplies than running crude through your own refinery. You had essentially a dumping of products on the product market and tremendous weakness of product prices in all major consuming areas. This liquidation of products kept pushing crude oil back into inventory because if you reduce your refinery runs and buy products from someone else you are not using crude oil. Therefore, through January and February we had very little liquidation of crude oil.

When you hear about the firming of product prices which took place in March, my own guess is that this was owing less to a major change in the psychology of the market as it was to the fact that the product dumping had very much come to a halt and we were reaching the point where we had to start liquidating crude oil inventories.

OPEC is sorely beset by the declining demand for their crude with the dumping of products weakening prices and product markets so refiners are suffering losses. As refiners suffer losses they have to reduce their crude oil costs and the way they reduce their crude oil costs is to sluff off whatever high cost crude there is, except one, Saudi-Arab crude. If Saudi Arabia says our production ceiling is 8.5 million barrels a day or 7.5 million barrels a day and you are an off-taker from Saudi Arabia you want to be very careful less you prejudice your future relationships by underlifting what has not become high cost crude instead of

low cost crude. With the Saudi-Arabs pricing at \$34 other crude selling very much below it is a high cost crude. There was underlifting but no company is prepared to go too far unless it gets a clear signal from Saudi Arabia. In the latter months of 1981 and the early part of 1982, Saudi Arabia was not giving a clear signal as to what their intentions were. What you have now is the dilemma within OPEC of how you balance your production with the demand for OPEC oil and how you preclude or at least reduce the amount of discounting by some of the OPEC members so you can achieve a modicum of stability in the crude oil market in the months immediately ahead.

There are different groups within OPEC which have had and still have a need for increased production export and oil revenues. Iraq and Iran together used to produce between nine and ten million barrels per day and now produce barely two million barrels a day. Both of them are desperately in need of volume and revenues to rebuild against the war which is still going on. There is almost an unlimited desire for increasing production, exports, and oil revenues. There is a limit to how much can be increased out of these two countries.

Iraq has lost and will not be able to reestablish it's major export facilities at the head of the Persian Gulf as a result of war damage. Whatever they might be able to produce they can not move into export more than two pipelines will carry. Two pipelines which go to the Eastern Mediterranean, one which goes to Tripoli in Syria and the another which is built through Turkey into the Eastern Mediterranean. Together these two pipelines can carry a little bit more than one million barrels per day. There is another pipeline which has an on again off again operation through Syria which has lost some pumping capacity. The limitation of what they can export is their pipeline capacity which is going to remain for a considerable period of time.

Iran would love to produce three or four million barrels per day yet have a very serious problem. There are a lot of off takers from Iran. Their major customers are the Japanese who rushed to Iran in 1979 when they were opening up because they had nationalized and the Americans had backed away. This was the first chance the Japanese had ever had to get direct access to Middle East oil. They rushed in and paid premium prices but Iran went down the drain as a result of the war. The Japanese have opened up extremely important lifting arrangements with Saudi Arabia. The Japanese today, as a group, take as much oil from Saudi Arabia as any one of the four ARAMCO American oil companies. They would be reluctant to turn their back on that to reopen negotiations with Iran and secondly the Saudi's are in a position no matter what the Iranian price is to say to companies we don't want to negate the economic reconstruction of our Moslem half-brothers in Iran. The greatest threat to Saudi Arabia had been the pretensions and meglomania of the Shah and they are reluctant to see the economic reconstruction. Whatever these two countries may want, it is unlikely in the near term they will get

increased exports of more than about 750 or one million barrels a day.

Kuwait and Libya don't directly need the money and have other reasons for wanting increased exports. They are producing well below what they had been previously producing and together are producing maybe 1.4 or 1.5 million barrels per day. They would like a lot more but neither of them have trying revenue needs and if you say that each of them could expect out of an OPEC arrangement in the near term to get another 750,000 barrels a day, this may not make them happy. This also would not make them so unhappy that they would be price cutters in order to get an additional one hundred to two hundred thousand barrels a day.

Algeria, Nigeria, Venezuela and Indonesia need revenue and would like to have increased exports. As a matter of fact the lower the price goes the higher the level of exports they need in order to maintain their level of revenues. I would say that if they were able as a group for a time to increase their exports by another 1.2 million barrels a day they would not be happy but not be so unhappy that they couldn't stick it out for awhile. What I am talking about is something on the order of 2.5 to three million barrels a day that somehow has to be given to them. That is not going to come out of the Saudi-Arab high. The Saudi-Arabs are not prepared, given the state of the market, to reduce their production by enough so there would be a shift of off-take from Saudi Arabia to these eight countries in the amount of 2.5 or three million barrels a day.

The problem which faced OPEC when they convened in March was a fantastic juggling act. Saudi had to convince the other eight that they were serious and determined enough to reduce actual production, not only their ceiling, to a figure that the others might be able to live with and then wait for something else to happen to improve the whole environment. The turnaround from inventory liquidation, which is still going on, to a lower rate of liquidation which means in effect that the world would have to meet its energy/oil demand out of current exports from OPEC. Saudi Arabia has to convince the eight that they are serious enough and the eight had to convince Saudi Arabia that they wouldn't accept what was given to them and then go on cutting prices still further in order to get their extra 100-300,000 barrels a day.

The question then is whether or not the OPEC decision to hold production to 7.5 million barrels per day is going to stabilize the market. As it has been discussed today, 7.5 million barrels a day is not the answer to anything really, but is a holding action on OPEC's part. OPEC knows that the world is using today more than 17.5 million barrels a day. Therefore, if Saudi Arabia will actually cut production, not just their ceiling, to 7.5 million and maybe if necessary 6.5 million barrels a day, and if the others hold still and suffer the shortfall in the desired level of exports for several months, then that 7.5 million

barrels will increase to 19.5 or 20 million barrels a day. That is not going to be frustrated by added conservation or substitution. We are going to be doing whatever we can anyway in all of these areas. The turnaround in the rate of inventory liquidation is what OPEC is banking on and if they are prepared to go that route without continuing to cut prices then the expectation is that they will be able to stabilize the market.

The competition that OPEC faces is not from low cost North Sea crude. If OPEC worries about North Sea crude the game is lost. The competition is not from declining prices of U.S. oil. North Sea oil is not a price maker in this world and U.S. crude oil is not a price maker. The price determining factor in the world is never the lowest price oil but the highest cost. We know that consumers if they need a certain volume of oil are going to have to pay the price for the marginal barrel. The marginal barrel is the last barrel you have to buy for your refinery or the last barrel you get out of your refinery. No matter what OPEC does with their price they are not going to drive North Sea oil down beneath the water and if they cut their prices they are not going to drive U.S. oil down under the ground of Texas. We are going to produce roughly 8 million barrels a day of crude oil and the North Sea, Norway and Britain together are going to produce their 2.1 million barrels a day because they are more concerned about volume instead of price. OPEC has to worry about competitive pricing and as OPEC countries competing with themselves to get their share of what they regard as the deficient demand. It is OPEC competition within itself which is creating directly or indirectly the extremely low spot prices. Dumping of products continues even with some OPEC countries which export their crude oil and refine it in third countries taking some of the products back and dumping the surplus products onto markets resulting in an undercutting of prices.

In the short run a reduction in price is not going to increase demand. In 1979 and 1980 the countries of the oil importing world and the companies from these countries competed among themselves to bid the price up. This rising price did not get one extra barrel of oil out of the ground. What they were doing was competing among themselves for the oil that was not contracted for and was on the spot market. The faster they bid up the spot market prices one country after another withdrew it's crude from contracts and put it on the spot market. Consequently, the contract prices went up and OPEC did a wonderful job of taking advantage of our own shortsightedness. We bid prices up without bringing forth more supply. What the OPEC members are doing when they compete with each other is driving prices down without bringing forth increased demand. They know that but were driven by circumstances. Through 1981 they never believed what is so often said that they are facing the discipline of the market place. It is the discipline of the market place which is going to force crude oil prices down. They never believed it and don't believe it today. It wasn't a

or \$32. I think the justification/rationalization for reduction in the market price from \$34 down to say \$31 is there. The Saudi-Arabs could have said in March that they had to reduce their production because the demand isn't there and adjust the price downward to firm up demand. Why they didn't one can guess. It could have been a considerable fear that if they adjusted their prices downward that the world would take this as a real sign of collapsing oil prices and it would tend to trigger the psychological reaction to the downwards spiral of oil prices. It may have been that after the experience of 1981 OPEC also wants to show as part of their image to the world that whereas they can force prices down they are also strong enough to hold prices. The answer is uncertain, but I think the chances are very good that OPEC may be able to hold the price in this range of \$32 for the bulk of oil moving in international trade. There may very well be continued weakness of spot prices while this is going on. There is an overhang of crude inventories which still have to be worked off. It doesn't matter if you say the surplus is in surplus production which is being absorbed but there is surplus fuel oil inventories which have to be disposed of which can only be done with a certain amount of selling on the spot markets. If the OPEC "have nots" are prepared to sit it out and wait for the hope of upturn in economic activity it may very well work. If it doesn't then we could be faced with a relatively considerable period of continuing price weakness. I don't believe that the price weakness is the kind that is going to cut oil prices into less than half. I think there are a lot of reasons to anticipate that will not happen. I will not argue if a free market price is \$13 or \$6 or \$8. A free market price is something which we tolerate when prices are going up and not when they are going down. The world crude oil business has rarely known a free market.

In 1928 oil companies congregated in Scotland to try and provide a certain amount of direction to an otherwise undesirable free market. The Texas Railroad Commission did its part and the U.S. Hot Oil Act did its part when we stopped the previous collapse of oil which was going down to ten cents a barrel in the East Texas field. If you consider what a major decline in world oil prices would mean to the policies of governments which they have instituted and the expectations of rising prices, you can see many reasons for public intervention.

The direction of the price movement is a tremendously important matter. In 1978 our office used as a working hypothesis the possibility that the world oil prices, which were then \$12.70, within two to two and one half years would about double. It was a combination of a lot of things. The OPEC countries we talked to were exuberant at a forecast such as that. The U.K. government saw this as a solution to all their budgetary problems. The United States and Canada were not going to have any more energy problems because a world oil price of \$25 is a go ahead signal for oil shell, gasification of coal, etcetera.

discipline of the market place it was the intransigence of Saudi Arabia.

Tape Change 82-29, Side 1, #001

They do not believe, nor do I think they have reason to believe, that the long term trend in oil prices has to be down. This is the conventional wisdom which was presented by Mr. Erickson's chart. Everybody says that oil is a depleting resource, a finite resource, so shouldn't the real price of oil be going up? It may be finite but through this entire period of time with the ups and downs oil was essentially in unlimited supply. If you look at the levels of consumption of petroleum in 1910, 1920 and 1930, and on, oil consumption only began to burgeon after World War II when it was fed by the low cost oil out of the Middle East. People began to realize how much oil was there. At that time the demand for oil went up and the reconstruction after World War II, and for a generation thereafter, was taking place. It all came out of a bottomless barrel. If it is a bottomless barrel why do you have to worry about a rising price of oil?

Sure the real price is stable but we have pushed our consumption to a level today where every year if we want to replace the amount of oil which is being consumed, even after conservation and substitution, we have to look for and discover a new Libya every year. If you are talking about what the real price of oil is going to be over the long run then you are not talking about a bottomless barrel where the real cost of oil can remain constant. You are talking about the necessity to find the oil which you are consuming. It may very well be that in individual years we can find our 17 billion barrels which we use up. However, it is questionable that you can do it year after year. What is unquestionable is that even when you do the cost of finding it is going to go up. I think there is very little reason to expect that in the long run OPEC is faced with a constant or declining real price. The problem of OPEC is to bridge the gap of a certain number of years. The real oil price is not going to be going up year after year from a level of \$35 to \$40 a barrel such as we had in 1980. Obviously the explosive increase in prices had to be adjusted for as we did in 1975-1978 and with an even bigger adjustment because the explosive price increase was greater. That would have taken three or four years of oil prices stable or maybe even going up in dollar terms, as they did from 1975-1978, but declining in real terms. The problem of adjustment has become acute because 1981 was the year when we should have started it and it was aborted by the misadventure of the Saudi-Arab oil high.

Is the OPEC adventure going to work? I don't think anyone knows the answer but I would say that the odds are better than not that it is going to work. In effect OPEC will in the course of the next six months be able to hold the price of their oil that moves in international trade somewhere in the range of \$30

I would anticipate that not when the oil price reaches \$15 or \$16 but substantially before that there would be a considerable amount of intervention by many of the governments who have an allied interest that there shall not be such a precipitous collapse of oil prices that the commitments have been made pursuant to government policy are not all going to be thrown out of kilter. The U.S. may very well intervene, not when U.S. crude oil prices are down around \$13 or \$14 that gives a netback of \$5 a barrel, but considerably before. There are two purposes for this both in the interest in maintaining incentives to the development of American natural resources and also for budgetary interests. There can be a devastating impact upon the U.S. budget and the income from Windfall Profits taxes if prices fall to that level. As a matter of fact, income from Windfall Profits tax disappears if prices ever fall to that level.

There is the prospect that OPEC will hold the line somewhere in the area of \$30-32 with spot prices below, not with a downward spiral of spot prices, and that with further declines in the real price of oil for several years thereafter. If OPEC can't do its job, to defend prices in a declining market, then we are faced with downward pressure on the prices in the spot market carrying other prices lower. The big question mark is where is the trigger point for intervention, for example on the part of the United States government, which has the legal authority to do it at the present time. If the Administration decides they want to impose a duty on oil it takes a finding by the Administration pursuant to the Trade Agreements Extension Act.

As far as the implications for the State of Alaska, I think your problems are basically with your principals of budgetary projection. They have been for a long time. I fault noone for making the mistake of projecting crude oil prices. Anybody can make that mistake and all of us do. The question is what principal of projection do you use. I would use an entirely different principal of projection with the same set of circumstances when you are considering the revenues of a government or the cash flow of a business corporation than if we were advising a major oil company on their future exploration policy. When it comes to the determination of how much shall we budget and how shall we allocate for exploration; what happens to oil prices over the next three years is irrelevant. The money spent on exploration today is not going to find the oil or develop the oil or produce the oil over the next three or four years. What they are concerned about is what the long term oil balances and the long term oil price is going to look like in the future. If they don't have a sufficiently realistic perspective on the upside then they are out of the game of exploration because either they will not bid enough competitively to get leases or negotiate on the proper basis with the various governments in the third world. There one has an entirely different perspective that one has to take.

Representative Meekins asked Mr. Lipton if he was saying that the state should be conservative in their projections? Mr. Lipton responded that you never have reaching you one set of projections. There are always a multitude of alternatives which are always being laid out. The basic question is which do you adapt your revenue expectations and expenditures on. I am not suggesting that you always have to go with the lowest of all possible alternatives. If you want to be absolutely glorified by your financial position for FY 83 and FY 84 you take Gregg Erickson's 30% projection. If you estimate all of your oil revenues on the assumption that from here on out the wellhead price of North Slope crude is going to be \$5 a barrel, I put it to you that you are going to be pleasantly surprised by your revenue receipts in FY 83 and FY 84. A certain amount of conservatism or adapting different types of categories of expenditures to different revenue expectations is wise.

Representative Meekins asked about the chances of upset in the Middle East. Mr. Lipton responded that there is a lot of thinking that there is nothing to worry about aside from interruption of Saudi-Arabia oil supplies. Suppose there is a two million barrel a day interruption in supply of oil. We could make it up. It is a source of some confidence that we have a lot of surplus productive capacity around. There can be political upsets which can significantly effect the perception of world oil balances even though the physical loss itself is not that serious. That could be enough to lead to a considerable turn around in the direction of people's expectations of crude oil prices and about product prices.

Representative Cotten stated that the state appears to be more concerned with the short term effects as opposed to the Saudi's. He asked if Mr. Lipton thought that their interest in reducing the price is an attempt to make sure they have a market over the next 75 years or more. Mr. Lipton stated that he does not think so. There has been alot of talk about the Saudi's being impressed by the degree of conservation and development of alternatives and substitutes in an attempt to insure that they have their market into the future. Mr. Lipton stated that the Saudi's really believe that what we do world wide about exploration or synfuels is really going to be determined on whether the Saudi oil price is \$34 or less per barrel. He stated that he thinks they are sufficeintly convinced that first of all the petroleum age is going to last longer than most people expect and they would be delighted if by the year 2000 or 2001 energy prices all over the world are determined by what the cost of the hydrogenation of U.S. coal is. Their oil will cost them a lot more to produce by the year 2000. They can do very well being the major oil supplier in an energy world. The cost of marginal energy is Middle East oil and we will still need it. The lowest cost energy in the world is now the highest price energy in the world. The only way you can stop them from exacting that price

is one of two things. Either you say we are going to cut off some of that oil by substitution and conservation or if you have lower cost crude which is going to displace it.

Representative Cotten asked what it costs for Saudi Arabia to produce their oil? Mr. Lipton responded that to develop their incremental production with a tremendous amount of infrastructure (storage facilities, extraction of gas, etcetera) it must in the \$4-5 range. If you just talk about the crude oil itself it might be a couple of dollars a barrel.

In response to a question from Chairman Adams, Mr. Lipton responded that he would not think that there is much likelihood of the value of Alaskan oil in the Lower 48 increasing in the near future and therefore in the netback values increasing, unless and until there is something on the pipeline tariff which I suspect is going to work for you. There is an asymmetry to the way crude oil prices behave particularly in the U.S. market. Right now the big downward pressure on crude oil prices in the U.S. market comes from the very low margins or losses that refiners are suffering when they sell their gasoline, diesel oil and heating oil. The independent refiners in particular who don't make any profits on their crude oil production are pushing these crude oil prices lower. The reason they can do it is because there is this low cost spot crude available abroad. Foreign crude oil at spot prices in the market place can be bought and entered into the United States below the prices of our domestic crude. Our domestic crude prices haven't gone down as far as the foreign spot. The downward pressure of the weak products market on domestic crude prices is not apt to change until some of the profitability is restored in the domestic product markets and the foreign crude oil market begins to bottom out. Only after that, I believe, you begin to have an upturn in domestic crude prices. I think the downward pressure on domestic crude prices could be abated if OPEC is able to effectuate it's purpose. I would not gamble or bet on an increase in your wellhead values for sometime, probably not until next year sometime.

Representative Chuckwuk stated that he is convinced that the coastal zone management plan which was prepared by the people did not have anything to do with Interior Secretary Watt's decision on the development in the Aleutian Islands and Bavarian Basin. Representative Chuckwuk asked if Mr. Watt's decision would be somewhat in line with what Mr. Lipton has previously said about the oil industry. Mr. Lipton responded that he is neither an apologist or critic of Secretary Watt. He has a juggling act of his own to perform with regard to the inclination of the Administration to get energy resource developed and going as fast as possible and to open up to exploration as fast as possible plus coping with the environmental issues in trying to effectuate that kind of a policy.

With regard to a question from Representative Chuckwuk, Mr. Lipton responded that there have always been intrusions in the world oil trade. These intrusions come from many directions and there certainly was a time when oil companies played a central role in all of this. They no longer can play a central role because they have lost control over the major oil resources of the world. I don't know of many instances where the oil industry or even individual oil companies benefit very much from declining prices. They may not benefit very much from rising prices as government taxes it away but there is always a chance that on the rising price that some of it will carry down to the bottom line of profitability. It is hard to do that when prices are going down, so I would suspect that if there is anything as a common attitude in the oil industry, that interest would be in trying to stop the downward slide in oil prices.

Representative Abood asked if given the volatile nature of Saudi Arabia; can they be trusted to maintain the stability of the balance of the oil nations or have they gotten themselves into the box that they have to maintain that stability for their own sake? Mr. Lipton responded that his preference would be not to use the word trust in the relationship among nations. You try to understand what their interests are and from what you think is an understanding of their interests decide how you think they are going to behave. I would think that they have very strong continuing interest in seeing that oil prices do not rise so high or so fast that it poses major problems of economic adjustment on the part of the industrialized world. They have another interest in seeing that oil prices do not go down so fast that it causes a major problem of adjustment in the industrialized world which can be acute also. They can not ignore their own position as a member of the Arabic Middle East or as a member of OPEC. I would think that the paramount concern of Saudi Arabia is the continuing economic well being of the industrialized world because their future depends upon that.

Tape Change HFC 82-29, Side 2, #001)

In response to a question from Representative Cotten, Mr. Lipton stated that if the OPEC juggling act works then in the course of 1982 the price on which oil moves in international trade under contract long term conditions will be in the range of \$30- \$32. Spot prices will probably remain below that at least until the fall because inventory liquidation would have to take place. With regard to Alaskan oil, today the official price is somewhere around \$30 a barrel at the U.S. gulf. If that can be stabilized over the course of the next year then I would say you have a good chance of holding your netback within \$21 in January. The odds are there are going to be some weakness in Alaska's wellhead value because it has already taken place. I would not expect U.S. domestic crude prices to go up this year but if OPEC does it's part and you have modest stabilization it suggests also that there will not be much more downward pressure on domestic crude prices.

Representative Adams stated that one thing which the legislature should look at is quarterly projections. Mr. Lipton stated that in forward planning you should have overlapping forecasts. A five year projection is essential for capital budgeting, one year projection for cash flow and a quarterly projection is essential because it tells you when you are beginning to get off base on your short term one year projections.

Representative Meekins asked if Mr. Lipton would agree or disagree if it would be a good practice to use, for example, a 30% projectile and anything above that would go into a "rainy day account"? Mr. Lipton responded that surely the state must be in a position to utilize different alternatives for different budgetary purposes.

Tape HFC 82-29, Side 2, #258

General Subject: INCLUDED FOR INFORMATIONAL PURPOSES

Log #	Description
#645	Members present: Adams, Montgomery, Meekins, COTTEN, Chuckwuk, Bettisworth, Cuddy, FULLER, Hurlbert (HALFORD/MALONE) (HAUSEN/CARNEY ABSENT) Call to order: 1:05 p.m.
647	GREG ERICKSON - Adams ASKED wns there OPEC cutbacks & what effects? Erickson - what they say and do are not always same. Too early to know what effects will be. I believe prod cutback will be insufficient people believe price will go down so will act that way. Cut price by several \$ & 2-3 m. b. per day to stabilize.
673	Mr Vinbaxter - OPEC will go to 17 mb per day. Some belief that OPEC has made right move. OPEC stable at this time. Dispersion in crude oil prices is great & will strain int'l market. Members of Cartel may become grow anxious.
697	B. Bettisworth - how do they determine strategy for glut - Erickson - 2 1/2 mbpd A surplus estimate.

General Subject: _____

log #	Description
	Notion of a surplus has nebulous edge.
	Chart of measures of production.
	B BATHISWORTH - there is 2 mbp.d. available for sell.
#001	TAPE CHANGE 82-28 side 1
	G. Erickson - I think that is the basic problem. ~~1st 9mo it was~~
	Spot crude prices.
45.	B BATHISWORTH - How long has firmness been?
	.2-3 wks
53	R. Meekins Who is going to spot market? Is it representative of supply/demand?
	G. Erickson - a 2 wk lull in decline is not too significant - companies (ARAMCO) are losing \$ on contracts. They need assured supplies and were willing to pay premium.

General Subject: _____

pg #	Description
110	Vanbaxter - Spot market changing rapidly less contract trading and more spot trading. The impact of spot market on crude oil, proceed a change in spot crude prices.
141	MEEKINS - we look at spot market as an indicator of price. I'm not sure it goes that way on the way down. There are not as many buyers as when there is a shortage.
165	Vanbaxter - Saudi - market price of \$30. The behavior in a down-side market is hard to judge - 2 downturns in 70's but effect is slight.
185	R. MEEKINS, if surplus were to find way to spot market it would be pressured.
205	Vanbaxter - spot market not as strained as you may think. Paper trading v.s. oil transfer.
210	REP HALFORD - 2-3 mbpd. Production can't be that far from consumption. Isn't that repies. of falsely rep. production.

General Subject: _____

Log #	Description
234	Erickson - could be. Many incentives for not telling the truth by a cartel. There is a lot of noise in data.
257	Adams - Article on N.S. oil. \$26.25 - 26.50 downward for N.S. crude. What are your thoughts? Breakdown of transp costs.
268	G. Erickson - part of Greenst is incentives to deliver oil to W. Coast & Gulf Coast. Differential has gone up. I perceive it is under stress as it goes down - windfall ceiling. At present, if you lose \$ shipping to Gulf Coast vs. West. More incentive to get to maximizing market. Should be equalized by end of yr. DOE REVENUE DID STUDY ON TRANSP. Approx \$10 p.b. by end of FY 83 \$11 p.b. low on N.S. oil price would be \$17 at wellhead, \$11 transp. - total \$28.4.
337	Adams - when it gets low so that we can't afford to produce do you see govt (U.S.) coming in?
7	ERICKSON - yes - will attempt to avoid windfall profits reductions.

HOUSE FINANCE COMMITTEE

March 30, 1982

8:35 a.m.

Tape HFC 82-29, side 2 #258

PRESENT

Committee members present: Representatives Adams, Carney, Meekins, Bettisworth, Montgomery, Haugen, Cotten, Cuddy and Fuller.

Chairman Adams called the House Finance Committee hearings on world oil prices to order.

TAPE NUMBER -----	SUBJECT -----
HFC 82-29, Side 2 #258 to HFC 82-30, Side 1 #670	FRED SINGER, Geophysicist; Energy Policy Studies Center, University of Virginia. (see attached partial transcript.) (see attachments 1 and 2.)
HFC 82-30, side 1 #670 to Side 2 #530	Questions/Answers Fred Singer and Committee members (see attached partial transcript.)
HFC 82-30, side 2 #536 to HFC 82-31, side 1 #541	ROBERT SMITH, Professor of Economics, University of Oregon, testimony. (See attached partial transcript.) (See attachment #3.)
HFC 82-31, side 1 #541	Adjournment 11:20 a.m.

3/30/82

FRED SINGER
GEOPHYSICIST
MEMBER OF ENERGY POLICY STUDIES CENTER
UNIVERSITY OF VIRGINIA

I have been asked to give a presentation about the current state of the world oil situation and some speculations about the future. Keep in mind, it is very difficult to make predictions. We are living in very interesting times. The degree of uncertainty today is probably larger than in the past when the course of oil prices seemed much more certain to us. The reason for the uncertainty in my view is that OPEC is teetering on the brink of stability. I will talk about three main subjects: (1) I will briefly describe how the present situation developed -- how it is possible for a glut to develop and a price to weaken; (2) what OPEC is doing and the options open to them; and (3) what the U.S. should do, because whenever there is a crisis there are always opportunities.

HOW THE PRESENT SITUATION DEVELOPED. The present situation was brought about primarily because of the price rise of 1979. This rise in oil prices was unexpected. I don't know of any analyst who had anticipated this to occur. I had not. I was reasonably convinced that prices would bottom out around 1980-1981, near about \$10 in 1978 dollars, then gradually rise and continue to rise fairly smoothly beyond the end of the century -- subject of course to interruptions which could raise the price for a short time, but it would come down again. Sudden rises, then declines to the base price. What developed in 1979 is an interesting example of how the world oil market is not governed only by economics but also by psychology. The psychology that had been built up by 1977-1978, primarily in Washington, was that the world was going to be in for a tremendous oil shortage. In 1977 our then president, Mr. Carter, reminded us that the energy crisis was the most important thing that would ever happen to the United States. He called it the moral equivalent of war. His critics called it his first meow. He visualized a situation where by 1983 the supplies of oil in the world would not be able to keep up with the demand. He visualized something which we as economists would never admit, namely a situation where the demand would actually overtake the supply and there would be "gap". It seems odd as we look back on this episode that we were not in a position to know better, but we should have known better then. The authority of the president of the United States is very great, and if the president says there is going to be a crisis, people believe that there is going to be a crisis. It is interesting that all of this was swallowed not only by a large portion of the public -- although not by the Congress -- but it was also swallowed by the Arabs. They believed it. Mr. Carter conveyed this feeling and I am sure that the Saudis particularly accepted this thesis uncritically. They also accepted uncritically the idea that the western consumers would be willing

3/30/82

to pay any price for oil because it is such an important commodity. What got lost in the shuffle is the fact that oil, like any other commodity, must have a price elasticity attached to it. There must be a decline in demand if the price goes up. That was played down partly because most of the studies we had showed very small elasticities. They showed the demand for oil is very insensitive to the price and this encouraged people to believe that if the price went up much higher the demand would be hardly changed. That has turned out to be wrong.

In any case after the fall of the Shah at the end of 1978 there was a great loss of Iranian production. Much of that production was made up by other nations, primarily OPEC nations. So, there really was no change in world supply. There was certainly no change in world consumption. Yet the price started to rise in early 1979 and it tripled by 1980. The causes were primarily psychological. People were panicky -- they thought the prices would go even higher. They bought more oil than they could consume and put it into stockpiles. This becomes a self-fulfilling prophesy because as you buy more oil, the demand goes up, which drives the price even higher.

In addition, the producers saw the price go up rapidly and figured if they held back on some of their sales, "maybe the price will go higher and we will be able to sell at a higher price". That too is a self-fulfilling prophesy. By reducing the supply they actually drove up the price more. Saudi Arabia did this twice. Once in January 1979, about two or three days before an important oil auction, and the spot price immediately doubled. Then they slashed production around April 1, 1979 just after the Camp David agreements were signed. Again, the spot price leaped upward. These manipulations had their effect on a very nervous world and the spot price jumped up. The contract prices followed very slowly.

You might ask, weren't they aware of the danger of letting the price go up. The best I can tell, they were not. They simply saw it as an opportunity to get more money out of the western oil consumers. They probably believed the demand would stay up because they had been told so by their economists, and western economic analysis. In fact, the price did stay up for almost two years.

As best I can tell, the reason the price did not come down in 1980, contrary to my expectations, was the fact that we had a war between Iran and Iraq, we had the invasion of Afghanistan; there were enough things going on, the take over of the Grand Mosque in Saudi Arabia, to make people nervous about future supplies of oil. They felt perhaps the price would rise some more. Experts were telling them the price would continue to go up at the rate of between 5% and 10% in real terms. Others were saying there would be further price leaps, if possible, due to interruptions. People were mentally set up to a price of \$100. There seemed to

3/30/82

be no limit to the price of oil. Under those circumstances, if you held stockpiles you might be willing to sit on them longer and pay the carrying costs.

Yet, by 1981, no further price increases had developed in spite of all sorts of interruptions. When Carter decided not to buy any more Iranian Oil, which is equal to an oil embargo, there was no effect on the price; we decided to kick out the Lybian diplomats -- no effect on the price; the oil weapon that people kept talking about was never unsheathed. By 1981 people began to realize that perhaps there are economic limits and perhaps there is a price elasticity. The demand began to decline drastically at the end of 1980.

Therefore, it is not surprising that by 1981, and certainly by 1982, people started to destock, get rid of their excess stock-piles, and the necessary readjustments over the price began to be noticeable.

What this whole exercise also brought out is that OPEC is really made up of quite dispersive countries that have different interests. On the one hand you have countries like Algeria with small reserves, who would like nothing better than to have the price of oil \$100 a barrel, so they can sell whatever they have left at the highest possible price. On the other hand, the other extreme, are countries like Saudi Arabia whose supplies are likely to last for 50 to 100 years at the kinds of rates they project, who must be concerned about the long term market, and who know from their point of view, the optimum price is not a high one, but something in between. Enough to give them a profit, but not so much to discourage the use of oil in the future. They are very aware of this, but I don't think they remembered in 1979. In 1979 they seemed to be very happy to take three times the price and three times the revenues, and make three times the money. They acted on a very short term basis. As always the case when you do things for the short term, you have to pay in the long term. They are probably going to have to pay now. Let me review what we mean by optimum price. If one does a theoretical analysis as we have done -- I know theory doesn't apply to the real world, but it's nice to know what theory tells us so you have a frame-work for thinking about a situation -- if you ask what would be the best oil price from the point of view of Saudi Arabia -- not too high and not too low. The answer is that it is a price that, starting right now, would drop precipitously down to about \$18 a barrel, stay in that general vicinity -- between \$18 and \$20 -- for something like five to eight years, and then gradually increase. There is no chance they could actually achieve this optimum pattern. A pattern that would give them a maximum stream of profits over the years. But if they understood the situation from an economic point of view and if they were politically powerful enough, that is what they should do.

3/30/82

What this tells us is that the present price is much too high for Saudi Arabia. The present price is so high that it will kill not only a large part of the long term market for oil in the world, but even the medium term. By this I mean that the demand for oil in the industrialized world will decline rapidly.

Let me talk about the consequences of this high price. Once the price is up for more than a few months, people begin to think seriously in terms of making adjustments that require capital expenditures. I ought to explain that conservation is really a very complicated term. I think of three types of conservation. The first type is where you turn off the switch on a light, or drive less, because the price is high. That kind is easily reversible if the price should go down, or if you should make a lot of money and don't care about the cost of energy. The second kind of conservation is where you actually lay out some money, invest capital, and buy a piece of machinery that is more efficient -- like a more efficient car or installing insulation in your house. That kind is essentially irreversible -- you are not going to throw away your car or strip off the insulation in your house, even if the price of oil goes back down. This means that a certain market for oil will disappear. The third kind of conservation is where you actually substitute another fuel for oil. The other fuel may be gas, coal, nuclear, hydro, geothermal, or whatever. You can do this because it turns out that oil around the world is used mainly to make heat and steam. Anything that burns will of course produce heat and steam. It is more difficult to replace oil in transportation uses. Once the price of oil goes up and stays up for a length of time, people around the world will move to make these capital changes that will result in oil being backed out. Theoretically you can back out two-thirds of the world's oil, if you assume that all of the oil used for heat and steam is used for cheaper fuels. That's not likely, but a good fraction can be backed out as long as the price stays up. Even if the price does not stay up, people may still back out oil by making the necessary capital investments, because they might be afraid that the price might go up again.

The price expectation is really what is important here. That is what is driving the reaction of the people. Also, the governments may decide to make energy more expensive by putting a tariff on imported oil. So there are a variety of reasons to believe these capital investments people are making to back out oil are going forward and will continue to go forward even if the world price of oil should weaken. Another reason they may go forward, once you set a bureaucracy into motion, these things can't be stopped -- people's reputations are tied to certain projects, staff has been hired, a constituency has been built up -- once these things are launched they will continue with their own momentum. This country almost made the mistake of launching the synthetic fuels industry with government backing. We were saved in the nick of time from spending some hundreds of billion dollars on such an enterprise.

3/30/82

I'd like to give one example of what it means to switch from oil and invest in alternatives. I've taken the case of Japan, a country that at one time was completely dependent on import oil. As you know, they are making a large effort to switch to other fuels, coal as well as nuclear. Let me take nuclear as an example. Nuclear energy is quite expensive to begin with, that is, you have to make a very large up-front capital investment to build a nuclear reactor. But, once you've built a reactor, then the continued production of power is very cheap because nuclear fuel is really not very costly. Supposing Japan has built nuclear reactors, let's ask how low would the price of oil have to be in order for them to give up their existing nuclear reactors and switch back to oil. The Japanese have then sunk costs in nuclear reactors and they have to make the following decision: they know what the incremental and marginal cost is of nuclear power, the cost of nuclear fuel, and they have to translate that into dollars a barrel for oil. The answer is \$4.00. Oil would have to go to \$4.00 or less to make you want to give up an existing plant -- that would be true in the United States too. Solar energy is a more striking example. Once you have invested in a solar energy facility, then the incremental cost is zero. The sun is free. Once you have your solar facility you would never want to give it. There has been investment in hydro, primarily in Latin America, but these projects take time. The impetus is here now and projects have been started. Again, once a project is started and the impetus is built up, they are likely to continue. Hydro is a good example where the initial capital costs are extremely high but the continuing operating costs are quite low.

If oil demand develops as I think it will, then the oil needs of the industrialized countries are likely to drop to about one-half what they were at the peak in 1979. If they drop down towards 20 million barrels or so per day from a peak of 42, the need for OPEC oil imports will disappear because the oil production of the OECD, the industrialized countries, and of non-OPEC countries, is large enough to take care of this demand. This is a long term crunch for OPEC which they will have to address. This is all something that was started by the 1973 price increase, but more particularly by the sudden 1979 increases.

WHAT OPEC SHOULD/WILL DO ABOUT SITUATION. OPEC has a real problem. In the face of falling demand there are only two things they can do: either drop production so as to match the falling demand, and thereby maintain the price. Or if they really cut their production, they could even increase the price for a short time at least. On the other hand, if they don't cut their production or if they don't cut it enough, the price will go down. This decision is really up to OPEC because they are the ones who are determining the world price by their production decisions. We have recently seen a situation where some of the price leadership has been taken away from them by the North Sea

producers particularly, but I think in the long run OPEC still will control the world price by their production decisions.

It is really interesting, and ironical, that for the last ten years or so, we have been referring to OPEC as a cartel that sets the world price. Well, that's not true. OPEC has never been a cartel or acted as a cartel. Now, for the first time, as it was last month, they are trying to act as a cartel by actually setting a production ceiling, by allocating production quotas for each member of a cartel. And now that they are finally acting as a cartel, people are saying OPEC is dead.

(Tape change, HFC 82-30, side 1.)

We're all interested in knowing what will happen next, now that OPEC has decided to defend the price at \$34 a barrel by adjusting their production and setting a production ceiling, which is now 17 1/2 million barrels per day effective April 1. I think OPEC is flying blind. By this I mean they don't know really what the world demand is. I don't know what the world demand is. I don't think anybody knows what the world demand really is because the consumption of oil in the world is being hidden by a variety of other things that are going on at the same time. There is, first of all, a recession in the world. It's not very serious perhaps, but it has some effect on oil consumption. Undoubtedly when economic recovery occurs energy consumption will pick up and some oil consumption will pick up. There is also an extensive effort towards destocking. People are finally recognizing that their excess stockpiles are costing them a lot of money. They don't really believe the cost is going to jump up, at least not in the near future. Therefore, it is foolish for them to hold excess stockpiles. This has the effect of decreasing demand. People are buying less because stockpiles are being dumped on the market. It's hard under these circumstances to figure out what is happening to the real long term consumption of oil. Those who are optimists in OPEC would like to believe what their advisors tell them -- oil consumption is going to increase again just as soon as the recession is over and just soon as these guys have got rid of their stockpiles. I think they are wrong. There is no blinking away the fact that oil is being backed out in many applications by gas, coal, nuclear -- anything that will burn or make heat and steam. There is no blinking away the fact that particularly in the United States gasoline consumption will decrease as more efficient cars come on the market and as the car fleet gradually turns over from gas guzzlers to more efficient cars. This takes time of course, but you can't stop it. These are bound to make an impact on demand. I think that OECD demand is going to decrease at the rate of about one million barrels a day over the next ten to fifteen years. So, OPEC may have misjudged. The cuts they have taken may not be large enough. They may be forced to take another cut in production if it turns out that they didn't go far enough. The trouble with that is psychology. They have a

problem. They are trying to "psych" themselves and us at the same time. They are trying to "psych" us into believing they can really defend the price. They have to appear self confident. If people really believe this, then they will stop destocking. That will be self-fulfilling. It will increase the demand for oil and OPEC may ride it up. Also they are trying to "psych" themselves. They are trying to make sure that the members of OPEC who have been assigned production quotas will not cheat. Now, we all know that cheating pays. Chiseling is good for you if you can get away from it. In national economics or commerce there is no law. There is no anti-trust law. You can have cartels and there is no law against cheating. And even if you are caught, the consequences are not too serious. So, it really pays to cheat. This means that if Saudi Arabia, by cutting its production, defends the price and keeps it high, some smaller producer by selling more can take advantage of the high price and make more money by not sticking to his production quota. The temptation to do this becomes particularly great when he sees non-OPEC nations such as Mexico, the North Sea producers, Alaska, selling whatever they can sell at the current price. The question from the U.S. national point of view is: should we try to stabilize OPEC or should we try to de-stabilize them?

In any case, I think we'll know in the next few weeks -- maybe by May -- whether or not OPEC really can work as a cartel. I have given them a 50% chance that they can pull it off until May. I give them about a 10% chance that they can pull it off until the end of this year. We all know that it is very difficult for a cartel to operate as a cartel even under the best of circumstances. What OPEC really needs is something like the Texas Railroad Commission plus the federal Connolly Hot Oil Act. They need a means of monitoring and enforcing. They don't have that. Their coherence depends entirely on the perceived common self-interest, and it isn't there. The interests of the different countries are really quite different. What they are all going to try to do is dump it on Saudi Arabia, to take all the production cut-backs, so they can maintain the price and keep on making money. They'll justify this by saying, you don't need as much money as we do; you are a country of very few people; you have a very large income; you've got money in the bank; you take the production cut. Saudi Arabia may be willing to do this. They have already indicated they may be willing to go lower. They have to be very cautious, because once they indicate this, they will be forced to go lower. There does come a point where even Saudi Arabia can't go any lower because they do need the revenue to keep their present budgets up. They can cut, but they can't cut all that much. When they cut certain projects they loose the investment in the project. They also have to be aware of the fact that the Saudi society is the original trickle down society -- all the money trickles down from the royal family. If the trickling stops, they are in trouble internally. That is the first big hurdle Saudi Arabia faces, which I think they can overcome by cutting production if necessary. And also by

subsidizing. They are going to subsidize weak sisters like Nigeria. They are subsidizing Iraq right. They are going to subsidize to a certain extent to maintain OPEC as a cartel.

The second hurdle they face is the serious one. That is if such OPEC countries as Iraq and Iran try to come back into production. The only way they can do this is to take it out of the hide of Saudi Arabia. They'll try to get them to cut production further. Both Iran and Iraq have not only the political but the military muscle to make their demands felt. I think this is a serious problem with the Saudi's.

The third hurdle is the long term hurdle -- by the latter part of this decade, 1988 or thereabouts -- the need for OPEC oil may be so small in the OECD countries that OPEC will be fighting very hard to maintain its markets, and there will be price competition.

Do the Saudi's believe the price will come down to \$18? It is politically impossible for them to do this. If they did this by increasing their production, flooding the market with oil, they would earn the enmity of every producer in the world. They are in a difficult position. They can't go up and they can't go down.

How important is stock piling/excess holdings? The stock pile situation is important right now because of the uncertainty about how much destocking is going on. OPEC claims that destocking is going on at the rate of 4 million barrels a day. Western countries claim that this is not so high. OPEC's claim is to some extent self-serving, if the destocking is really as large as 4 million barrels a day, it can't be maintained for more than another two quarters at the most. Once the destocking stops the demand will go up correspondingly. OPEC will have been proven right, and their production ceiling will be realistic. Prices will remain firm. On the other hand, if they are wrong, if the destocking is much slower, then demand will not go up. Then they will have to cut some more in order to keep the price from sliding. It is extremely difficult to determine what the world's storage capacity is. There are people who specialize in this and they disagree with each other. There are definitional questions as to what is meant by storage: what are commercial stocks, excess stocks. There is also the problem of what people will do about the stock. For example, we have a strategic petroleum reserve approaching 300 million barrels. This is a very substantial reserve. As far as I am aware, we don't really have a policy yet of how we are going to use this reserve. For example, are we going to keep it for a fiscal rainy day? Is it just going to sit there forever, and never be used? Or are we going to use it in a very active way, to fight price increases? There are a number of ways of operating. So far the Administration does not have a policy.

The amount of oil on the spot market is really quite small. It is only a few percent. There is also a certain amount of oil which is being sold under barter arrangements. That is also very difficult to get a hold on. The rest of the oil is sold on contract terms, with the terms of the contracts pretty well known to everybody. It is a situation in which some companies are willing to swallow losses to buy oil, even though they shouldn't be buying at this high price, and losing money in the process. They try to make up some of it in refining, but it is very hard to do if you lose money up in the front end.

One must also look at the time scale here. Over a long time scale, production and consumption must balance. Over a shorter time scale oil goes in and out of inventories. There are times of the year when inventories are built up and there are times of the year when commercial inventories are drawn down. We are talking about extra inventories, special or excess inventories, which people are laying in in anticipation of some price increase, which people are now destocking in anticipation of price weakening. Separate from that we have government inventories which are being maintained without an economic concern. They are being built up because we have a law that says we have to build it up. My last information was that the U.S. Government inventory -- the strategic petroleum reserve -- is being built up at the rate of approximately 300,000 barrels a day. The capacity is being added as needed, but the law specifies that the amount should be built up to 750 million barrels. Privately, I have my doubts that we need that large a reserve. It is also a tremendous economic burden on the country because the carrying costs for this stockpile are very high.

WHAT THE U.S. SHOULD BE DOING ABOUT THE OIL SITUATION. First I am encouraged by the fact that the present Administration has already taken two very important steps. They decontrolled the price of oil domestically last year, and just last week, Reagan's veto of the emergency allocation bill was sustained by the Senate. The reason these actions are very important is that they mean we will never have another crisis again in the United States. We will never have a situation again where people will stand in line waiting for gasoline. Once prices are decontrolled and once you eliminate the possibility of having bureaucratic or political allocation for a scarce resource, then you don't have these kind of crisis anymore. What will happen then if there is a supply interruption? If there is a supply interruption in the world, the world price must go up. What happens within the country is then up to the government. What we have tried to do in the past is keep the price from rising domestically and allocate the gasoline administratively. That really hasn't worked. It's caused great problems. The sensible thing to do then is to let the price rise domestically, let the price allocate the resources to those willing to pay more, and make some provisions that the extra revenues which the government now gains from the windfall profits tax -- when the price rises

domestically, produced oil will also go up in price. This money can be recycled to protect the low income consumer. The government has taken two important steps with respect to oil and oil supply interruptions. It should take a couple more important steps, which is to have a clear policy on how it will use the strategic petroleum reserve.

I would favor a system, I call it a two trigger system, whereby a sudden price rise would trigger the petroleum reserve and then the president will make a decision whether or not to use it. It would be preceded by a price rise that would provide the first trigger, then the president would make the decision that would be the second trigger. I suppose one could make it completely automatic, but there might be some value in having the president have a chance to say yes or no. There is no question about how the oil should be disposed of, certainly it should be auctioned off to refiners and would then command whatever the world price is. The money would go back into the treasury. We need a clear policy on that.

We also need a clear policy with respect to the recycling of extra income the government would make during such an emergency. I think this would go a long way from keeping congress from legislating something. In asking myself what we should be doing, I would like to mention a few items. We have to recognize that any weakening in price produced by these events I just described is not going to be permanent. It might last for a few years at the most, but it will also be interrupted by price spikes, which are likely to come about if major producers are knocked out. Keep in mind there is a real incentive for members of OPEC to go after Saudi Arabia and knock them out, if only because it will raise the price of oil and allow them to make more money. It will raise the price of oil all around the world of course, at least for a short time. We have to have some means of insulating ourselves in the United States from these unpredictable and violent price fluctuations which are out of our control. We should not permit ourselves to be jiggled about like a yo-yo because the disruptions which come from this are really quite harmful to our economy. The standard way of doing this is to have a system of tariffs. I've noticed there has been a quickening of discussions, even among free market economists, about a tariff on imported oil. It is something that is being very seriously considered, perhaps not official yet in the federal government, but it is talked about more and more. You must keep in mind such a tariff has a definite chance of being put in effect in one form or another. We can estimate what this will do for the state of Alaska. The major advantages of such a tariff would be from the point of view of national security first of all in providing for fewer imports. It would cut imports and make us less dependent on imported oil. There is no question of that. It would also tend to isolate our domestic economy -- both the producer and consumer economy -- from violent price fluctuations. We have after all projects now underway to produce

oil and build gas pipelines, build power plants and so on, which were started with the expectation that oil would be priced at around \$30-odd a barrel. We can't have these projects suddenly discontinued and then start it up again two or three years from now when the price goes back up again. That would be very harmful and very wasteful. I am speaking now about all the conversions that are being talked about and being put into effect from oil to coal. We don't want to have those suddenly stopped. We don't want to wipe out over night the solar energy industry and hope it might restart again in a few years. It won't happen. You have to provide some measure of stability, particularly for emerging industries like the solar energy industry. You also have to continue to provide incentives to people who want to find oil, people who have paid for lease bonuses, who have put real money down and started a program of exploration. You can't cut these efforts off and expect them to start again. They are not on/off operations. Another reason for such a tariff is to transfer rents or oil profits from OPEC to the U.S. This entire business is a revenue enhancer and an important revenue enhancer. To the extent that it does transfer money from OPEC to the United States, it is good for us.

To the actual methods of doing it, people have considered straight tariffs -- so many dollars per barrel. They have considered import license fees where essentially you set an import quota and then you auction off tickets for oil; they have also discussed excise taxes on gasoline and motor fuels. These things are not incompatible with each other. You can have all of them going on at the same time. Excise taxes, we really should call them user fees, because they are fees from people who use the roads, and road-building is very expensive. User fees are important. The gasoline federal tax is only 4 cents a gallon. It should be raised. These taxes are in the order of \$2 a gallon in many European countries and Japan. If we want to be on the same basis as other industrialized nations we should raise the user fees. It is also a great measure for revenue enhancement. One penny of tax on gasoline raises one billion dollars a year. Since the price of gasoline has just decreased by about 20 cents a gallon since its peak, if this 20 cents were taken up by some gas tax, whether its a federal tax or state tax doesn't really matter in this analysis, would produce a revenue of \$20 billion a year. We could almost get rid of our deficit if we keep energy prices roughly level for the consumer at the level where they have been for the past year. In other words, if we take up the price weakening that is now going on by an appropriate system of user fees and tariffs, then we can maintain what amounts to price stability in the United States domestically, and at the same time, help balance our budget.

Let me mention a couple of other things that we need, one particularly applying to Alaska. I really believe this is the right time to reconsider a revision or amendment to the law which does not permit the export of Alaskan hydro-carbons. I think

this would be a good time to let oil and gas in the form of LNG to be exported to whoever is willing to pay for it. Once you do this, you will of course, decrease again the demand for OPEC oil in the world, and you will de-stabilize OPEC further. So these measures should all be tied together with a tariff, because it only pays to de-stabilize OPEC and drive prices down if at the same time you can put this money back into the U.S. treasury. So you have to have in operation some kind of tariff escape.

Could you speculate on the what chances of exporting our oil happening are? I can't speculate on the chances. This is really not my business. I have not heard it discussed in Washington, but I'm now changing my position. I'll be taking leave from the University of Virginia in about a month and joining the Heritage Foundation in Washington. I will address myself to the question of tariffs and taxes, and to the question of Alaskan oil and gas. It should never have passed that way. I see no point in restricting exports from Alaska, but I think from a political point of view, this is probably as good a time to bring it up as there has been.

The final thing we need to do is decontrol natural gas completely in the United States. Something that is not going to come about this year, but we can hope for next year.

One question, if we are going to ask ourselves should we help destabilize OPEC, is whether we should stop filling our strategic stockpile for awhile -- for just a few months. If all the industrialized countries did this, it would take about a million barrels a day out of demand. That is an important item. We should only do this, of course, if we have at the same time a tariff scheme in reserve so that we can take advantage of any price weakening by transferring the profits into the U.S. treasury.

Alaskan oil, as a domestic oil, would maintain its price under this scheme. The price would be then set essentially by a governmental decision on how much oil to import. The import quota would indirectly determine the world price of oil. If other countries join us in this and decide to set import quotas as they should, it should be coordinated with industrialized countries, it would have an important influence on the demand for OPEC oil. We would see a sizable income transfer from OPEC back to the industrialized nations.

I thought I would close this discussion with these challenging political questions, which I really am addressing to you. I wanted to give you some thinking that may not necessarily be along the lines of the present thinking, or at least of last year, but I believe it has something to commend it. As always I want to tell you that we are dealing with probabilities here. We cannot, in any case, ever be sure of what is going to happen since events are determined not by economics but primarily by

economic expectations, by the psychology of people and by political events.

QUESTIONS AND ANSWERS

ARE THERE ANY INDICATIONS OF WHAT JAPAN'S PLANS ARE GOING TO BE? HAVE THEY STEPPED UP THEIR NUCLEAR ENERGY PROGRAM? I anticipate they will not step it up. In other words, the consumer psychology works both ways. There are now many consumers in many countries that believe the weakening price of oil is a permanent position. It is not. The price of oil over the long term will have to go up simply because oil is becoming depleted. If you are thinking of the long haul -- ten to twenty years -- you should continue with all the investments you would do if the price of oil were to stay at \$30 to \$40. My guess is the Japanese, being cautious people, will probably not speed up, they might slow down some of their conversions.

WE HAVE TO MAKE PREDICTIONS/GUESSES ABOUT WHAT ALASKA'S REVENUES ARE GOING TO BE. WHAT DO YOU THINK THE WORLD PRICE OF OIL MIGHT AVERAGE OVER THE NEXT FISCAL YEAR? In the first place, the important issue which overrides everything else is whether or not the U.S. government will institute what amounts to a tariff. Let's assume for example they institute a system of import tickets. Let's assume that every month a group of wise men get together and decides we are going to need so much in the way of imports, like 4 million barrels a day during that particular month. They would then print up 4,000 tickets, corresponding to 4 million barrels, so that would be 1,000 barrels per ticket. Then you would bid on these. They are sealed bids. No one knows who is bidding or how much is being bid. The people bidding the highest get tickets. With these tickets they can import oil into the United States. We think if that were to happen it would encourage OPEC members to cheat because it would be a way whereby they might be able to export oil to the United States without tipping their hand. Indirectly they would pay for the tickets. The oil would come in at the world price of \$34, but by having paid for these tickets in advance, they would have essentially given away some of their profits to the U.S. treasury. This is a scheme suggested some years ago by MIT. It has never really caught on. I think now might be a good time to do it, particularly for the strategic petroleum reserve, where the government does import every month so many barrels. We decide how many barrels we wish. That is the really important issue, whether the federal government can set up some sort of tariff system. If it does, then this will maintain domestic prices at some level corresponding to \$30-odd. It may fluctuate somewhat. If that does not happen very soon, the next point to watch would be next May, I would judge, at the next OPEC meeting where some reading will come out as to whether they think their efforts at holding the price have been successful. At that point they will do one of two things: They will either decide they are successful. I doubt that really. Or they will decide to take a

further cut. If they take a further production cut it is likely to come out of the hide of Saudi Arabia. If they do take that cut, it could stabilize the price for an additional few months. Then comes the question, suppose they cannot hold the price or are not willing to take production cuts, how far would the price slide? There are two ways of looking at this. One is a straight forward calculation which is supply/demand, but I don't believe that would be the right answer. I think the right answer is going to be the one in which people will be governed by expectations. Expectations means there will be competition or price war which could drive the price down to quite low values, below \$20 a barrel. These things will not last very long. Price breaks or a price war, there should always be someone around who will step in and buy cheap oil for a stockpile or to hoard it. Governments are speculators. That would stop any price break from reaching the theoretical bottom which is of course the marginal price of oil. It is quite low, on the order of \$5 to \$10 a barrel in the world. There could be such temporary dips to low values, but they will be stopped by people who step in and buy cheap oil and put it into reserve. What I would like to see happen is have enough of these speculators around to smooth out any price fluctuations. This is, of course, done in normal commercial items, by speculators on the futures market. We do have a futures market for oil products. We have a futures market for heating oil. There has been one for crude oil, but it hasn't been working very effectively. It is just too big an item for exchange to swallow. I think governments by stepping in and buying oil when it is low, if governments decide to sell oil during price spikes they could stop price swings on the high side. I think this is the world system that will develop now that governments are in the business of managing large stockpiles of oil.

WHAT DO YOU THINK THE POSSIBILITIES ARE FOR GETTING THE TARIFF MECHANISM IN PLACE? It depends on the constituencies. There are several counter arguments. One says that tariffs are repugnant to the free market philosophy of this administration. I think this can be overcome once you show that tariffs for oil are rather special and should not be confused with tariffs on steel, automobiles, electronic items, etc. I think it can be done. What will be much more difficult is to counteract the argument that lower prices are good for consumers, that lower prices will bring down inflation. I would argue that lower prices are good for consumers if they can stick. They are not good for consumers if they go back up again because they will destroy the efforts towards conservation which ultimately benefits the consumer. And they will cause enough general economic damage by turning things on and off, which will be paid for eventually by the consumer. One has to work on people in Washington on this. My guess would be that David Stockman would think this way, but whether he could carry it ultimately, we may have to give him a lot of help. I think from the point of view of the state of Alaska, that you are

one of the important constituents, one of the important oil states. You should use your political influence.

DO YOU FORESEE ANY EVENTS IN THE WORLD THAT WILL CHANGE THE WORLD OIL PRICES? ARE WE ON THE BRINK OF STABILITY? The brink of stability refers to the OPEC cartel which is for the first time trying to act as a cartel. They've never done this before. They have no experience. They have set themselves quotas. We ought to know by next May whether they can stick to them or not. If they don't stick to the quotas, it is possible they will put all the cut backs on Saudi Arabia, and thereby try to maintain the price as we have discussed earlier. I think the chances of pulling it off are small. I think it is much more likely the price will weaken. There is even a small possibility there will be a price competition with price breaks. I think by then we should have a tariff in place so whatever happens in the world market would not effect us.

DO YOU HAVE ANY FEELING FOR WHAT PERCENTAGE OF THE WORLD'S OIL IS SOLD ON LONG TERM CONTRACTS AND HOW MUCH IS SPOT MARKET? I don't have these numbers in my head. Subject to later correction, let me say, oil in spot market might be a few percent, certainly less than 5% of the oil that is in world trade; the rest of course would be on contracts of varying lengths and conditions.

ALASKA HAS COAL RESOURCES THAN EXCEED OUR OIL RESOURCES ABOUT 50 TIMES ON A BTU BASIS. IF NATURAL GAS IS DECONTROLLED, COULD YOU ELABORATE AT WHAT LEVEL COAL COULD COME IN AND COMPETE WITH OIL? I am convinced that it can be done. Coal is a great fuel provided you can mine it and burn it. In the lower '48 we are having difficulties with that. With respect to Alaska, the problem here is the transportation problem. The coal you have presumably would be exported, so one has to look for methods which will make the transport of coal very cheap. The mining costs themselves would be rather low. The technologies that are coming along that are particularly important to us in the eastern U.S. and may have some relevance. Using coal/oil mixtures has turned out to be a dead-end street. It is the wrong thing to do. They seem to have all the disadvantages of oil and coal, and costs about as much as oil. What has come along in the last two years are coal/water mixtures. One can make coal water mixtures which are stable, where the coal is ground up and just mixed with water, the coal does not settle out, and which burn. These are highly loaded mixtures of about 75% coal/25% water. Water really acts only as a transport agent. Use it, store it, pump it like number six fuel oil. You inject it into boilers and it burns. The retrofit costs are very low so it is possible to use it to directly substitute it for oil. That is what we are planning to do in the eastern U.S. Pilot plants are being built by at least four companies that I know. They are talking about production plants when the pilot projects are over of about 25,000 barrel per day at very reasonable costs. With respect to Alaska I think the major advantage lies in the transport. They

can be pumped and handled by tankers. A market would have to be developed, but I think that will be done anyway because of the efforts in the eastern U.S. I anticipate that within the next five years we will have markets for this type of mixture all over the world, particularly in Japan. The eastern bituminous coal now sells for approximately \$2 a million Btu; fuel oil is around \$5-\$6 a million Btu; so coal still has a major advantage over oil provided the transportation costs don't kill you and you can take care of the environmental matters. If the price of crude oil should come down and is not protected by tariff, I expect it will put pressure on coal prices, and coal prices will drop. So coal will maintain its competitive advantage to some extent.

HOW WOULD COAL/WATER MIXTURE WORK IN SUB-ARCTIC AND ARCTIC CONDITIONS? It would freeze. It would do no good.

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The speakers at this hearing addressed themselves to two but quite related issues. First is what will the price of oil be and secondly will OPEC succeed in stabilizing its benchmark price? My understanding is that my mandate was to concentrate on the second question and related questions include: Is OPEC a cartel? Has it been effective? Can it continue to be effective?

I would like to start with my conclusions first. I have four conclusions and they are as follows: OPEC is a cartel. It has been effective. It is however an unusual one because its members are government and it has worked in manners different than other types of cartels. OPEC has an achilles heel. It has not been able to prevent exploration and development of capacity outside OPEC. This has and will continue to erode the market power of OPEC. The high priced strategy of OPEC has not only induced entry by outsiders but it has also motivated the use of alternate fuels. Both of these developments strike directly and in the long term at OPEC's market power. In consequent unilateral ability to control price has also been decreased. It still however may be able to engineer run-ups. Whether it will be able to maintain them near the top is questionable.

Over the last two years or so OPEC has performed with strength as a cartel. It has supported a significant run-up in price and has been moderately successful in stabilizing its benchmark price by decreasing its offtake from 31 million barrels to below 20 million barrels. During this period the outsiders expand their output by about 10%. To get some idea of the power of OPEC just ask yourself this question. What would be the price of oil today if OPEC had not cut its output by about 30%?

OPEC has been acting like a cartel and an effective cartel but can OPEC keep it up? There is no definitive answer to this question. The answer depends upon many inponderables. For example when will the Administration and Congress get its act together on the budget? Secondly, what form will that resolution take? What will happen to the rate of interest? What will be the pace of our recovery? What will be the pace of the world recovery? How energy intensive will that recovery be? How energy intensive will our defense build-up be? How stable will the Middle East remain? How hard will OPEC fight to hold the \$34 price?

I believe that OPEC will fight hard. In recent weeks the president of OPEC has said that OPEC will go to ten million barrels if necessary. OPEC has more than money at stake. I would think that they are prepared to wait out the run down of

inventories and wait for the recovery. OPEC will survive this test but its longer run market power is diminishing.

These conclusions are supported by that which follows and consists essentially of three parts. First, is OPEC a cartel? Secondly, what has OPEC achieved? Third, how does a cartel operate with special reference to OPEC?

It seems maybe strange that you should even ask if OPEC is a cartel. It turns out that in the literature there is considerable disagreement as to whether or not OPEC is a cartel or even if OPEC is effective. You just heard Mr. Singer say that maybe OPEC has not been a cartel until since about March 19. There are those who hold that OPEC is not and has not been a cartel. They do it for different reasons. One commentator states that OPEC is not a cartel but an economic animal whose members have political clout. He says that economists and politicians want to call whatever OPEC is a cartel and the only thing that suffers is the English language. Then he quotes with approval the Secretary General of OPEC who states that OPEC is not illegal nor is it a cartel or an oligopoly. OPEC is OPEC--something new under the sun. This would indicate that it certainly, in their view, is not a traditional cartel. Another commentator indicates that he views it not as a cartel but as a cartel-like organization. He says that it is no more than a forum for discussions and for coordination of the price and production policies of the individual exporting countries. There are those who say that it has been a cartel but an ineffective cartel. Fortune magazine says that "we do not believe that OPEC has been an effective cartel. The record shows we believe that it has been a price follower more than a price leader". There are those who look upon it as an effective cartel. Forbes magazine referred to it as an "old fashioned monopoly" or as a "ruthless" monopoly. Another commentator called it "the worlds most successful cartel and the worlds most lucrative cartel".

I tend to view it as a cartel. I think it has been an effective cartel but its performance has no way been in the traditional mold of a cartel. If you say that a cartel is a cartel only if it acts in a certain way, and that is the traditionalist mode, then it hasn't been a cartel. It is a cartel-like arrangement but to me that is more or less semantics.

What has OPEC done? OPEC was formed in 1960 to protest the loss of revenue of a few cents per barrel. It took five years to redress that particular grievance. Before another five years was up, its members began to escalate their demands alternatively for more cash and for more control. By 1975 the takeover of the production concessions had been completed and the members petroleum revenue had risen fifty fold against their 1960 revenue. By 1976 it sold the same quantity as in 1972 but at a price six to seven times greater. A twelve fold increase occurred between 1973 and 1981. Another measure is that in a

3/30/82

competitive market price is equal to or should be equal to marginal cost. You find an effective cartel as one that would have a three dollar price and a one dollar marginal cost, a three to one ratio. In 1974 the ratio in OPEC was roughly about fifty to one. I do not know what it would be now because that fifty going was based upon estimated marginal cost of about sixteen cents. These data suggest that OPEC has been a successful cartel.

I would like to explain my version of the way in which OPEC has worked. It seems to me that you will see that it does not follow the normal mode. I am going to do this by briefly discussing the mechanics of a cartel and then considering the source of the market power of the cartel. Cartels can be either one of two types. They can be price setting cartels or output setting cartels. If you set the price you let production adjust so as to stabilize the price. If it is a production cartel you set the production and then let the price fluctuate to stabilize the amount that you set as the quota. OPEC has essentially been a price setting cartel. Other functions of a cartel operation usually include allocating production among the members, monitoring the production of the members and disciplining cheaters if they arise. The cartel mechanisms are not enough. In establishing a price they did not operate like a traditional monopolist. They did something a little different.

I would refer you to Exhibit I. These exhibits consists of supply and demand curves and what happens with them. Under Exhibit I take the example on the left hand side. You have a demand curve that slopes downward and to the right and a supply curve that slopes downward and to the left. Both of these are very inelastic. These are the characteristics to which Greg Erickson referred yesterday. You see at the intersection of the demand and supply curve there is a competitive price and a competitive quantity. It is at that point that supply equals demand. If price were higher than that, supply would exceed demand and price would fall. If price were below that demand would exceed supply and price would rise. That would be the competitive price. OPEC were sort of operating like a traditional monopolist. They might establish a price and in order to sustain that higher price a reduction in output. I do not think this is what happened when you had the big run-ups in prices. This is what a traditional monopolist would have done but instead what you had was OPEC seizing an opportunity in which there was great uncertainty in the market created by outside events. These caused shifts in the demand and the supply curve. Basically what happened is what happens on the right hand diagram of Exhibit I. You had a supply curtailment arising because of the embargo, for example, in 1973. This shifted the supply curve to the left and created panic among the buyers which shifted the demand curve back to the right and price then went up. The supply demand curves kept scissoring until you had a higher price with about the same quantity being produced. This then is the

3/30/82

same thing as saying you had supply curtailments that panicked the buyers and they bought more and curtailed still more which ran the price up. They were able to engineer this simply by being price followers running the price up.

Tape Change HFC 82-31, Side 1, #001

The period between 1974 and 1978 was the one in which they were being tested as to whether or not they could stabilize price. It is here that I suggest that they operated as a cartel in the sense of stabilizing a price after the price had been run-up. To stabilize that particular price you have to have the proper kind of base and that is the source of the market power. That is a peculiar shaped supply curve. You have to have that type of curve and be able to coordinate in some way the production decisions.

What is the shape of that supply curve? I refer you to Exhibit II. In a competitive market you have a supply curve and a demand curve like one the lower left side of Exhibit II. We have noted already that there are several reasons for the decrease in demand: conversion to alternate fuels, increase in non-OPEC producers, recession, etcetera. If it is a competitive market you have a supply curve that slopes downward and to the left. When the demand shifts then price just automatically falls down and you have a reduction in quantity so you get a price deduction. On the other hand, if you have a supply shape curved something like the curve on the lower right hand side of Exhibit II where you have a price stabilization line, this allows the firms in this particular industry to stabilize the price as the demand curve shifts to the left instead of having the price fall. I am suggesting that OPEC has this particular type of supply curve. This would come from considerations that involve production cost and processes of production. Essentially the breakeven point.

Exhibit III, top, represents the basis of the particular type of supply curve that I think OPEC has. You could look at this as representing Saudi-Arabia. The vertical axis represents the utility or the usefulness that governments find in their oil revenue. The sharply rising curve represents that this part of their potential oil revenue is very valuable to them but it reaches a point where it becomes less valuable and whether they get more oil revenue or not is moderately indifferent to them. The far right hand side represents too much money and they would rather bank the oil by keeping it in the ground. This would be the situation for Saudi-Arabia. You could transfer this into the supply curve on the lower left of Exhibit III. What it says is that there is a rather significant range of indifference and during that range of indifference they are willing to cut back production. At the extreme left end as the line drops, it suggests that they are getting desperate for money and in order to get additional revenues they will sell at a lower price. This

3/30/82

means that the supply curve drops off on the left hand side. On the right hand side it means that they are going to hold out for a higher price.

On the lower right side of Exhibit III, this represents what might be the supply curve for Nigeria where they have high development requirements relative to their capacity. They have little flexibility with respect to cutting back production.

When you add these together for OPEC you will find that they have the ability to stabilize price by cutting back production. That ability however is not as considerable now as it was back in 1974-1978. They have the power base to do it.

During an excess supply period you have to be able to coordinate. The ability to coordinate is dependent upon quite a few variables of which two are concentration and similarity of interests and values. The more concentrated the industry presumably the easier it is to coordinate activity and if there is a dominant firm around, all the better. The more similar the interests are the easier it is to coordinate. Is OPEC sufficiently concentrated within itself to be able to coordinate? It would appear to be. Does OPEC have sufficient similar interests and values? So far we have heard suggestions that they do differ and they do differ significantly. As a result of this we should expect difficulty in their hanging together. OPEC has been divided into three different groups. There are the hard-core group or stabilizers which include Saudi-Arabia, Kuwait, UAE, and Qatar. These are countries with rather large capacities. They have excess capacity very often. They have rather high financial surpluses and can wait out periods of time. They have demonstrated a willingness to coordinate and to move together. The second group has been called the price pushers and include Iran, Venezuela and Algeria. They have little excess capacity and high development requirements and they want high prices. There is the expansionist fringe which includes Indonesia and Nigeria. They have small capacities, excess capacities, high development requirements and want a bigger market share but they want a bigger market share without price increases. They want someone to move over to make room for them.

Despite these differences the member governments have common interests. They especially have a common interest in that they share a very similar historical experience. They have a common fear. They live in a world where the white man still controls most of the centers of power. They share a common pride. For the first time in history a group of "nothing" countries wrestled power from the great nations. Their pride of accomplishment is mutually shared and will last only as long as OPEC members hang together. The loss of self esteem would be a severe blow to the national pride of those OPEC members for undoing their magnificent crude. They were the model for the rest of the developing world. The new International Economic Order was

fostered by OPEC. If this then were to go there would be a considerable loss of pride and prestige. I think this is one of the reasons they are going to be willing to pay the price it might do for their survival. They share a common high priority to solidarity. They can disagree on lots of things but they have important things in common including a desire to preserve the solidarity of OPEC because without it they know they would lose a tremendous amount other than simple revenue. In sum with respect to OPEC's market power, it has a decreased ability to exercise traditional monopoly like power because of the intrigue of non-OPEC producing countries. It could still engineer a run-up. OPEC has had the ability to stabilize when it needed it and I think that it might still have one good shot at it left.

How did OPEC utilize its market power? The 1973 and 1974 run-up was a combination of supply curtailment, panic buying and individual exploitation. There was a plateau from 1974-1978. In 1975 OPEC cut back production about 12% to 27.1 million barrels per day which was two-thirds of its capacity. In 1976 price rose 10% and output rose 10%. In 1977 they went to a two tier price because they couldn't really agree on a price. The price was finally unified later and output increased slightly to 31.4 million barrels. In 1978 the price was \$12.70 just above the 1974 price.

How did OPEC operate during this period of time in its effort to coordinate? It was a price setter. It set the price and then allowed the production to be adjusted against that price. They set the price by consensus. If they are able to reach no consensus they would either make no price change at all or go to a two tier price which opens up pressure to compromise and resolve. They set the price and had to adjust the output. The output was adjusted according to market conditions when they allowed the operating companies to buy oil sufficient to stabilize the price. What basically happened was that OPEC members had allowed the operating companies to be the arbitrator of the allocation process. They would take off as much as was necessary to maintain that particular price. There were some which did set production quotas because they were willing to "bank it in the ground". This aspect of OPEC has also weakened in recent years because for various reasons more outside buyers are coming in. To the extent that you have more outside buyers coming in there are more opportunities to cheat and more sales are made outside the official allocation system.

There are four reasons it won't be easy for OPEC like in the past. First is that world demand has decreased. Secondly is the increase in non-OPEC oil. Another reason is that there has been a significant glut in the market. OPEC is also closer to the drop off on the supply curve than they were before which means that it will be more costly in terms of internal problems.

The following gestures were made at the March meeting of OPEC. They were going to cut back production to 18 million barrels. Saudi-Arabia said it was going to go another 500,000 which brings it down to 17.5 million barrels. They also allocated for the first time amongst themselves how that might fall. This whole production cutback is going to be subject to review. They stated that further cuts will be made if necessary. With respect to prices they want to hold at the \$34 level.

Two critical issues remain which is can OPEC really cut quantity by enough? There has been some firming up of spot prices and if they stay firm then maybe 17.5 million barrels will be sufficient. The second question is do they have the commitment to stay the course? With respect to the commitment, they have drawn down their output from 30 million barrels to 17.5 million. They drew it down to defend their position. If they don't take the additional step they will have thrown away a lot of money. They know that what might well happen is what Gregg Erickson predicted. The same mechanism which got the price up can also get the price down unless you have some sort of a barrier in place like Mr. Singer referred to with respect to tariffs. There are also strong psychological reasons. With respect to cheating they have provided loans to countries which have been in trouble. More immediately the larger companies in the larger countries have come to the rescue of Nigeria and threatened to blacklist anyone who does not buy from Nigeria because their price is higher than the North Sea price. They are taking steps to protect those most vulnerable to a price cutting.

Even if they do succeed in stabilizing this price, I think that their long term marketing power is diminishing. It is diminishing because non-OPEC oil is becoming increasingly important and it won't play ball.

Tape HFC 82-31, Side 1, #541