CAPITAL REQUIREMENTS FOR ENERGY SECTOR:
CAPITAL MARKET ACCESS

MASTER

The Shift to Successful Efforts Accounting—Preliminary Review of
Probable Effects on Oil and Gas Industry Participants

Final Memorandum

ENERGY RESOURCES CO. INC.
Policy Analysis Division
185 Alewife Brook Parkway
Cambridge, Massachusetts 02138

Valerie Bennett

ROTAN MOSLE INC.
Corporate Finance Department
Houston, Texas 77002

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Prepared for

UNITED STATES DEPARTMENT OF ENERGY

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I. INTRODUCTION AND SUMMARY

This report provides an initial assessment of the effects that the adoption of uniform successful efforts accounting might have on access to capital markets and investment behavior in the oil and gas industry. It also proposes a plan of interviews and analysis which would permit informed revision and expansion of that initial assessment.

Section II presents a discussion of the origins and current status of the controversy between advocates of successful efforts and full cost accounting. An important underpinning of the argument in favor of uniform successful efforts accounting is the premise that all industry participants are fundamentally comparable and, thus, should be subject to uniform accounting treatment. Section III questions this premise by examining the various classes of industry participants. Section IV presents data on the roles of those classes of industry participants, paying particular attention to the importance of the independents in the exploration phase of the business. Section V discusses the effects which a shift to uniform successful efforts accounting might have on the various industry participants.

We agree that comparable companies should be subject to comparable accounting treatment. However, our knowledge of the oil and gas industry and our initial assessment of the possible effects of a shift to uniform successful efforts accounting suggest that requiring all public companies to report their oil and gas exploration efforts on a successful efforts basis may produce misleading information and potentially reduce competition in the oil and gas industry. A discussion of our initial conclusions are presented in Section VI.

Section VII reviews a plan of interviews and analysis which we feel would permit a more informed evaluation of policy options. We propose to interview specific companies in each of the industry categories identified in Section III

in order to assess more precisely the difference in business strategies and, hence, the likely competitive responses to alternative accounting treatments.

Finally, Section VIII presents a series of policy alternatives. We are pleased to be involved in what we consider to be a most important policy debate and hope that this initial report will be useful to you.

II. THE ACCOUNTING ISSUE -- CURRENT STATUS

Section 503 OF The Energy Policy and Conservation Act (EPCA) provided that:

(a) For purposes of developing a reliable energy data base relating to production of crude oil and natural gas the Securities and Exchange Commission (SEC) shall . . . assure the development and observance of accounting practices to be followed . . . by persons engaged . . . in the production of crude oil or natural gas in the United States.

(b) In carrying out its responsibilities . . . the SEC shall . . . have authority to prescribe rules applicable to persons engaged in the production of crude oil or natural gas, or make effective by recognition, or by other appropriate means indicating a determination to rely on accounting practices developed by the Financial Accounting Standards Board (FASB) . . .

These financial accounting and reporting standards required by EPCA are to be developed by December 22, 1977.

Under Section 205 of the Department of Energy Organization Act, the "energy-producing company financial report" referred to in EPCA:

Shall be designed to allow comparison on a uniform and standardized basis among energy-producing companies and shall permit for the energy-related activities of such companies.

- 1) an evaluation of company revenues, profits, cash flow, and investment in total, for the energy-related lines of commerce in which such company is engaged;

- 2) an analysis of the competitive structure of sectors and functional groupings within the energy industry;
- 3) the segregation of energy information, including financial information, describing company operations by energy source and geographic area;
- 4) the determination of costs associated with exploration, development, production processing, transportation, and marketing and other significant energy-related functions within such company.

On September 7, 1977 the SEC announced its intention to amend its regulations to incorporate the accounting standards contained in the proposed Statement of Financial Accounting Standards, "Financial Accounting and Reporting by Oil and Gas Producing Companies," issued on July 15, 1977 by the FASB (Exposure Draft).

The FASB's proposed financial accounting standards would establish the successful efforts approach rather than the full cost alternative as the only permissible method of accounting for gas and oil producers.

Under the successful efforts method, all geological and geophysical expenses and costs of dry holes are charged off in the year incurred. While under the full cost approach, these costs are capitalized and then amortized annually against oil and gas revenues obtained as reserves are produced and sold.

Most majors integrated oil and gas companies employ successful efforts. On the other hand, approximately half the independents, especially new entrants, employ the full cost method.

Numerous complaints have been voiced by companies presently using the full cost method to the effect that uniform accounting rules will discriminate against them by:

- 1) producing a paper decrease in the company's net asset value and net profits;
- 2) penalizing expansionary exploration programs; and
- 3) impairing bond ratings, reducing dividends, and causing companies to violate debt limitations.

This discrimination, in the opinion of some, would impair the ability of the full cost companies to raise capital and lead ultimately to increased concentration in the hydrocarbon exploration and development industry.

The FASB disputes these assertions, arguing that:

- 1) many independents currently use the successful efforts methods
- 2) the full cost method obscures failure and risk because it combines the costs of unsuccessful exploration efforts with the costs of successful activities.

Deputy Secretary O'Leary has asked the SEC to explore fully the potential impact on needed exploration and development of the nation's petroleum reserves before making a final decision on the accounting methods.

In addition, Senator Floyd Haskell (D-Colorado) put forward an amendment to the Energy Bill stating that establishment of accepted accounting principles was not intended by EPCA, which intended only that the uniform standard apply to data reported by the companies to DOE (S-2114).

DOE must determine in short order its position on both the Haskell Amendment and on the Exposure Draft. In order to formulate a position, DOE requires data on the impact of uniform successful effort accounting on competition in the oil and gas exploration industry. This memo provides a first cut at the analysis and proposes a mechanism for more detailed investigation and analysis.

III. ANALYTICAL FRAMEWORK -- INDUSTRY PARTICIPANTS

The oil and gas industry today is composed of a very heterogeneous group of companies. The composition of the industry makes the decision on proper accounting methods unusually difficult. Participants in oil and gas exploration and development include the following:

1. The major integrated companies
2. The large publicly held independent producers
3. The small publicly held independent producers
4. The privately held independent producers
5. Regulated companies (primarily gas transmission companies, gas utilities and electric utilities)
6. Diversified companies (oil and gas is one of a number of primary activities)
7. Industrial companies (oil and gas activity directed only toward establishing adequate energy supplies for other operations)
8. Potential new entrants.

At this point, the DOE must decide whether it should take a position regarding the FASB's proposed shift of all industry participants to successful efforts accounting. The arguments for full cost and successful efforts accounting are both strong, as evidenced by the voluminous testimony and comments accumulated on the debate.

In our opinion the FASB has oversimplified its task by claiming that "the facts and circumstances surrounding the search for and development of oil and gas do not differ between large and small companies." (See October 14, 1977 letter from Donald J. Kirk to the Honorable William Proxmire et. al.). We feel that a full analysis of the various participants listed above will show that each

type of participant has substantially different financial structures, sources of funds, patterns of cash flow and business strategies. The appropriate accounting method may depend on the type of participant under consideration.

Major integrated oil and gas companies tend to have large bases of oil and gas reserves which were found in years past and their integrated activities tend to obscure the accounting treatment of their exploration function. Small oil and gas companies and other participants who have recently entered the field (which would include many of the regulated, diversified and industrial companies) tend to be aggressively exploring for new reserves, but generally do not have a large historical base of reserves. From the point of view of reported earnings, successful efforts accounting applied uniformly will have a more pronounced impact on these latter companies than on the major integrated companies. It is therefore important to understand the roles of the various industry participants so that the ramifications of these varied impacts can be assessed. These roles are discussed in Section IV.

The analysis presented in Section V attempts to avoid restating the accounting arguments for one method or the other. Instead, we have chosen to analyze the potential economic effects on various types of participants of a shift from full cost to successful efforts, assuming the FASB proposal is implemented. We consider two basic types of possible effects:

1. Capital Market Access -- whether or not the participants who must shift may have any less access to equity, debt and partnership funding sources.
2. Behavioral Impact -- whether or not those participants may modify their behavior with respect to the amount, timing, or allocation of their future exploration and development budgets.

Since we have been asked to set forth our preliminary views with less than a week's notice, our analysis draws upon data which we have in our files or which was available from published sources. We feel that the complexity of the questions and the varying impact on each type of participant require more detailed analysis. In the final section of this report, we have recommended several lines of analysis which might be performed promptly for DOE.

We feel that there has been very little analysis done on the possible economic effects of the proposed accounting change which adequately recognizes the complexity of the oil and gas industry's structure. Although the FASB appears ready to announce its final position, we do not feel it is too late for DOE to voice a well based opinion on the issue.

IV. RELATIVE IMPORTANCE OF THE PARTICIPANTS

While no composite drilling and spending statistics are available based on accounting practices, there is a myriad of data available which compare the drilling and spending patterns of the major and independent oil companies. These data are roughly comparable to a successful efforts versus full cost dichotomy. The following table shows the relative importance of majors and independents for several important categories of oilfield spending. "Independents" in this case would include all of the participants listed in Section III other than the majors. The data shows that the independents are responsible for approximately 45% of the United States exploration and development expenditures.

Percent of Total Revenues and Outlays*

	<u>Majors</u>	<u>Independents</u>	<u>Total</u>
<u>Net Wellhead Revenues</u>	73.8%	26.2%	100%
<u>Exploratory Spending</u>			
Drilling & Equip. Wells	39.9	60.1	
Other Exploratory**	68.3	31.7	
Total Exploratory	52.0	48.0	100%
<u>Development Spending</u>			
Drilling & Equip. Wells	58.8	41.2	
Other Development***	65.5	34.5	
Total Development	61.9	38.1	100%
<u>Production Spending</u>			
Direct	67.4	32.6	
Indirect & Taxes	71.7	28.3	
Total	69.2	30.8	100%
<u>Total Oilfield Spending</u>	<u>62.6%</u>	<u>37.4%</u>	<u>100%</u>

*The data was derived from the Census Bureau's 1975 Annual Survey of Oil and Gas and excludes lease and land acquisition costs.

**Includes: Land Dept., Leasing, Scouting 61.3 38.7
Geological & Geophysical 82.1 17.9
Lease Rents 53.2 46.8
Test Hole Contributions 55.0 45.0
Direct Overhead & Other 58.1 41.9
Indirect Overhead & Other 60.9 39.1

***Includes: Lease Equipment 74.8 25.2
Overhead & Other 54.5 45.5

Annual surveys conducted by the "Oil and Gas Journal" have found that the 20 largest oil companies have accounted for about 20% of the total number of wells drilled over the past six years on a net interest basis. These major companies have also accounted for about 10% of wildcat drilling activity over the same time period.

The apparent dichotomy between the majors' share of total wells and wildcats drilled and their share of total oil field and exploration expenditures may be a result of the types of exploration prospects drilled by the majors and the independents. In 1975, for example, according to the Census Bureau's data on a net interest basis, the majors accounted for 44.6% of the industry's expenditures for drilling and equipping exploratory dry holes but only 28.5% of the industry's drilling and equipping expenditures for successful exploration wells. As measured by dollars spent, the majors had a 30.8% success ratio in exploratory drilling during 1975 compared to 47.3% for the independents. Although the independents are drilling about nine times the number of exploratory wildcats as the majors, they are spending only 151% more money on successful exploration wells and only 24% more money on exploratory wells drilled by mistake. (The independents' euphemism for dry holes.) If all exploration expenses, including lease purchases, are included, the majors would account for well over half of all exploratory spending.

The preceding data suggests that the majors' search for large pools of reserves requires more geological and geophysical effort and places more emphasis on risky prospects (i.e., Destin and Gulf of Alaska) than the independents, whose efforts emphasize less risky drilling near established oil and gas reserves. The majors are spending more than six times what the independents spend per exploratory well. These figures would undoubtedly be higher if lease

acquisition expenditures were included. The independents accounted for very little of the \$1.16 billion spent for OCS leases in 1975 (a total of almost \$20 billion has been spent for federal OCS leases since the early 1950's). Another contributory factor to the independents' relatively high share of exploration spending is a result of the common practice of an independent "farming-in" on a majors' acreage position by drilling a well in exchange for an operating interest.

In terms of development drilling, the majors drill about 23% of the wells and account for about 62% of total development expenditures. Despite a lower success ratio, the majors drill about 7 development wells for every wildcat compared to a less than 3 to 1 ratio for the independents. This is apparently explained by the majors' control of larger acreage blocks with greater development potential. The higher spending by the majors results from the higher development costs of new fields compared to new reservoirs in existing fields. North Slope and OCS development would also be contributing factors to the majors' greater share of development spending.

V. POSSIBLE EFFECTS OF SHIFT TO UNIFORM SUCCESSFUL EFFORTS ACCOUNTING

The potential economic impact of the FASB's proposed shift to uniform successful efforts accounting is difficult to forecast statistically. It is clear that the changes will have no direct impact on the after-tax operating cash flows of the business but will only directly affect how results are presented in audited financial statements. The potential economic effects would arise if:

- (a) sources of capital become less available (the "capital access effect"); or
- (b) management alters its exploration and development decisions to increase or maximize short-term reported earnings (the "behavioral effect").

The amount of accounting effect will vary among the different types of companies. The most complete survey to date on this subject is the March 29, 1977 report prepared by Touche Ross & Co. (sponsored by the Ad Hoc Committee on Full Cost accounting). This report was prepared from a confidential survey of oil and gas producing companies. Questionnaires were mailed to 243 companies. Of those, 54 responded (22%), 36 of which use full cost and 18 of which use successful efforts.

For the 36 full cost companies in the study, a change to successful efforts would have the following approximate aggregate effect at December 31, 1975:

	(\$ millions)		
	<u>As Stated</u>	<u>After Shift to Successful Efforts</u>	<u>Percentage Change</u>
Total Net Capitalized Cost of Oil and Gas Properties	\$5,214	\$3,652	-30%
Deferred Income Taxes	474	198	-58%
Total Shareholders' Equity	7,984	6,723	-16%
Net Income After Taxes			
1971	338	211	-38%
1972	540	391	-28%
1973	786	610	-22%
1974	1,216	1,096	-10%
1975	1,153	900	-22%

The study noted that the decrease in stockholders' equity ranged from a minimum of 1% to a maximum of 65%.

Although no change in long-term debt amounts would occur among the group, one-fourth of the full cost companies responding indicated a change to successful efforts would have placed them in default under existing debt agreements.

With this data as background, we would like to give preliminary views as to the possible capital access and behavioral effects on each of the industry participants groups listed in Section III. A more complete analysis could be performed, as is suggested in Section VII.

Effects on Majors

The major U.S. oil companies are generally considered to include approximately 25 of the largest producers, most of which are both multinational and vertically integrated. Most of these companies have also diversified their activities to include the manufacture of petrochemicals, fertilizers and plastics materials. Many have made substantial investments in alternate energy sources and some have invested in entirely unrelated businesses (e.g., Mobil's acquisition of Marcor).

Almost all of the major oil companies are already on successful efforts accounting, although there are variations in treatment among them. A shift to uniform successful efforts will have some effect, in that it would cause them to follow a more consistent application of the successful efforts method. One of the biggest changes would be to cause the majors to capitalize dry holes for development wells, whereas they generally expense these dry holes now. This is a small part of their development drilling budgets, however, and the earnings impact would not be particularly significant for the major companies.

Effects on Independents

There are essentially three categories of independent producers to consider: (a) the large publicly held independents (e.g., oil and gas production in excess of \$75 million per year), (b) the small and medium size publicly held independents (e.g., oil and gas production of less than \$75 million per year) and (c) the privately held independents.

The latter group, those that are privately held, generally account on a tax basis -- which is essentially a variation of successful efforts accounting. Many of them produce audited reports for financing purposes, but those would not be a large part of that group. For the most part, there would not be a significant capital access effect or behavioral effect on the privately held companies, since they would not be switching. If a sizable private company were considering a public equity offering, however, it would be precluded from restating its books to full cost. As a result, the marketability of an initial public offering would probably be affected to some extent. However, very few offerings of this type have occurred in recent years and good private operators generally have alternate sources of capital (e.g., private drilling funds, bank borrowing on proven reserves and private equity placements).

The large publicly held independents are affected differently. They generally have active public markets for their stock and may be in a position to access the public debt markets.

Although we would like to examine additional data for this issue, our preliminary view is that the stock prices of the large independents may show small negative effects (probably less than 10%) but only in the initial years of implementation. Even on full cost accounting, financial analysts tend to look more at cash flow and reserve statistics. If the SEC implements its proposal to

have companies show annually the estimated discounted present value of the reserves, the analyst will probably weight those statistics even more heavily, and earnings data will become less relevant.

We also do not think the large independents access to the debt markets would be changed, although potentially their cost of borrowed funds would be somewhat higher. Most large independents are able to borrow money privately on favorable terms from banks and insurance companies by pledging a portion of their proven reserves. It may be somewhat more difficult to sell a public debt offering if the company's debt coverage ratios substantially change under full cost accounting, but the Touche Ross survey suggests on average this will not be the case.

The loan defaults mentioned in the Touche Ross study are probably not a significant problem, as most all substantial bank and insurance company lenders are sophisticated enough to know that the underlying credit of the borrower has not been changed at all by a mere change in accounting methods. An initial survey we have made of institutional lenders to the oil and gas industry indicated a willingness on the part of all interviewed to amend the covenants of their loan agreements if the accounting shift occurs.

From a capital access point of view, the small independents are in a potentially more precarious position since they are generally weaker credits and already have relatively less access to the equity markets. Our experience indicates that during times of tight money markets some had difficulty in financing even their development budgets.

For exploratory drilling, however, the primary capital sources for small independents have been internally generated cash flow and partnership funds. Partnership funds or "drilling funds" are difficult to detect from

the balance sheet in that oil company operator usually retains a disproportionate percentage interest in a property or "backs into" an interest in the successful wells, by using his partners' money for most of the drilling costs.

Sales of publicly registered drilling funds, which are "tax shelter" oriented, are expected to reach \$400 million in 1977. In addition, private placements of drilling funds are expected to reach approximately \$100 million in 1977, and sale of joint venture interests are estimated at between \$500 million and \$1 billion. Specific data is not available on the amount of funding from end-users, but this is an important and rapidly growing source of capital for independents.

Bank and other institutional borrowings for the small independents will probably not be affected significantly by the accounting shift, although some institutions might be eliminated as sources for the aggressive independent who registers net losses, due to the lending guidelines established by regulations for the institutions. This would be particularly true of some insurance companies.

Borrowings are used primarily to fund development drilling activities, with the loans typically secured by old or new reserves.

The sale of common stock as a source of funds is a relatively minor source for most independents. Although a series of losses caused by the shift would affect a company's ability to sell equity, most oil and gas companies who would otherwise qualify for the public markets are large enough that a series of such losses would be infrequent.

To demonstrate the relative importance of funds sources for the independents, we took a random sample of ten publicly held independents and compiled the statistics shown below. The "operations" line refers to internal cash flow. "Net debt" refers to net increases in debt. Note that, on average, the sale of stock represented only 2% of the total funds sources for these companies in 1976.

Source of Funds

1976

Ten Independents Chosen at Random

(\$ millions)

	<u>Company</u>										<u>Total</u>	<u>%</u>
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10		
Operations	\$10.5	\$2.9	\$13.9	\$17.2	\$32.9	\$79.9	\$11.1	\$4.5	\$2.6	\$2.5	\$178.0	42%
at Debt	5.4	5.1	11.5	--	63.0	98.8	47.0	2.2	1.8	4.0	238.8	56
Sale of Stock	.3	.1	.5	.5	1.2	--	5.9	.4	--	2.1	11.0	2
	<u>\$16.2</u>	<u>\$8.1</u>	<u>\$25.9</u>	<u>\$22.7</u>	<u>\$97.1</u>	<u>\$178.7</u>	<u>\$64.0</u>	<u>\$7.1</u>	<u>\$4.4</u>	<u>\$8.6</u>	<u>\$427.8</u>	<u>100%</u>
Additions to Property and Equipment	<u>\$13.8</u>	<u>\$6.7</u>	<u>\$24.4</u>	<u>\$15.6</u>	<u>\$73.8</u>	<u>\$163.0</u>	<u>\$54.9</u>	<u>\$7.1</u>	<u>\$2.5</u>	<u>\$4.4</u>	<u>\$366.2</u>	

Despite our projection that capital access will not be substantially affected by the shift to successful efforts, we suspect that the behavior of the independents will be affected somewhat in the early years of implementation of uniform successful efforts. As an example, if a small publicly held independent drills an unusual number of expensive dry holes in the first half of the year, under successful efforts he might alter his drilling program for the balance of the year to primarily low risk wells. The effect would not likely be a reduction in total drilling expenditures but rather a reduction in higher risk wildcats. Whether or not this possible effect would reduce the amount of reserves found by independents is not at all clear. In fact, the statistics in Section IV suggest that the spending patterns of the independents favor less risky wells on the average than the majors, as well as less expensive wells.

A more complete understanding of possible behavioral changes could be obtained through direct interviews with a representative sample of independents. On average, we suspect that since all of the companies to which an independent would be compared would also be on successful efforts, the market would not react

severely to earnings fluctuations. In fact, many successful efforts companies would disclose their dry hole costs as an obvious line item to encourage analysts and investors to review earnings or cash flow "before dry hole expenses." Management would probably make specific mention of unusually high dry hole costs in the management review sections of their quarterly and annual reports.

Effects on Regulated Companies

One group of exploration companies are neither 'independent' or 'major,' but are the subsidiaries of regulated gas transmission and distribution companies. The regulated price for natural gas resulted in the phenomena that while consumer demand was increasing exploration was being curtailed. In order to continue providing gas to their customer, or at times to improve rates of return, many gas distribution companies undertook exploration and development activities. A number of other gas production and distribution companies are currently contemplating entering the exploration business in an effort to secure their own supplies of natural gas. The Federal Power Commission (order number 440-1971) and many state public utility commissions presently require "full-cost" accounting by the regulated utilities for rate-making purposes. The Exposure Draft would provide relief for regulated companies, but not for their unregulated subsidiaries.

To the extent that successful efforts understates earnings and makes gas exploration appear less attractive to investors, the requirement for successful efforts accounting may retard these companies from raising the capital required for expanding exploration efforts. It may also impact the utilities who are now planning to enter the exploration business.

An example of the aggressive role in exploration pursued by some gas transmission companies is Transco, based in Houston. Transco invested a total of \$88 million in onshore and offshore wells in 1976, and expanded its budget to \$144 million in 1977.

The regulated companies in general have a wide variety of capital sources and more frequently tap the equity markets. These companies have often expressed the fear that a shift to successful efforts accounting might lead to reduced earnings, which could cause reduced bond ratings and possible reduced stock prices.

Our preliminary analysis suggests that while the shift could cause negative effects on capital access short term, the markets would adapt to the accounting change quite quickly. We would suggest further study in this area, however, due to the complex nature of accounting for and financing regulated companies (e.g., rate base considerations).

Part of a further analysis would include a review of the behavioral impacts. Our experience indicates that regulated companies are very earnings sensitive and that management might adapt its exploration program to minimize earnings fluctuations, or might not enter the exploration business at all.

Effects on Diversified and Industrial Companies

Another category of companies for further study are the diversified companies. A number of diversified companies are concerned that the accounting change will hurt their earnings and consequently their stock price, reasoning that they will be compared with other diversified companies and not with oil and gas companies. There are also a number of industrial companies who have entered the oil and gas business on a partnership base with an established operator, hoping to produce captive sources of energy for their manufacturing plants. There have been a number of such companies recently entering the oil and gas industry. Some of these might be deterred by the accounting change.

While we generally feel that the basic economies of the oil and gas business or other considerations (such as the need for a dependable energy

source) will be the primary decision factor for such companies, some will be motivated by accounting effects. We suggest further examination of this area as well.

VI. INITIAL CONCLUSIONS

The analysis of possible effects of a shift to uniform successful efforts accounting discussed in Section V suggests the following initial conclusions:

Access to External Capital

The primary impact will be on the independents, particularly the smaller companies which, typically, are poorer credit risks. The independents spent approximately \$11.7 billion in 1975 for exploration and development activities. Approximate sources of these funds were as follows:

- 1) Internally generated cash flow (35%)
- 2) Borrowings (45%)
 - A. Short-term bank borrowings (10%)
 - B. Long-term institutional borrowings (30%)
 1. Production loans
 2. Unsecured corporate borrowings
 - C. Public debt offerings (5%)
- 3) Equity funds (20%)
 - A. Investor funding (18%)
 1. Partnerships (tax shelter oriented)
 2. Industrial users
 - B. Public stock offerings (2%)

The shift to successful efforts will not directly affect internally generated cash flow or investor funding, thus borrowings represent the only

source of funds which could be significantly impacted. However, a preliminary survey of lenders indicates that many rely heavily on reserve value. Thus, access to this source of funds may not be significantly jeopardized by decreased reported earnings.

Access to capital for regulated companies would probably not be significantly affected by the accounting change. However, their cost of capital might increase due to decreased rating.

Competition

The independents' access to capital markets might be affected and new entrants to the oil and gas industry might be discouraged. Thus, competition in the industry may be adversely affected by the accounting change.

Exploration

The following calculation gives a crude order of magnitude to the potential decrease in exploration expenditures which might result from a shift to uniform successful efforts accounting.

1) Share of exploration and development expenditures spent by independents	41%
2) Share of independents on full cost	85%
3) Share of exploration funds spent by independents on full cost (1 x 2)	35%
4) Share of independents sources of capital subject to impact from accounting change	30%
5) Share of exploration funds spent by independents on full cost raised from sources subject to impact from accounting change (3 x 4)	10%

6) Total estimated exploration and development expenditures in 1977 \$ 14 Billion

7) Total estimated exploration and development expenditures in 1977 subject to impact from accounting change (5 x 6) \$1.4 Billion

8) Approximate diminished exploration funds as a result of a decrease in independents' access to capital because of accounting change, assuming no impact on development expenditures (\$7 Billion)

<u>Reduction in Capital</u>	<u>Reduction in Exploration Spending</u>
10%	\$140 Million
20%	\$280 Million
50%	\$700 Million

These estimates are very crude. We propose to refine them and the other initial conclusions presented herein. This proposed work is described in Section VII.

VII. PROPOSED INTERVIEWS AND ANALYSIS

A more accurate, sophisticated analysis can be performed with relative ease. It will be necessary to calculate with more precision the following factors:

- 1) The breakdown between successful efforts and full cost among the independents.
- 2) The breakdown of sources of capital among the full cost independents.
- 3) The extent that access to the external capital markets would be impacted by a decrease in reported earnings.
- 4) The impact on competition of a decrease in access to externally raised capital.
- 5) The impact on exploratory drilling undertaken in the United States of decreased access to external sources of capital or of behavioral changes for the independent full costers.

The first two issues can be addressed via published data; for an answer to the third issue, it will be necessary to hold discussions with the following classes of lenders:

- 1) insurance companies
- 2) commercial banks
- 3) commercial finance companies

To get a better handle on item four, we propose to interview a representative sample of companies in each category delineated in Section III in order to determine their likely behavioral response to changes in accounting methods.

With all this data in hand, it should be relatively easy to develop an impact profile of the future exploration behavior of the full cost companies.

VIII. POLICY ALTERNATIVES FOR DOE

As a result of the analysis performed, DOE will be in a better position to select among the following alternatives:

- 1) Adopt the SEC/FASB recommended successful efforts accounting rule with no further discussion.
- 2) Encourage further public hearing and comments on the exposure draft.
- 3) Perform further analysis in an effort to quantify impact on access to capital for the independents.
- 4) Support uniform adoption of full cost accounting method for DOE energy data base.
- 5) Support a phased change from full cost to successful efforts to spread any impacts over a long time frame.
- 6) Support a dual reporting system whereby majors use successful efforts and everyone else uses full cost.
- 7) Support a dual reporting system whereby majors use successful efforts and everyone else uses full cost, but notes how much of their capitalization includes dry hole expenditures.
- 8) Support (6) or (7) but define majors to include all integrated companies, i.e., the 25 reporting first to DOE.

But even without further analysis it appears prudent to request public hearings on the Exposure Draft and to encourage those companies presently using full cost accounting to develop their own evaluations of the impact of successful efforts on their access to capital.