

Prepared Statement of
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Mr. Chairman, members of the subcommittee, it is a pleasure and honor to appear today to discuss the proposed merger between British Petroleum and Amoco. Let me note at the outset that I am appearing at the invitation of the subcommittee, not the parties, and the opinions are my own. I am an independent economic consultant who has focused entirely on the oil and gas industries. I am also a senior adviser to The Brattle Group, an international consulting firm that provides economic and financial analysis of energy markets for clients throughout the world. Over the last thirty years, I have served as an advisor on energy policy in the US government at the US Treasury and the Council of Economic Advisers. I have also written extensively on energy policy while at Yale University and the Institute of International Economics. I continue to participate in the Harvard /Japan project on Energy and the Environment. During this period, I have written two books and many articles on the petroleum and natural gas markets. Last year I was appointed to the National Petroleum Council by the Secretary of Energy.

I should also note that I currently have no assignments for either British Petroleum or Amoco. However, in 1998 I filed testimony with the Federal Energy Commission for British Petroleum in a dispute concerning the valuation of Alaskan crude oil.

My testimony today will address the economics of the proposed merger. Specifically, I will address the questions that I believe a legislator or regulator of competition must consider in assessing the proposed merger. I will begin by listing the questions.

Question 1: Will the proposed merger enable the exercise of market power to raise prices to consumers and sustain the higher price level for a period in excess of one year?

This is the traditional question asked by competition regulators investigating mergers of companies in all industries.

Question 2: Will the merged entity have an incentive to delay the introduction of new technologies or innovations to consumers? In the case of natural resources, will the merged entity be able to slow the development of resources, thereby contributing to a higher long-term price of oil and/or natural gas?

Question 3: Will the acquisition of a US oil and gas company (Amoco) by a foreign entity (British Petroleum) result in the transfer of control over resources deemed critical to the national security, thereby weakening the security position of the United States? Specifically, will this transfer result in an increase in the nation's dependence on imports of oil that would not otherwise occur?

Question 4: Is this merger unique or will it be the first of several combinations that result in the creation of but a few "mega major" oil companies? Will the creation of such companies have anticompetitive effects that are not present in the proposed merger of BP and Amoco?

With a few minor reservations noted below, I conclude that the answer to each of these questions is no. Indeed, it is my impression that this merger could well benefit consumers and the United States' energy security. Thus, from my observer's position it is a merger that should be endorsed. Furthermore, with some additional caveats, I believe that any subsequent mergers that create additional mega majors would also be unlikely to have anticompetitive effects.

Background

The merger of BP and Amoco will combine two of the world's nineteen largest integrated oil companies. These integrated companies are involved in all phases of the petroleum business — from exploration for hydrocarbons to the distribution of gasoline. As can be seen from Table 1 (page 3), the integrated companies as a group account for production of 26 million barrels per day (MBD) of crude in 1996, one-third of the world's consumption. Four of the integrated firms — KPC, Saudi Aramco, PDVSA, and

Statoil — have been formed over the last twenty years by oil-exporting countries for the purpose of gaining control over the downstream oil operations within consuming countries. The remaining fifteen integrated companies are investor owned and are the focus of this testimony.

Table 1. Equity Crude and NGL Output of Nineteen Majors (Thousand Barrels per Day)

	<u>1996</u>	<u>1990</u>	<u>1985</u>
<u>Private Companies</u>			
Royal Dutch Shell	2,305	1,896	1,639
Exxon	1,615	1,712	1,720
BP	1,241	1,322	1,390
Mobil	854	779	749
ENI	614	484	286
Chevron	1,044	935	984
Amoco	662	782	847
Elf	779	519	345
Texaco	787	810	1,176
Total	510	420	277
Arco	625	705	710
Phillips	382	368	485
YPF			
Marathon	181	197	276
Conoco	445	404	425
Total Private	12,044	11,333	11,309
<u>State Companies</u>			
KPC	2,000	1,234	900
PDVSA	2,967	2,249	1,740
Statoil	464	407	238
Saudi Aramco*	8,670	6,800	3,600
Total State Companies	14,101	10,690	6,478
Non-OPEC Production	41,860	43,570	41,630
Share of Private Companies of Non-OPEC Production	28.8%	26.0%	27.2%

Note: Saudi Aramco production estimated from reported production for Saudi Arabia.

Source: *Petroguide* (1997/98 and 1994/95 editions).

The fifteen private integrated firms listed in Table 1 own proven reserves of 51.7 billion barrels of crude and 226 trillion cubic feet of natural gas. The world's two hundred largest companies own approximately 77 percent of the world's oil reserves and 69 percent of the world's gas reserves. These private integrated companies also account for 60 percent of the investment in exploration and production. According to statements published in their annual reports, the fifteen companies will make total investments of

around \$60 billion in 1998. Seventy-five percent of this investment will be in exploration and production; twenty-five percent of the E&P investment was made in the United States.

The investment activity of the privately owned oil and gas companies in exploration and production is critically important. Consequently, it should logically be the subject of greatest attention by competition authorities such as the Federal Trade Commission or the Justice Department. This activity is important because the aggressive search for oil and gas by private firms is the principal means by which consumers of oil and gas can maximize the likelihood of maintaining a competitive price for crude oil and natural gas. Indeed, it has been primarily through this activity that the once seemingly invincible market power of OPEC has been broken. If one could conclude that the merged company would tend to be less aggressive in searching for oil than the two companies were before the merger, there would be good grounds to oppose the action. As I note below, such a conclusion would be incorrect.

As can be seen from Figure 1 (page 5), private oil companies domiciled in the United States have spent large sums in the exploration for oil and gas over the last twenty-five years. Figure 1 shows capital expenditures of these companies on exploration and production in and outside the United States. In recent years, an increasing share of investment dollars has been shifted overseas as new opportunities have opened in places such as Russia, other countries in the former Soviet Union, and Venezuela.

The fifteen large privately owned integrated companies appear to account for approximately 60 percent of this investment in exploration and production. As can be seen from Table 2 (page 5), the five largest companies account for as much as half of industry's domestic investment in exploration and production.

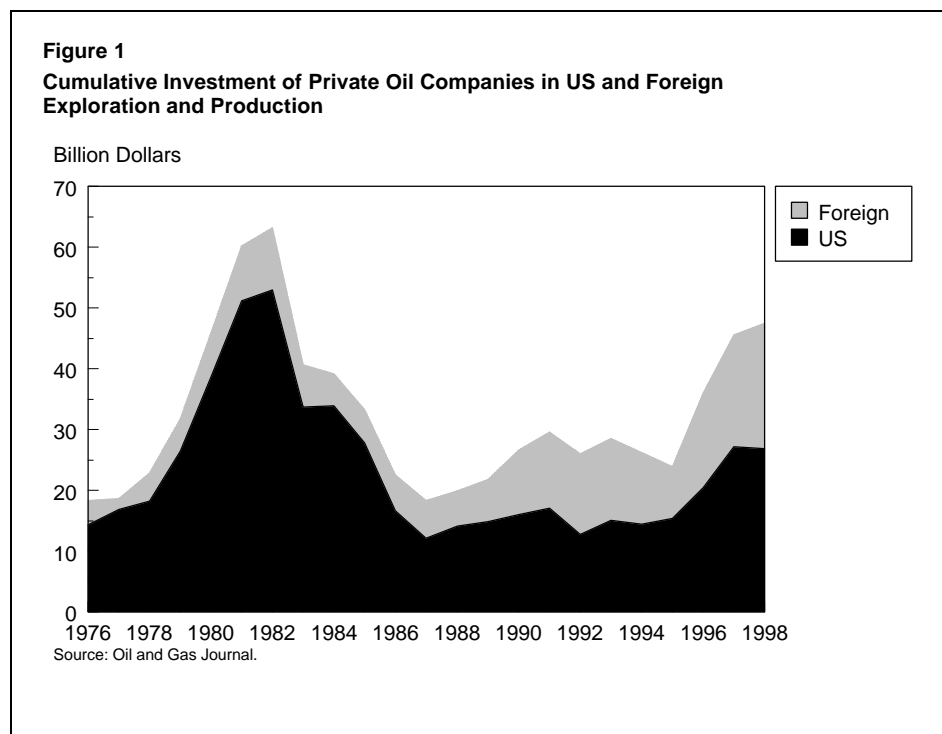


Table 2. Investment Expenditure Plans of Large Oil Companies for 1998 (Billion Dollars)

Company	Total Investment	E&P	International		Share of E&P Funds Spent in US
			E&P	E&P Share	
Shell	12.2	5.7	3.9	46.7%	31.6%
Exxon	9.2	4.9	3.5	53.3%	28.6%
BP	6.4	4.3	2.9	67.2%	32.6%
Chevron	6.3	4.0	2.3	63.5%	42.5%
Mobil	5.9	4.1	3.9	69.5%	4.9%
Total	5.4	3.3	3.3	61.1%	0.0%
Texaco	4.6	3.3	1.4	71.7%	57.6%
Arco	3.8	2.6	1.3	68.4%	50.0%
Amoco	3.4	3.3	2.8	97.1%	15.2%
Phillips	1.7	1.0	0.7	58.8%	30.0%
DuPont (Conoco)		1.7	1.4		17.6%
ENI		2.7	2.7		0.0%
ELF		1.8	1.8		0.0%

Source: Company annual reports.

The data also suggest that there may be significant economies of scale in exploration and production. According to data published by John S. Herold and Arthur Anderson,¹

¹ Arthur Anderson and John S. Herold, *Global Upstream Performance Trends—Advance Edition*, July 1998.

the costs of finding and developing reserves show an apparent decline as the size of the firm increases. Several possible explanations for this inverse relationship between size and cost of exploration have been offered. However, for evaluating the merger, it is sufficient to note that costs of discovery generally decline as size increases. Thus, one may reasonably infer that a greater volume of reserves and a higher level of production will be observed from the merged company than from the two companies separately if the level of effort remains unchanged. Other things being equal, this increase in output will lead to lower prices and benefit consumers.

Such conclusions represent a change in thinking. Twenty-five years ago, the merger of two multinational oil companies would never have been approved by domestic regulators of competition. Indeed, the report of the Senate Committee on Foreign Affairs prepared in 1973 under the direction of Senator Church strongly suggested that the large multinational oil companies posed a threat to the US government's ability to make foreign policy.² In that time of rising world oil prices, inflation, and apparent shortages, large oil companies were viewed with alarm and distrust. This distrust arose from a fear that the large integrated companies could exert some control over the flow of oil to the market, thereby holding prices above the level that would be observed in a competitive market. Professor Morris Adelman published a monumental study, *The World Petroleum Market*, in 1972. His work demonstrated some of the ways in which this power was used and showed that prices were at times elevated above the levels that would prevail in a competitive market.

Adelman's study and the Church committee report led to calls for the breakup of the large multinational companies. Legislation requiring divestiture of refining and marketing by integrated companies was proposed but never enacted. Also during this period, a major investigation of the industry's structure was conducted by the Federal Trade Commission. That investigation ultimately was closed without the publication of findings.

² US Senate, Committee on Foreign Relations, Subcommittee on Multinational Corporations, *Multinational Corporations and US Foreign Policy: 93rd Congress, 1st session*.

The attacks on the industry were met by studies that attempted to demonstrate the benefits of integration. One rebuttal, edited by Edward Mitchell and published by the American Enterprise Institute, identified several advantages of integration. Foremost among the benefits was the minimization of transactions costs within the firm. Citing pioneering research on the theory of the firm developed by Professor Ronald Coase, the authors in the Mitchell book concluded that integrated companies experienced lower operating costs than companies operating as separate entities.³

A truce of sorts persisted until the mid-1980s, with neither divestitures nor mergers occurring. This was then followed by the merger of Gulf Oil with Chevron in 1983, the only transaction similar to the proposed merger of BP and Amoco that has ever been proposed. Other merger transactions in the energy industry were of a very different character.⁴ The acquisition of Gulf was permitted by the FTC, but only after a substantial portion of Gulf's refining and marketing assets were sold. The buyer, ironically, was BP.

Changes in Market Conditions

Today, just one month short of the twenty-fifth anniversary of the first oil shock caused by the Arab Embargo of 1973, the economic circumstances that raised concerns about mergers in the oil business have changed dramatically. Several important factors have contributed to this change:

- the transformation of the oil and gas business into a commodity business,
- the nationalization of the equity interests of the multinational companies in oil-exporting countries,

³ Coase's research asserts that companies will integrate until the marginal costs of conducting transactions within the firm exceed the costs of conducting transactions with third parties. Thus, a firm would expand downstream in the oil business from production of crude oil through transportation to refining to retailing rather than selling crude to third-party buyers until the cost of conducting integrated operations exceeded the cost of dealing with third-party firms.

⁴ The other important mergers or acquisitions involved Getty Oil (acquired by Texaco), Cities Service (acquired by Occidental), Marathon (acquired by United States Steel), and Conoco (acquired by DuPont). However, none of these mergers or acquisitions involved transactions of equals. Getty was primarily a producer of crude oil and natural gas, not an integrated company. Occidental was a producer of crude and natural gas, whereas Cities Service was a small integrated company. (Interestingly, Occidental immediately sold the refining and marketing activity.) US Steel was in the steel business, not the oil business, before it acquired Marathon, while DuPont was in the chemical business.

- the development of oil production in many countries that were not oil producers twenty-five years ago, and
- a technical revolution that has brought down the cost of exploring for oil while making the new cost-saving techniques more widely available.

The transformation of the petroleum and natural gas businesses into true commodity businesses is probably the most important change that has affected the structure of the oil industry. Economists who have studied commodity markets have noted that these markets can function successfully only if the commodity can flow freely to the market without interference from government regulation or proprietary ownership. The Texas Railroad Commission, the US government, and seven integrated multinational oil companies exercised control over the world oil market until 1973. Over the last twenty-five years, impediments to the free flow of oil and natural gas have been removed. The development of oil reserves in a large number of new locations such as the North Sea and Colombia, combined with the nationalization of equity ownership positions of multinationals in most OPEC countries, has virtually eliminated the barriers to the free flow of oil to the market. The removal of price controls over natural gas production has had a similar effect. Consequently, commodity markets now exist for both petroleum products and have contributed to a dramatic increase in the competitiveness of the oil and gas industries.

The removal of the barriers to the free flow of commodities to market requires emphasis. Economic research has shown that it is generally easier to sustain the price of a commodity above the marginal cost of production if barriers are erected to prevent supplies from reaching the market.⁵

⁵ The classic example of such barriers exists in the diamond market, where an international cartel directed by the Central Selling Organization has controlled the flow of gems to the market, thereby sustaining prices at four to five times the levels that might prevail in the absence the cartel; see Philip K. Verleger, Jr., *Adjusting to Volatile Energy Prices* (Washington: Institute for International Economics, 1993), p. 114. The exporters of tin were able to exercise similar control over the tin market from the mid-1950s to 1985; see R. W. Anderson and C. L. Gilbert, "Commodity Agreements and Commodity Markets: Lessons from Tin," *The Economic Journal* 98, No. 389 (March 1998), pp. 1–15.

The growth of energy commodity markets was also stimulated in part by the nationalization of the equity positions of multinational companies. Twenty-five years ago, an oil-exporting nation such as Kuwait had a symbiotic relationship with the multinational companies holding equity positions in the country (BP and Gulf in the case of Kuwait). The multinational companies generally tried to limit third-party access to crude produced in countries where they operated and the producing countries were forced to agree. This situation changed when the equity positions were nationalized. Initially, control over the market was transferred to OPEC. OPEC's control was then weakened by the development of new producing capacity in areas where no production had occurred previously. The development of such capacity in Norway, the United Kingdom, Colombia, Gabon, other areas in Africa, and several of the one-time satellites of the Former Soviet Union has dramatically undermined OPEC's control over the world petroleum market. This loss of control has been particularly noteworthy in 1998 as prices have fallen.

However, the weakening of OPEC's power over the market is not necessarily permanent. The power of producer organizations such as OPEC to affect oil prices depends critically on the number of members, their ability to control surplus productive capacity, and the cohesion among members.⁶ In the case of OPEC, the cohesion tends to be greatest when the organization's output is around 30 MBD and when the members have little surplus capacity. For the last ten years, the members have generally found themselves in a relatively weak position as new, low-cost supplies were developed outside of OPEC. The developers of these new supplies have aggressively increased production and demonstrated an unwillingness to cut output to assist OPEC in sustaining higher prices. Acting on divergent incentives, private oil companies have been in the forefront of this effort. As shown in Table 1 (page 3), these private companies have increased their production of oil at a rate of 1 percent per year over the last six years, effectively constraining the increase of OPEC's market shares and thereby moderating OPEC's ability to boost prices.

⁶ OPEC is commonly referred to as a cartel. However, the description is technically incorrect. The correct term is a restrictive commodity agreement.

Future Possibilities

It is possible, at least temporarily, that circumstances will change. The market influence of a few oil-exporting countries could increase if worldwide economic growth gives a strong boost to world demand for oil. Until recently, most forecasters had projected strong growth in global demand for oil and a coincident increase in OPEC's market power. For example, the Department of Energy's Energy Information Agency predicts that production from OPEC nations will need to rise from its present level of around 27 MBD to 48 MBD by 2010, assuming that prices remain at their current levels.⁷

Under such circumstances, it is possible to imagine that one or more of the oil-exporting countries might attempt to exploit its improved situation in the world market to boost prices. Indeed, officials from Venezuela, one of the most dependable suppliers of oil to the West, indicated last January that the current trend to lower prices should be accelerated to discourage investment in the United States, thereby allowing the price for OPEC oil to be increased. *Petroleum Intelligence Weekly* reported on January 19, 1998, that Venezuela believed two years of low oil prices were required to discourage the expansion of production in the United States.

While PDV officials admit to being nervous about the recent sharp decline in crude oil prices, they stress how crucial lower prices are to their efforts to place increasing output, since weak markets would cool enthusiasm for the expensive deep-water and sub-salt projects leading the Gulf of Mexico recovery. Even if all these projects are profitable at \$14 a barrel, PDV believes that lower prices would prompt companies to spread out spending on new ventures and put US output back on its downward track. For years, PDV has been forecasting that US output declines would make room for steadily rising Venezuelan flows.⁸

Conclusions regarding the Proposed BP/Amoco Merger

Such an increase in demand for exports from OPEC might seem to present an opportunity for oil-exporting countries to once again exercise market power as they did twenty-five years ago. However, the development of new resources by large, privately

⁷ US Department of Energy, Energy Information Agency, *Annual Energy Outlook 1998* (Washington: US GPO, December 1997).

⁸ "Venezuelan View: Lower Prices Are Inevitable and Good," *Petroleum Intelligence Weekly* 36, No. 2 (January 12, 1998), p. 2.

owned interests, in my opinion, would constrain the ability of the oil-exporting countries to influence prices materially or persistently. I answer the first question I posed based on this view.

Question 1: Will the proposed merger enable the exercise of market power to raise prices to consumers and sustain the higher price level for a period in excess of one year? This is the traditional question asked by competition regulators in mergers of companies in all industries.

Taken in the context of the world's potential increased consumption of petroleum — and the possible increased dependence on a few oil-exporting countries — the merger of BP and Amoco appears to be in the public interest because the investment activities of the world's largest multinational companies seem to be less sensitive to fluctuations in oil prices. Furthermore, the evidence suggests that the increase in capitalization (size) makes the companies better able to take very large exploration risks. As more of these risks prove successful and the world's sources of supply are expanded, the potential growth in the market power of a few exporting countries will be reduced and consumers will benefit.

Over the last ten years, it is possible to observe that the largest multinational oil companies have pursued steadier, less price-sensitive exploration programs than the smaller companies. Smaller companies (small is a relative term in the oil industry) have been forced to curtail exploration programs during periods when prices decline. The willingness and capacity of the large companies to absorb large risks — and the financial wherewithal to pursue such risks — is one of the strongest arguments for endorsing the merger.

There are several other reasons for offering this conclusion. First, it is generally believed that most of the world's incremental supplies of oil must come from outside the United States. As can be seen from Table 3 (page 12), most of the world's reserves are located outside the United States and indeed outside of the industrialized world. Reserves in the United States account for only 3 percent of the world's proven reserves of crude. Second, the costs of developing reserves in the non-US, non-OECD areas are quite high. The development expenses of new projects are measured in the billions, not the millions

of dollars. For example, the cost of developing reserves in the Sakhalin Islands north of Japan will be several billion. Chevron has invested or will invest \$2 billion to develop reserves in Kazakhstan. The costs of developing reserves in the Caspian Sea are equally steep.

Table 3. Geographic Location of Proven Reserves of Crude Oil and Natural Gas, End of 1997

	Oil (Billion Barrels)	Natural Gas (Trillion Cubic Feet)
United States	29.8	166.5
Other North America	46.8	128.9
Central and South America	86.2	222.3
Europe	20.2	196.5
Former Soviet Union	65.4	2,002.6
Middle East	676.9	1,726.1
Africa	70.0	348.6
Asia	42.3	320.6
Total	1,037.6	5,112.1

Source: *BP Statistical Yearbook of World Energy*, 1998.

Most companies cannot compete in this high-cost environment. Prudent managers want to hold a diversified portfolio of opportunities so that the future of the company does not depend on the outcome of one project. Confronted with this situation, firms must choose between participating in consortiums with a group of other oil companies or sitting on the sideline. Ultimately, neither choice is optimal. It appears to be more efficient for the scale of companies to increase along with the size of the opportunities. The combination of BP and Amoco will be able to compete with Shell and Exxon for these opportunities. The evidence suggests that the combined company will be able to take additional large-scale risks. At the margin, this will lead to an increase in world supply and a dilution of the market power of oil exporters.

The larger companies also seem to be better able to mobilize resources in the exploration process. One measure of their success is provided by examining “finding costs” — the costs of finding and developing reserves. The world’s largest companies appear on average to have lower finding costs than small companies. This means that the largest companies are able to find and develop more reserves per billion dollars spent than smaller firms are. To the extent that this fact can be extrapolated (and further investigation is suggested to make that determination), the merged company would be

expected to find more oil and gas per dollar expended than either firm could on its own. The principal motivation and, in my view, the primary competitive justification for the proposed combination of BP and Amoco is to gain the necessary scale to undertake the increasingly larger and riskier global exploration and development projects that become available.

In addition to their participation in upstream markets for crude, the companies are also competitors in the refining and marketing of oil and gas products. Lacking access to the detailed information that one would need to evaluate the possible competitive impact of the proposed merger on domestic downstream markets, it really is not possible to assess definitively the likely competitive consequences of the proposed merger on these more localized markets. A few general observations may, however, be made.

Each company markets gasoline and the two companies compete in several states. Table 4 lists the states in which they compete and also shows the preliminary estimates of the impact of the proposed merger on the HHI's (Herfindahl-Hirschman Indices) in the overlap states. The HHI's shown in Table 4 (page 14) identify several states in which the increase in concentration appears facially troubling. However, the aggregated data are only suggestive of problematic increases in downstream concentration because retail competition must be assessed at the local (or city level). For example, in evaluating the merger of the refining and marketing businesses of Shell and Texaco, the FTC recently required that stations in San Diego be sold to third parties. It may be that antitrust officials will ultimately determine that the increases in concentration in some properly defined local markets are similarly troubling here and require that selective divestitures be made to gain approval of the proposed transaction.

I would point out, however, that the agency evaluating the merger's impact on retail gasoline marketing should consider a potentially mitigating structural change occurring in the oil industry — the creation of retail hypermarkets. Hypermarkets are very large service stations associated with a large retail establishment such as Wal-Mart or Costco. Hypermarkets originated in France in 1985 and offered consumers a substantial reduction in the cost of gasoline. They proved to be so popular that the independent gasoline-

marketing sector, which once accounted for 50 percent of the market, was essentially obliterated. The same trend is observed in the United Kingdom, where again large retail establishments have essentially displaced the local retailer.⁹ Hypermarkets have recently begun to show up in the United States. Prices have dropped precipitously wherever they have appeared.

Table 4. Preliminary Estimates of Market Concentration Ratio (HHI) for Gasoline Marketing by State before and after the Amoco/BP Merger

	<u>Base HHI</u>	<u>Post-Merger HHI</u>	<u>Change in HHI</u>
Georgia	653	899	246
South Carolina	1,026	1,257	231
Tennessee	918	1,145	228
North Carolina	683	889	205
Ohio	1,638	1,793	155
Alabama	881	1,028	147
Florida	1,079	1,199	120
Pennsylvania	923	1,007	84
Mississippi	644	726	82
Virginia	1,075	1,144	69
Michigan	1,115	1,172	56
Indiana	1,726	1,777	51
New Jersey	969	1,015	46
Connecticut	1,204	1,229	25
Delaware	1,518	1,531	13

Source: PKVerleger LLC.

Generally, therefore, it is my view that the merged company will likely be able to compete more aggressively in the development of reserves, is likely to produce more as a combined entity than the two firms would alone, and is therefore expected to provide greater competition for OPEC. With respect to the impact of the merger on domestic refining and gasoline retail markets, it is difficult to assess the likely competitive effects without detailed inquiry into the current and prospective conditions affecting price formation in these diverse marketing environments.

Question 2: Will the merged entity have an incentive to delay the introduction of new technologies or innovations to consumers? In the case of natural resources, will the merged entity be able to slow the development of resources, thereby contributing to a higher long-term price of oil and/or natural gas?

⁹ A similar trend is observable in the marketing of pharmaceuticals, where local drug stores have been replaced by prescription departments contained in large retail stores such as Safeway.

A merger between the two companies might be objectionable if the combined entity could delay the introduction of new technologies or the development of petroleum reserves, even if there was little likelihood that prices could be persistently raised above competitive levels. For example, one can imagine a merger between two oil or gas producers in which each has a relatively modest production market share but controls a large share of undeveloped reserves. Under these circumstances, the merger might be approved because the two firms could not affect contemporaneous price levels — the traditional test for a merger. On the other hand, the merger might be considered objectionable because the combined firm would control a very large share of production in the future because of its ownership of undeveloped reserves.¹⁰

The proposed merger, however, does not involve such a problem. Amoco is a large producer of natural gas in the United States and owns extensive reserves, particularly in the Rocky Mountains. BP is not involved in the production of natural gas in the United States, although it does have some properties in the Gulf of Mexico where it participates with Shell. BP is extensively involved in crude oil production in Alaska, the North Sea, Colombia, and other areas. Thus, the merger does not seem to create problems on these grounds.

Furthermore, neither this merger nor any other merger in the oil and gas business is likely to slow the introduction of new technologies for the exploration for oil and gas reserves. Much of the recent innovation has been developed by outside suppliers such as drilling contractors or suppliers of drilling technologies. The one area where major innovation has occurred in the industry in the last decade has been in the development of techniques to explore in ocean waters deeper than 500 to 1,000 feet. A company's size has been a positive advantage, not disadvantage, in development of these techniques because of the high costs of such exploration. Substantially all of the deep exploration efforts have been conducted by the major companies. Here again, the high cost of this type of exploration has prevented all but the most well capitalized firms from participating. The merger of Amoco and BP, as well as the creation of other mega majors,

¹⁰ This problem is unique to natural resources because of the non-renewable nature of reserves.

should logically increase the number of firms that can aggressively pursue such high-risk opportunities.

Question 3: Will the acquisition of a US oil and gas company (Amoco) by a foreign entity (British Petroleum) result in the transfer of control over resources deemed critical to the national security, thereby weakening the security position of the United States? Specifically, will this transfer result in an increase in the nation's dependence on imports of oil that would not otherwise occur?

Mergers in the oil and gas industries involve an element not associated with mergers in most other industries such as supermarkets, department stores, or food manufacturing. The unique characteristic is national security. A merger that ordinarily might be approved because it was unlikely to have an impact on consumer prices might nevertheless be considered objectionable if it were concluded that the transaction would transfer reserves and assets to the control of a company that might follow a course of action that conflicted with national energy policy. In particular, one can imagine that the acquisition of a company that had been aggressively developing domestic oil and gas reserves by the national oil company of an oil-exporting country might be viewed with some suspicion because the national oil company might not want to pursue a program of exploration in the United States.

However, this issue does not appear to be particularly troublesome concerning the merger of Amoco and British Petroleum, even though it does involve the takeover of an American company by a foreign company. British Petroleum has been actively exploring for oil and gas in the United States for over twenty years. Furthermore, BP has been one of the primary firms investing on the North Slope of Alaska.

While a company's past practice may not, as they say, guarantee its future performance, information about a company's past investment can provide a gauge of its interest in continuing to operate in the United States. British Petroleum's record here is good — indeed, by one measure it is better than Amoco's. I draw this conclusion by examining the investment announcements of the largest oil companies. Information published in 1997 annual reports permits the analyst to examine the share of a company's investment expenditures going into exploration and production (E&P), and the share of

the E&P dollar invested in the United States. Table 2 (page 5) provides such an analysis. From Table 2, it may be observed that much of Amoco's investment was in exploration and production. From the table, it may also be observed that BP directed a larger share of its E&P investment to the United States than Amoco did.

Obviously, there are other energy policy and national security issues raised by this acquisition. Foreign companies, for example, are less willing to abide by sanctions imposed by the US government or Congress. Thus, a foreign company acquiring a US company might later use the profits from the acquisition to invest in Iran. From a purely economic point of view, this prospect is untroubling so long as the investment does not contribute to the increase in market power of oil producers. However, it must be acknowledged that this potential loss of international leverage may generate serious questions involving foreign policy considerations.

Question 4: Is this merger unique or will it be the first of several combinations that result in the creation of but a few "mega major" oil companies? Will the creation of such companies have anticompetitive effects that are not present in the proposed merger of BP and Amoco?

The merger of Amoco and BP is quite likely to be followed by other major mergers in the oil and gas industry. Today, approximately twenty companies have market capitalization of more than \$20 billion, ranging from Exxon at around \$170 billion to Occidental at approximately \$20 billion. In the absence of intervention from Washington or Brussels, this number is likely to be cut in half over the next five years. In addition, between half and three quarters of the independent oil and gas developers such as Anadarko and Burlington Resources are likely to be acquired or liquidated. Such an outcome neither threatens the goals of national energy policy nor creates a threat to the consumer so long as the process moves forward rationally.

In the United States, I believe the principal limiting factor impeding further consolidation will be the need to maintain sufficient competitors in the refining and marketing sectors on the West Coast of the United States. Seven companies operate in this market today: Arco, Chevron, Exxon, Mobil, Ultramar/Diamond Shamrock, Tosco, and Equilon, which is a firm that has been formed by Shell and Texaco to own refining

and marketing. Of these seven, four (Arco, Chevron, Exxon, and Mobil) are involved in both exploration and production. Recent action taken by the Federal Trade Commission in connection with the merger of the refining and marketing businesses of Shell and Texaco suggests that a merger of any of these firms would raise serious questions.

On the other hand, the merger of any of these companies with Conoco or Phillips would probably not create a competitive threat because their marketing areas do not overlap in any regions. From an economic vantage point, a merger of the French companies Elf or Total with any of the American firms would be unlikely to harm competition, assuming, of course, that the French authorities permitted such an action.¹¹ Similarly, the combination of domestic producers such as Unocal or Occidental with any of the companies noted above would generate minimal competitive concern.

The limitations on mergers imposed by the need to preserve competition in domestic refining and retail gasoline markets might cause the major companies to sell their refining and marketing assets. Last year, Unocal took just such action, selling its 76 Products company to Tosco and exiting the refining and gasoline marketing business. In merging their refining and marketing business, Shell and Texaco may also have set the stage to create a separate, stand-alone company that has no linkage to either company. Such actions would mark the ultimate end of vertical integration in the oil business by creating, in essence, separate resource and product distribution companies. If this trend continues (and I expect it will), then one should expect to see the creation of more large E&P companies and, potentially, a more competitive marketing environment.

At the retail level, I expect that we will continue to see the introduction of more very large retail facilities constructed at or in association with large retailers such as Wal-Mart. These large establishments will market two to five times the volume of gasoline sold at traditional stations by offering lower prices. Where they are introduced, one should

¹¹ Last week, French authorities denied permission to Coca Cola to acquire a soft drink manufacturer in France. It is quite possible that the French authorities would be equally vigorous in denying attempts by other firms to acquire French companies.

expect to see independent marketers come under great competitive pressure and perhaps ultimately be forced to close.

In conclusion, from my vantage point as a petroleum economist, I believe that the merger of British Petroleum and Amoco will produce significant benefits for consumers. The combined company is likely to realize scale economies that will generate greater efforts to find and develop additional supplies of oil and natural gas, thereby reducing OPEC's potential to increase future prices. While I find no economic basis to believe that the combined company poses any threat to US energy security, I defer to foreign policy experts to reach a judgment on this question. Competitive problems may occur in the retail sector, where the merger may lead to excessive levels of market concentration in a few locations. Any such troublesome concentration can be eliminated by the divestiture of assets.

This completes my prepared testimony. I will be happy to answer questions.