



Federal Accounting Standards Advisory Board

December 3, 2004

Memorandum

To: Members of the Board

From: Rick Wascak, Assistant Director

Through: Wendy M. Comes, Executive Director

Subj: Natural Resources – Reporting on Oil and Gas Resources¹ (Tab G)

Enclosed is a document presented in the form of a Basis for Conclusions. Specific issues raised by Board members at the August meeting are addressed in the BfC. The objectives for the December 2004 Board meeting are:

1. Discuss the BfC document to determine if the initial material in it responds to identified issues.
2. Obtain general agreement on the BfC.
3. Discuss staff's "next steps" to develop an Exposure Draft (ED).

At the August 2004 Board meeting, Board members raised many issues relating to oil and gas resources, which they wanted explored. The Executive Director commented that she would prioritize the various issues for discussion at subsequent meetings. In addition, the Board made two specific decisions at the meeting. The two decisions made at the August 2004 meeting are presented below, followed by the list of issues in prioritized order.

Specific Board decisions made at the meeting are presented below:

1. Change title of proposed standards to "Accounting for Federal Oil and Gas Reserves."
2. Use the wellhead price in place of market value to calculate the current value for royalties.

The list of issues in prioritized order to be researched is provided below:

1. Prepare a visual that identifies the universe of federal oil and gas, names each component of the universe, and identifies available information relating to each component. Events triggering accounting activity will be identified for each component under both current and proposed accounting standards.

¹ The staff prepares Board meeting materials to facilitate discussion of issues at the Board meeting. This material is presented for discussion purposes only; it is not intended to reflect authoritative views of the FASAB or its staff. Official positions of the FASAB are determined only after extensive due process and deliberations.

2. Provide conceptual foundations for the assertion that proved oil and gas reserves are assets meeting the recognition criteria in the Basis for Conclusions.
3. Explain in the Basis for Conclusions why the Board believes the estimated quantity of proved reserves is relevant and reliable.
4. In the Basis for Conclusions, identify the measurement attribute proposed for proved oil and gas reserves. If the measurement attribute is "fair value" – assess the Board's use of fair value methods against the framework proposed by FASB in its recent ED. Explain why this measurement attribute was selected over other attributes.
5. Provide all definitions in one section of the document.
6. Prepare material based on historical information showing what the changes were from year to year for the estimated quantity of proved reserves.
7. Explain how the estimated cash inflow for royalties are valued, and why, in the Basis for Conclusions.
8. Explain in the Basis for Conclusion how royalty rates are set.
9. Perform research on non-competitive bid leases to determine if there is any type of subsidized royalty rate provided to producers.
10. Proposed disclosures for Federal oil and gas resources.
11. Agency-wide standards.
12. Provide additional information on bonus and rent collections and explain what the custodial activity arrangement was for them and where and how they were distributed.
13. Change the "Overview" section of the proposed standards.
14. Hold Round Table (RT) discussion

The following issues are addressed BfC. The section of the BfC where the issue is addressed is referenced for each issue.

1. Issue 1. Prepare a visual that identifies the universe of federal oil and gas, names each component of the universe, and identifies available information relating to each component. Events triggering accounting activity will be identified for each component under both current and proposed accounting standards.

Information addressing the components is presented in the **Overview of Federal Oil and Gas Resources** section beginning on page 2. Information addressing accounting activity is presented in the Existing and Proposed Accounting Entries for Oil and Gas section beginning on page 22.

2. Issue 2. Provide conceptual foundations for the assertion that proved oil and gas reserves are assets meeting the recognition criteria in the Basis for Conclusions.

Information pertaining to this issue is presented in the Conceptual Aspects of Oil and Gas Resources as a Federal Asset section beginning on page 12.

3. Issue 4. In the Basis for Conclusions, identify the measurement attribute proposed for proved oil and gas reserves. If the measurement attribute is "fair value" – assess the Board's use of fair value methods against the framework proposed by FASB in its recent ED. Explain why this measurement attribute was selected over other attributes.

Issue 7. Explain how the estimated cash inflow for royalties are valued, and why, in the Basis for Conclusions.

Issue 8. Explain in the Basis for Conclusion how royalty rates are set.

Issue 9. Perform research on non-competitive bid leases to determine if there is any type of subsidized royalty rate provided to producers.

Information pertaining to these 4 issues is presented in the **Measurement of the Federal Asset** section beginning on page 18.

4. Issue 6. Prepare material based on historical information showing what the changes were from year to year for the estimated quantity of proved reserves.

Information pertaining to this issue is presented in Attachment 1 page 29.

If you have questions or comments before the meeting, please contact me at 202 512-7363 or wascakr@fasab.gov.

1 APPENDIX A: BASIS FOR CONCLUSIONS

- 2 1. This appendix summarizes some of the considerations deemed significant
3 by the Board in reaching the proposals in this Exposure Draft. It includes
4 the reasons for accepting certain approaches and rejecting others.
5 Individual members gave greater weight to some factors than to others.

6

7 **Background**

- 8 2. The project initially began with the formation of a task force to conduct
9 research. The task force produced a research report in June 2000 entitled
10 Accounting for the Natural Resources of the Federal Government. (See
11 <http://www.fasab.gov/reports.htm> to access the report.) In 2002, the Board
12 resumed active consideration of the issues raised by the task force after a
13 deferral to address other issues.
- 14 3. The Board members suggested that Staff initially address each type of
15 natural resource in phases, (i.e., separately and individually) and to begin
16 with developing accounting standards for natural resources. The Board was
17 interested in determining whether values, or some surrogate, for natural
18 resources could be capitalized and reported on the balance sheet. The
19 Board members believed that capitalizing natural resources would increase
20 accountability over them and improve the comprehensiveness and
21 consistency of federal financial statements. The Board decided to proceed
22 with developing standards for oil and gas resources first due to the
23 extensive literature available in other domains and the large amount of
24 monies collected for oil and gas royalties.
- 25 4. Initially, The Board explored options for forecasting the anticipated revenue
26 stream flowing to the Federal government from royalty collections based on
27 historical information. When the Board learned that estimated proved oil
28 and gas reserve quantities from lands under Federal jurisdiction were
29 accessible, it decided that capitalizing the current value of the estimated
30 Federal royalty share of proved oil and gas reserves was feasible. Under
31 current Federal regulations, the lessee has a "duty to market" the

1 government's royalty share of proved reserves. Although in most cases,
2 lessees pay their royalties in money rather than oil and gas, they tend to
3 think of the royalty system as meaning that a certain percentage of the oil
4 and gas product belongs to the government. Lessees refer to that product
5 as the government's royalty share. The Board, therefore, believes this term
6 should be used to refer to the asset to be capitalized on the balance sheet.

7 **Overview of Federal Oil and Gas Resources**

- 8 5. Before describing how the current value of the estimated Federal royalty
9 share of proved oil and gas reserves to be capitalized is calculated, this
10 section provides an overview of all of the components of Federal oil and gas
11 resources.
- 12 6. A Framework for Components of Federal Oil and Gas Resources illustration
13 (hereafter referred to as "framework"), which is presented on page 6,
14 identifies the universe of federal oil and gas resources. The framework
15 summarizes both the Accounting Standards and the Components of Federal
16 Oil and Gas Resources (hereafter referred to as "components"). Definitions
17 for the components are provided in the Glossary of this document on page
18 25.
- 19 7. The Accounting Standards consist of Current Accounting Standards and
20 Proposed Accounting standards. The framework explains current and
21 proposed accounting for each component of federal oil and gas resources.
22 The components are defined based on terminology used in the industry.
23 Information is available in varying degrees and varying reliability for each
24 component. The components are first separated into "undiscovered
25 resources" and "discovered resources." Generally, undiscovered resources
26 are not under lease, while discovered resources are under lease. These
27 terms and subcomponents are explained below.
- 28 8. Undiscovered Resources
- 29 9. The first major component of Federal oil and gas resources is undiscovered
30 resources. The undiscovered resources components and subcomponents
31 are:

- 1 1. undiscovered nonrecoverable resources
- 2 2. undiscovered recoverable resources
- 3 a. undiscovered conventionally recoverable resources
- 4 b. undiscovered economically recoverable resources
- 5 10. Each component and subcomponent can be further divided between
- 6 onshore and offshore resources. Onshore resources consist of resources
- 7 on Federal lands and in state waters. This division between on shore and
- 8 offshore resources is important operationally because the source and
- 9 quality of information varies. There is no information routinely available on
- 10 undiscovered nonrecoverable resources.
- 11 11. Information on the two subcomponents of undiscovered recoverable
- 12 resources is available for offshore oil and gas resources located on the
- 13 OCS. This information is based on National Assessments performed by
- 14 the Minerals Management Service (MMS) approximately every 5 years,
- 15 with updates on a yearly basis for certain geographic locations. The
- 16 assessment considers recent geophysical, geological, technological, and
- 17 economic information and uses a geologic play¹ analysis approach for
- 18 resource appraisal.
- 19 12. For the onshore portion of undiscovered recoverable resources, the U.S.
- 20 Geological Survey (USGS) formerly conducted National Assessments.
- 21 However, since 1995, the USGS has not conducted an overall update for
- 22 onshore and state waters, but has conducted assessment updates on a
- 23 basin or area level. The USGS included undiscovered recoverable
- 24 resources in its onshore and state waters assessments.
- 25 13. Under current accounting standards, there are no requirements to provide
- 26 or present information about the undiscovered resource components in the
- 27 financial statements. Under the draft accounting standards, information
- 28 about undiscovered conventionally recoverable resources and
- 29 undiscovered economically recoverable resources (such as that presented

1 in Table 1 and Table 2 on page 26) could be disclosed or required as
2 supplemental information pending the outcome of ongoing research into
3 the reliability of estimates.

4 14. Discovered Resources

5
6 15. The second major component of Federal oil and gas resources is
7 discovered resources. The discovered resources component is divided as
8 follows:

9 1. unproved reserves

- 10 a. unproved possible reserves
11 b. unproved probable reserves

12 2. proved reserves

- 13 c. proved undeveloped reserves
14 d. proved developed reserves
15 i. proved developed non-producing reserves
16 ii. proved developed producing reserves

17 3. production

18 16. Quantitative information in relation to proved developed reserves, including
19 new discoveries, production, adjustments, etc., is submitted to the Energy
20 Information Agency (EIA), Department of Energy, by oil and gas well
21 operators once a year. The due date for operators to submit the
22 information is April 15 for activities from the preceding calendar year. In
23 addition, the MMS collects, distributes, and reports collections for bonus
24 bid, rent or royalties for proved undeveloped reserves and proved
25 developed reserves.

26 17. Under current accounting standards, the bonus bid, rent (paid on the lease
27 until oil and gas production begins), and royalty collections (paid on
28 production) are recognized as a financing source on the Statement of
29 Operations and Changes in Net Position in the consolidated financial
30 statements of the US government (CFR). [Note that this activity is
31 accounted for as a custodial activity (i.e., an amount collected for others)]

¹ A play is a group of pools that share a common history of hydrocarbon generation, migration, reservoir development, and entrapment. A pool is a discovered or undiscovered accumulation of hydrocarbons, typically within a single stratigraphic interval.

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by MMS-the collecting entity. The collections and the distribution of the collections are reported on MMS's custodial statement. Entities receiving the distribution of collections recognize the receipt of the collection as a financing source in its respective statement of changes in net position. For simplicity, staff has omitted the component entity treatment so that we can focus on the ultimate effect of the current and proposed accounting standards on the US Government. Staff will provide a comprehensive illustration including component entity accounting at a later meeting.]

18. Under the proposed accounting standards, the estimated Federal royalty share of proved developed reserves would be recognized on the balance sheet and royalty collections would be recognized equally as revenue and expense on the Statement of Net Cost. Changes in the asset amount each period would be reported as a gain or loss on the Statement of Operations and Changes in Net Position of the CFR. Also, information on the consumption, remaining estimated quantity of proved reserves, and the future outlook for proved reserves could be disclosed or required as supplemental information.
19. In regard to the production, there are no current requirements to provide or present information about the production of oil and gas in the financial statements. However, under the proposed accounting standards, historical information on proved reserves including the production of reserves, could be disclosed. An example is presented in **Attachment 1** on page 29.
20. Illustration 1, entitled **Accounting Framework for Components of Federal Oil and Gas Resources**, is presented on the following page. The boxes in the illustration are shaded as follows:

No quantity information	
Periodic but incomplete quantity information (appr. 5 years)	
Quantity information provided by EIA	

Illustration 1 Framework for Components of Federal Oil and Gas Resources

Components of Federal Oil and Gas Resources

Accounting Standards	Undiscovered Resources				Discovered Resources			Production
	Undiscovered Non-Recoverable Resources	Undiscovered Recoverable Resources	Undiscovered Resources		Proved Resources			
Current Accounting Standards	Undiscovered Conventionally Recoverable Resources	Undiscovered Economically Recoverable Resources	Unproved Possible Reserves	Unproved Probable Reserves	Proved Undeveloped Reserves	Proved Developed Reserves	Proved Developed Non-Producing Reserves	Proved Developed Producing Reserves
Proposed Accounting Standards	Provide Disclosure or RSI Information – Undiscovered Conventionally and Undiscovered Economically Recoverable Resources		Account for Bonus Bid and Rent Collections as Financing Source on the CFR’s Statement of Operations and Changes in Net Position			<ul style="list-style-type: none"> Recognize Federal Royalty Share on BS² Recognize Royalty Collections as Revenue and Expense on SNC³ Provide Disclosure Information – Quantitative Recognize Gains /Losses on SOCPNP⁴ 		Provide RSI/ Disclosure Information – Quantitative and Financial

² Balance Sheet

³ Statement of Net Cost

⁴ Statement of Operations and Changes in Net Position

Federal Entities Involved in Components of Federal Oil and Gas Resources

21. There are three Federal government entities involved in the proved oil and gas reserves activities. They are: 1.) Bureau of Land Management (BLM), Department of Interior; 2.) Minerals Management Service (MMS), Department of Interior; and 3.) Energy Information Administration (EIA), Department of Energy. Each entity's involvement is described in the following overview paragraphs.

22. **BLM Overview**. The Bureau of Land Management (BLM), an agency of the Department of the Interior, manages 262 million acres of mostly Western land and 700 million acres of subsurface mineral estate nationwide. These lands extend across rangelands, forests, high mountains, arctic tundra, and deserts. The BLM manages these lands for multiple-use and on a sustained-yield basis with its 5-year Strategic Plan and Annual Performance Plan as the foundation. It does not have a 5-year plan for oil and natural gas lease sales.

23. The BLM administers some of the most ecologically and culturally diverse and scientifically important lands in Federal ownership. The agency's management responsibilities include:

- recreation opportunities, including interpretation and other visitor education activities
- commercial activities, including energy and mineral development and timber sales
- wild free-roaming horses and burros
- paleontological, archaeological, and historical sites
- fish and wildlife habitat
- transportation systems, including roads, trails, and bridges
- wilderness areas and wild and scenic rivers
- rare and vulnerable plant communities
- public land survey system

24. Under its "commercial activities" management responsibility, the BLM is responsible for leasing oil and gas resources on all Federally owned lands, including those lands managed by other Federal agencies. BLM is responsible for review and approval of permits and licenses to explore, develop, and produce oil and gas resources on both Federal and Indian

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1 lands. BLM is also responsible for inspection of oil and gas wells and other
 2 development operations to ensure through enforcement authorities that
 3 lessees and operators comply with lease requirements and regulations.
 4 Although the Bureau of Indian Affairs issues leases on Indian lands, BLM
 5 handles the operational approvals and supervision of operations on these
 6 lands.

7 25. **MMS Overview**. The mission of MMS is to manage the mineral resources
 8 on the Nation's Outer Continental Shelf (OCS) in an environmentally sound
 9 and safe manner; and, to collect, verify, and distribute, in a timely fashion,
 10 mineral revenues generated from Federal (onshore and offshore) and
 11 Indian lands. These activities are performed under the following 2
 12 programs:

13 • *Offshore Minerals Management*.—This program provides for (1)
 14 performance of environmental assessments to ensure compliance with the
 15 National Environmental Policy Act (NEPA); (2) conduct of lease offerings;
 16 (3) selection and evaluation of tracts offered for lease by competitive
 17 bidding; (4) assurance that the Federal Government receives fair market
 18 value for leased lands; and (5) regulation and supervision of energy and
 19 mineral exploration, development, and production operations on the OCS
 20 lands.

21 • *Minerals Revenue Management*.—This program provides for the
 22 collection and distribution of royalties, rents, and bonuses due the Federal
 23 Government and Indian lessors from minerals produced on Federal
 24 onshore, OCS, and Indian lands in accordance with various laws.

25 26. EIA Overview. The primary focus of EIA's reserves program is providing
 26 accurate annual estimates of U.S. proved reserves of crude oil⁵, dry
 27 natural gas⁶, and natural gas liquids⁷. These estimates are essential to

⁵ Crude oil is a mixture of hydrocarbons that exists in the liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Crude oil may also include: 1) small amounts of hydrocarbons that exist in the gaseous phase in natural underground reservoirs but are liquid at atmospheric pressure after being recovered from oil well gas in lease separators, and that subsequently are commingled with the crude oil stream without being separately measured; and, 2) small amounts of nonhydrocarbons produced with the oil.

⁶ Dry natural gas is the actual or calculated volumes of natural gas which remain after: 1) the liquefiable hydrocarbon portion has been removed from the gas stream (i.e., gas after lease, field, and/or plant separation); or, any volumes

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1 the development, implementation, and evaluation of national energy policy
2 and legislation. In the past, the Government and the public relied upon
3 industry estimates of proved reserves. However, the industry ceased
4 publication of reserve estimates after its 1979 report.

5 27. In response to a recognized need for credible annual proved reserves
6 estimates, Congress, in 1977, required the Department of Energy to
7 prepare such estimates. To meet this requirement, the EIA developed a
8 program that established a unified, verifiable, comprehensive, and
9 continuing annual statistical series for proved reserves of crude oil and
10 natural gas. It was expanded to include proved reserves of natural gas
11 liquids for the 1979 and subsequent reports.

12 28. The Energy Information Administration (EIA) makes energy forecasts to
13 help government, industry, and the public understand the direction and
14 trends implied by current events and decisions. Most of EIA's forecasts
15 focus on energy supply, demand, and price projections for the United
16 States and for the world. EIA has two general projection periods -- the short
17 term (next six-to-eight quarters) and the mid-term (approximately the next
18 20 years). The projections integrate all fuel types, using the British thermal
19 unit (Btu) as a common unit of measure, for a comprehensive overview
20 balancing energy supply with energy demand.

21 29. EIA's short-term forecasts are updated monthly. Forecasts are released
22 each month on the Internet
23 (<http://www.eia.doe.gov/emeu/steo/pub/contents.html>) and quarterly
24 (January, April, July, and October) in a hard-copy report titled the Short-
25 Term Energy Outlook (STEO). The short-term projections primarily focus
26 on the United States' demand, supply, and prices for petroleum, natural
27 gas, coal, electricity, and renewable energy and the world's demand,
28 supply, and prices for petroleum.

of nonhydrocarbons gases have been removed where they occur in sufficient quantity to render the gas unmarketable.

⁷ Natural gas liquids are those hydrocarbons in natural gas, which are separated from the gas through the processes of absorption, condensation, adsorption, or other methods in gas processing or cycling plants. Generally such liquids consist of propane and heavier hydrocarbons and are commonly referred to as condensate, natural gasoline, or liquefied petroleum gases.

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- 1 30. The primary mechanism for EIA's short-term forecasts is the Short-Term
2 Integrated Forecasting System (STIFS), a personal computer based model.
3 The STIFS model is principally affected by macroeconomic variables, world
4 oil price assumptions, and weather assumptions. Copies of the model are
5 available on the Internet site (see above). Users can download the model
6 and enter their own assumptions to produce alternative results.
- 7 31. EIA's mid-term forecasts (national and international) are updated annually.
8 Both forecasts are released on the Internet (
9 <http://www.eia.doe.gov/oiaf/aeo/> and <http://www.eia.doe.gov/oiaf/ieo/>) and
10 in hard copy reports titled the Annual Energy Outlook (AEO) and the
11 International Energy Outlook (IEO). The mid-term projections primarily
12 focus on energy market supply, demand, and prices and related economic
13 and environmental issues.
- 14 32. EIA's domestic forecasting capability relies primarily on the National Energy
15 Modeling System (NEMS). NEMS contains computer modules that are
16 designed to approximate the interactions of energy markets and provide
17 insights into future changes in supply, demand, economic conditions, etc.
18 NEMS is used for forecasting and also to analyze economic policies,
19 technological changes, changes in legislation, and other energy topics.
20 NEMS operates on three RS/6000 workstations and its documentation is
21 available to the public. EIA's international forecasting capability makes use
22 of modules of NEMS as well as the World Energy Projection System and
23 other special purpose models. Documentation for these models is available
24 to the public. A directory of all EIA models is located at
25 <http://www.eia.doe.gov/bookshelf/models2002/index.html>.
- 26 33. The U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves Annual
27 Report may be reviewed by going to
28 http://www.eia.doe.gov/oil_gas/petroleum/data_publications/pet_data_publications.html
29 and scrolling down to the Annual publications.
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1 Conceptual Aspects of Oil and Gas Resources as a Federal Asset**2 34. Definition of Asset**

3 35. The tentative FASAB definition of 'asset' is: "Assets are resources
4 controlled by a particular entity that could provide economic benefits or
5 services in the future". Two essential characteristics that a resource must
6 have to be an 'asset' are (1) it could provide economic benefits or services
7 in the future and (2) the entity must at the present time control access to
8 the resource such that the entity can obtain the resulting economic benefits
9 or services for itself and deny or regulate the access of others. Assets may
10 vary in specific form and nature; e.g., they may be tangible/intangible,
11 monetary/non-monetary, current/non-current, more certain benefits/less
12 certain benefits, etc. This definition differs from the FASB definition in that
13 (a) it explicitly sets a very low probability threshold (viz., "could provide"),
14 (b) it focuses on the 'resource' rather than the 'future economic benefits',
15 and (c) it omits the 'as a result of past events' because the FASAB
16 concluded that feature was captured by the requirement that the resource
17 be controlled by the entity.

18 36. Recognition of Assets

19 37. As FASAB is still at the asset 'definition' stage and hasn't formally adopted
20 'recognition' criteria, and because much of what FASAB has adopted in the
21 asset definition stage has been based in part on FASB, the Board invokes
22 the FASB 'recognition' concepts. According to paragraph 63 of FASB
23 Concepts Statement 5 ("Recognition"):

24 "An item and information about it should meet four fundamental recognition
25 criteria to be recognized and should be recognized when the criteria are
26 met, subject to a cost-benefit constraint and a materiality threshold. Those
27 criteria are:

28 *Definitions*—The item meets the definition of an element of financial
29 statements.

30 *Measurability*—It has a relevant attribute measurable with sufficient
31 reliability.

32 *Relevance*—The information about it is capable of making a difference in
33 user decisions.

34 *Reliability*—The information is representationally faithful, verifiable, and
35 neutral."
36

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- 1 38. Given a FASAB definition of ‘asset’ and these criteria for ‘recognition’, the
2 next step the Board took was to consider ‘measurability’. In Concepts
3 Statement #5, FASB acknowledges that current GAAP are based on a
4 variety of measurement attributes and that it expects that practice to
5 continue. Although many of the assets recognized under FASAB principles
6 are measured using some form of historical cost, FASAB also currently
7 follows a multi-attribute measurement approach; e.g, net realizable value
8 for some receivables, present value for capital leases, etc. FASAB will
9 continue to follow a multi-attribute approach and will adopt something
10 similar to “a relevant attribute measurable with sufficient reliability” as a
11 criterion for measurability.
- 12 39. Oil and Gas Resources as a Federal Asset
- 13 40. First, the Board established which oil and gas resources were being
14 considered. Illustration 1, entitled **Framework for Components of**
15 **Federal Oil and Gas Resources**, provides the context of oil and gas
16 resources that were considered. The two major components are
17 “undiscovered resources” and “discovered resources.” Given the FASAB
18 draft definition of assets (“Assets are resources controlled by a particular
19 entity that could provide economic benefits or services in the future”), it
20 appeared to the Board that all of the oil and gas resources beyond the
21 “undiscovered” category fit the definition of asset. The resources are
22 controlled by the federal government and could produce future benefits or
23 services.⁸
- 24 41. Oil and Gas to be Recognized as a Federal Asset
- 25 42. Given that discovered oil and gas resources controlled by the federal
26 appear to meet the definition of “asset”, the Board’s next step was to
27 decide whether the oil and gas resources “asset” should be recognized on
28 a federal entity balance sheet. In order to pursue the ‘recognition’ criteria,
29 the Board believed it was useful to first consider the nature of the future
30 economic benefits or services embodied in the oil and gas resources from

⁸ Note that the FASAB intentionally set a very low probability hurdle in its definition of ‘asset’; thus, the ‘control’ aspect of the definition may be a more binding constraint in many circumstances.

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1 the federal point of view. The Board believed the key would appear to be
2 the purpose for which the oil and gas resources are maintained. Among
3 the reasons could be: (a) to provide a near-term source of domestic
4 energy, (b) to provide a domestic source of oil in the future and reduce the
5 Nation's dependency on foreign energy sources, and (c) to generate
6 revenues for the federal government from oil and gas resources, which
7 represent one of the government's greatest sources of non-tax income. As
8 noted above, the core criterion for recognition is that the resource: "...has
9 a relevant attribute measurable with sufficient reliability".

10 43. Quantities of oil and gas resources are not reliably measurable until the oil
11 and gas reach the 'proved reserves' category. Thus, all oil and gas
12 resources not yet in the 'proved reserves' category, that is, unproved
13 resources and proved undeveloped reserves as noted in the framework
14 illustration, would not be eligible for recognition on the federal balance
15 sheet.

16 44. Concerning the proved developed oil and gas reserves available for near-
17 term development, the Board believes that both the quantity and the
18 estimated Federal royalty share would be relevant. Thus, in this second
19 case, since the quantity and the value of the estimated Federal royalty
20 share can be reliably measured, the proved oil and gas reserves would be
21 recognized on the balance sheet.

Measurement of the Federal Asset

22
23 45. Concerning the dollar amount to be recognized for the estimated Federal
24 royalty share of proved reserves, FASAB reviewed various measurement
25 attributes⁹, including the following:
26 Historical cost (historical proceeds) – The amount of cash, or its equivalent,
27 paid to acquire an asset, commonly adjusted after acquisition for
28 amortization or other allocations. (SFAC 5, Par 67.a.)
29 Fair value – The price at which an asset or liability could be exchanged in a
30 current transaction between knowledgeable, unrelated willing parties.

⁹ Measurement attribute – An attribute that can be quantified in monetary units with sufficient reliability.
(Adapted from SFAC 5, Par65)

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1 (Exposure Draft of proposed SFAS: Fair Value Measurements, June 23,
2 2004)

3 Current market value – The amount of cash, or its equivalent, that could be
4 obtained by selling an asset in orderly liquidation. (SFAC 5, Par 67.c.)

5 Net realizable (settlement) value – The nondiscounted amount of cash, or
6 its equivalent, into which an asset is expected to be converted in due
7 course of business less direct costs, if any, necessary to make that
8 conversion. (SFAC 5, Par 67.d.)

9 Present (or discounted) value of future cash flows – The present or
10 discounted value of future cash inflows into which an asset is expected to
11 be converted in due course of business less present values of cash
12 outflows necessary to obtain those inflows. (SFAC 5, Par 67.e.)

13 46. There is no ‘historical exchange price’ for the oil and gas reserves
14 controlled by the federal government. Thus, ‘historical cost’ was not a
15 feasible option for valuing the oil and gas reserves. In addition, since the
16 reserves in question are being held for near-term development and federal
17 revenue, their historical costs would seem to be irrelevant. In this setting,
18 an estimate of the present (or discounted cash) value of the estimated
19 Federal royalty share appeared to be most appropriate. However, the
20 timing of future inflows is not reliably estimable. Thus, the estimated
21 present value would be too unreliable for valuing oil and gas reserves on
22 the balance sheet.

23 47. The net realizable value attribute poses similar measurement challenges.
24 The oil and gas royalties cannot be obtained immediately. Thus, estimating
25 net realizable value would pose many of the same as present value
26 estimation. Also, a current market value cannot be used because using it
27 would cause the estimated Federal royalty share to be overstated. In
28 calculating royalties, regulations allow lessees to deduct certain costs from
29 their sales proceeds for moving oil and gas beyond the lease site (or
30 central accumulation point) and for processing before determining their
31 payments. The lessees are in effect calculating federal royalties on the
32 basis of the proceeds they would have received had the sale taken place

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1 back at the lease site (well head or central accumulation point) and before
2 processing. Thus a value other than current market value must be used.

3 48. Based on the reviews, the Board determined that none of the measurement
4 attributes currently used in practice would appropriately measure the
5 current value of the estimated Federal royalty share for proved oil and gas
6 reserves. The Board believes that the most relevant and sufficiently reliable
7 measurement would be obtained by multiplying the estimated quantity of
8 proved oil and gas reserves on a field-by-field basis by the average
9 wellhead price and the respective royalty rate. This calculation would
10 provide the estimated Federal royalty share of proved oil and gas reserves
11 on lands under the control of the Federal government using the following
12 formula:

$$\text{(Estimated Quantity of Proved Reserves X Average Wellhead Price) X Royalty Rate = Estimated Federal Royalty Share}$$

13
14
15
16
17 3. A description of each element in the formula is provided in the following
18 paragraphs.

19 4. **Quantity of Proved Reserves**. Based on the mission of the EIA, it is
20 proposed that the EIA estimates of proved oil and gas reserves on lands
21 owned or under the control of the Federal government, on a field-by-field¹⁰
22 basis, be used to estimate the current value of the estimated Federal
23 royalty share of proved oil and gas reserves to be capitalized. The EIA
24 names a field by geographic location. The field may have many reservoirs
25 at various depths. Each reservoir is an isolated pressure system. After the
26 oil and gas is extracted from one reservoir, the company moves on to the
27 next reservoir. So, while the EIA requires operators to submit a report
28 about proved reserves on a field-by-field basis, the operators almost
29 always do their estimates at the reservoir level and, for the EIA's
30 convenience, summarize them to a field level.

¹⁰ Field: An area consisting of a single reservoir or multiple reservoirs all grouped on, or related to, the same individual geological structural feature and/or stratigraphic condition. There may be two or more reservoirs in a field that are separated vertically by intervening impervious strata or laterally by local geologic barriers, or by both. The area may include one lease, a portion of a lease, or a group of leases with one or more wells that have been approved as producible.

APPENDIX A: BASIS FOR CONCLUSIONS

- 1 5. The EIA defines proved reserves as those volumes of oil and gas that
2 geological and engineering data demonstrate with reasonable certainty to
3 be recoverable in future years from known reservoirs under existing
4 economic and operating conditions. Proved reserves, however, are not
5 things that can be counted; nor, are they direct measurements. They are
6 estimates. Proved oil reserves are estimated in thousands of barrels at 60
7 degrees Fahrenheit. Proved gas reserves are estimated in millions of
8 Cubic Feet (MMCF) at 14.73 PSIA and 60 degrees Fahrenheit . For
9 purposes of this standard, proved “natural gas liquids” reserves are
10 included in the proved oil reserves.
- 11 6. EIA’s proved reserves estimates are based on data filed by: 1) large,
12 intermediate, and a select group of small operators of oil and gas wells;
13 and, 2) operators of all natural gas processing plants. Of the top 600
14 operators, the EIA requires them to submit a direct report of the proved
15 reserves they carry for each field as of December 31. The reports are
16 required to be submitted by April 15 of the year following the December 31
17 cut-off date. The EIA checks and edits all of the reports at the field level
18 and that number would exceed 20,000 operator field reports. On all the
19 checks and edit steps, the EIA relies on its own engineering staff. In
20 addition, the EIA staff independently checks about 20 fields a year. This
21 can be described as an audit procedure performed by the EIA staff. The
22 fields are selected either because they are new or there is something that
23 might attract attention to the EIA about the field.
- 24 7. Estimated proved reserves are calculated in the following manner
25 (definitions for the terms presented below are contained in **Attachment 2**
26 of this paper on page 30):
- 27 Published Proved Reserves at End of Previous Report Year
28 + Adjustments
29 + Revision Increase
30 -- Revision Decreases
31 -- Sales
32 + Acquisitions
33 + Extensions
34 + New Field Discoveries
35 + New Reservoir Discoveries in Old Fields
36 -- Report Year Production

APPENDIX A: BASIS FOR CONCLUSIONS

- 1 = Published Proved Reserves at End of Report Year
- 2 8. The published reserves estimates include an additional term, adjustments,
3 calculated by the EIA, which preserves an exact annual reserves balance.
4 Adjustments are the annual changes in the published reserve estimates
5 that cannot be attributed to the estimates for other reserve change
6 categories. They result from the survey and statistical estimation methods
7 employed. For example, variations caused by changes in the operator
8 frame, different random samples, different timing of reporting, incorrectly
9 reported data, or imputations for missing or unreported reserve changes
10 can contribute to adjustment.
- 11 9. **Average Wellhead Price**. Wellhead price is the value given to oil and gas
12 at the mouth of the well; which is the sales price to the initial purchaser (the
13 sales price is not net of any additional costs). The a average well price is
14 the median price paid at the wellhead, taking into account different pricing
15 locations throughout the U.S. and all grades of oil and gas. (To be
16 expanded)
- 17 10. **Royalty Rate**. Royalty rate is a proportionate interest in the production
18 value of mineral deposits due the lessor from the lessee in accordance with
19 a lease agreement. In order to estimate the current market value of the
20 federal interest or share in proved reserves, the royalty rate for each field is
21 required.
- 22 11. For many years, the federal government made oil and gas resources
23 available to developers under the terms of the Mining Law of 1872, which
24 offered properties on a noncompetitive basis for flat, per-acre fees. The
25 current federal royalty program originated in the Minerals Leasing Act of
26 1920. Later, the Acquired Lands Act of 1947 extended the leasing
27 authority of the 1920 act over lands in the public domain to include areas
28 that the federal government acquired from states and individuals. The
29 Outer Continental Shelf Lands Act of 1953 revised the oil and gas leasing
30 program to make offshore leases available through competitive auctions.
31 The most recent major changes to the program came with the Federal
32 Onshore Oil and Gas Leasing Reform Act of 1987. The Congress passed

APPENDIX A: BASIS FOR CONCLUSIONS

1 the Federal Onshore Oil and Gas Leasing Reform Act of 1987 to require
2 that all public lands that are available for oil and gas leasing be offered first
3 by competitive leasing. Noncompetitive oil and gas leases may be issued
4 only after the lands have been offered competitively at an oral auction and
5 a bid was not received. Those basic laws establish procedures for leasing
6 public lands to developers, collecting compensation from the developers in
7 the form of initial payments and royalties on subsequent production, and
8 disbursing the receipts to various government accounts and to the states.

- 9 12. While the royalty rate is based on the lease agreement, the Secretary of
10 the Department of the Interior may, upon application from a lease holder,
11 reduce the royalty rate for good cause. Examples where rates have been
12 reduced have been operating conditions that caused costs to be very very
13 high and where a well is approaching the end of its production life.
14 Sometimes the reductions are for the remaining lease term, but more often
15 they are for some limited period of time. Presented below is a summary of
16 possible royalty rates:

17
18 Royalty Rate – Federal Onshore Leases

- 19 13. Oral auctions of all oil and gas leases are conducted by most BLM State
20 Offices not less than quarterly when parcels are available. A Notice of
21 Competitive Lease Sale, which lists lease parcels to be offered at the
22 auction, are published by each BLM State Office at least 45 days before
23 the auction is held. Lease stipulations applicable to each parcel are
24 specified in the Sale Notice. Lands Included In The Sale Notice Come
25 From Three Sources:

- 26 1. Existing leases that have expired, terminated, or been cancelled or
27 relinquished;
28 2. Parcels identified by informal expressions of interest from the public or
29 by the BLM for management reasons; or
30 3. Lands included in offers filed for noncompetitive leases.

- 31 14. Royalty rates are assigned in accordance with US Code Title 30,
32 paragraph 223, in the following manner:

- 33 1. Competitive Leases

APPENDIX A: BASIS FOR CONCLUSIONS

1 of the month falls on a weekend or holiday. In such cases, payments are
2 due on the first business day of the succeeding month or the business day
3 following the holiday.

4 18. Royalty rates are assigned in accordance with Us Code Title 43,
5 paragraph 1337, in the following manner:

6 1. Leases Not Under Deepwater Royalty Relief Act (DWRRA). Is set for
7 each sale area in its Final Notice of Sale. It may be:

- 8
- 9 • 12.5% for water depths greater than 400 meters or 16.67% for water
10 depths less than 400 meters.
 - 11 • Sliding scale (12.5%-65%) based on average of all production.
 - 12 • Step-scale which increases by steps as production increases.
 - 13 • Flat rate of 33.33%.
 - 14 • Net profit share, which require royalty only after certain expenditures
15 are recovered.
 - 16 • Royalty suspension (variable according to water depth for deep water
17 royalty relief and depth of well for shallow water deep gas royalty
18 relief) followed by royalty rates under 1. above.
- 19

20 2. Leases Under Deepwater Royalty Relief Act. Certain Gulf of Mexico
21 (GOM) deep water leases issued under DWRRA between 11/28/95
22 and 11/28/00 receive royalty suspensions based on the following
23 criteria:

- 24 • Leases in fields located in between 200 and 400 meters of water do
25 not pay royalties until 17.5 million barrels of oil equivalent (MMBOE)
26 have been produced from the field.
 - 27 • Leases in fields located in between 400 and 800 meters of water do
28 not pay royalties until 52.5 MMBOE have been produced from the
29 field.
 - 30 • Leases in fields located in deeper than 800 meters of water do not
31 pay royalties until 87.5 MMBOE have been produced from the field.
- 32

33 3. GOM deep water leases issued beginning in 2002 receive royalty
34 suspensions based on the following criteria:

- 35 • Leases in fields located in between 400 and 800 meters of water do
36 not pay royalties until 5 MMBOE have been produced from the field.
 - 37 • Leases in fields located in between 800 and 1,600 meters of water do
38 not pay royalties until 9 MMBOE have been produced from the field.
 - 39 • Leases in fields located in deeper than 1,600 meters of water do not
40 pay royalties until 12 MMBOE have been produced from the field.
- 41

42 49. **Estimated Federal Royalty Share.** Under current Federal regulations, the
43 lessee has a "duty to market" the government's royalty share of proved

APPENDIX A: BASIS FOR CONCLUSIONS

1 reserves. Although in most cases, lessees pay their royalties in money
2 rather than oil and gas, they tend to think of the royalty system as meaning
3 that a certain percentage of the oil and gas product belongs to the
4 government. Lessees refer to that product as the government's royalty
5 share. The value of the estimated Federal royalty share would be
6 measured by multiplying the estimated quantity of proved oil and gas
7 reserves on a field-by-field basis by the average wellhead price and the
8 respective royalty rate. The Board believes this term should be used to
9 refer to the asset to be capitalized on the balance sheet.

Existing and Proposed Accounting Entries for Oil and Gas

10
11
12 19. The following page presents the existing accounting entries for oil and
13 gas resources and the proposed accounting entries for oil and gas
14 resources. Entries are presented for the following accounting events:

- 15 1. Record initial estimated Federal royalty share;
- 16 2. Record bonus bid and rent collections;
- 17 3. Record royalty collections;
- 18 4. Record distribution of collections; and,
- 19 5. Record year-end adjustment to estimated Federal royalty share.
- 20
- 21

APPENDIX A: BASIS FOR CONCLUSIONS

1
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3
4
5**Illustration 2****Existing and Proposed
Accounting Entries for Oil and Gas**

Existing Entries	Proposed Entries
Record initial estimated Federal royalty share	
	Dr 184X Proved Oil and gas Reserves Cr Cumulative Results of Operation adjustment
Record bonus bid and rent collections	
Dr 1016 Fund Balance With Treasury Cr 590R Custodial Revenue	Dr 1016 Fund Balance With Treasury Cr 590R Custodial Revenue
Record royalty collections	
Dr 1016 Fund Balance With Treasury Cr 590R Custodial Revenue	Dr 101X Fund Balance With Treasury Cr 52XX Royalty Revenue, and Dr 67XX Depletion Expense Cr 184X Accumulated Depletion of Reserves

APPENDIX A: BASIS FOR CONCLUSIONS

1

Record distribution of collections	
Dr 5990	Dr 57XX Transfer Out
Cr 101X Fund Balance With Treasury	Cr 101X Fund Balance With Treasury
Federal entity recipients:	Federal entity recipients:
Is recognized as a financing source by the entity in determining its operating results and change in net position.	Dr 57XX Transfer In
	Cr 101X Fund Balance With Treasury
Record year-end adjustment to estimated Federal royalty share	
	Dr 184X Proved Oil and gas Reserves
	Cr 7010 Unrealized Gains

2

3

1 Definitions of Resource and Reserve Components

2
3 Provide below are definitions used by Federal entities to describe oil and gas resource and reserve
4 components. The source of these definitions is OCS Report MMS 2003-050 unless otherwise
5 noted.

6
7 Resources estimated from broad geologic knowledge or theory and existing outside of known fields or
8 known accumulations are undiscovered resources. Undiscovered resources can exist in untested
9 prospects on unleased acreage, or on undrilled lease acreage, or in known fields. In known fields,
10 undiscovered resources occur in undiscovered pools that are controlled by distinctly separate
11 structural features or stratigraphic conditions.

12
13 The Mineral Management Service (MMS) and the U.S. Geological Survey (USGS) formerly
14 conducted National Assessments of undiscovered oil and gas resources together. The former was
15 responsible for the offshore while the latter was responsible for on shore and state waters. The last
16 such assessment was in 1995. MMS updates their assessment approximately every 5 years in
17 accordance with the Department of Interior's 5-Year leasing program, with the last update in 2000.
18 Since 1995, the USGS has not conducted an overall update for on shore and state waters, but has
19 conducted assessments updates on a basin or area level.

20
21 The MMS assessment considers recent geophysical, geological, technological, and economic
22 information and uses a geologic play¹¹ analysis approach for resource appraisal.

23
24 The assessment provides estimates of undiscovered resources in two categories, which are
25 presented below:

- 26
27 1. Undiscovered, conventionally recoverable resources: The portion of the hydrocarbon
28 potential that is producible, using present or reasonably foreseeable technology, without any
29 consideration of economic feasibility. (An example of this information is presented in **Table 1**
30 on the following page)
- 31 2. Undiscovered, economically recoverable resources: The portion of the undiscovered
32 conventionally recoverable resources that is economically recoverable under imposed
33 economic scenarios. (An example of this information is presented in **Table 2** on the
34 following)

35
36
37

¹¹ A play is a group of pools that share a common history of hydrocarbon generation, migration, reservoir development, and entrapment. A pool is a discovered or undiscovered accumulation of hydrocarbons, typically within a single stratigraphic interval.

GLOSSARY

Table 1. Estimates of Undiscovered, Conventionally Recoverable Resources for the United States OCS¹

[Tcf = trillion cubic feet; Bbbl = billion barrels; BOE = barrels of oil equivalent]

Region	Oil (Bbbl)			Natural Gas (Tcf)			BOE (Bbbl)		
	Low	High	Mean	Low	High	Mean	Low	High	Mean
Alaska	16.5	35.4	24.9	55.0	226.8	122.6	28.0	71.9	46.7
Atlantic	1.9	2.8	2.3	23.9	34.1	28.0	6.2	8.9	7.3
Gulf of Mexico	33.4	44.9	37.1	180.4	207.2	192.7	65.5	81.8	71.4
Pacific	9.0	12.6	10.7	15.2	23.2	18.9	11.8	6.6	14.1
Total OCS2	63.7	88.3	75.0	292.1	468.6	362.2	117.8	166.9	139.5

¹ *Low and High* values refer to those estimates that occur at the 95th and 5th percentiles, respectively, on a cumulative distribution curve (see fig. 3). The *Mean* value is the arithmetic average of all values in the distribution. 5.62 MCF equates to 1.0 BOE.

² *Low and High* values are not additive to reach the *Total* values; only *Mean* values are additive.

Table 2. Mean Estimates of Undiscovered, Economically Recoverable Resources for the United States OCS (at \$18 and \$30 per barrel of oil and \$2.11 and \$3.52 per Tcf natural gas)

[Tcf = trillion cubic feet; Bbbl = billion barrels]

Region	<u>\$18 Oil</u> (Bbbl)	<u>\$2.11</u> <u>Natural Gas (Tcf)</u>	<u>\$30</u> <u>Oil (Bbbl)</u>	<u>\$3.52</u> <u>Natural Gas (Tcf)</u>
Alaska	3.3	1.6	10.1	3.0
Atlantic	0.5	6.6	1.3	12.8
Gulf of Mexico	17.5	100.3	28.1	140.7
Pacific	5.3	8.3	7.2	11.6
Total OCS	26.6	116.8	46.7	168.1

Source: MMS Outer Continental Shelf Petroleum Assessment, 2000

Discovered Resources

Once leased acreage is drilled and is determined to contain oil or gas under Code of Federal Regulations (CFR) Title 30, Part 250, Subpart A, Section 11, Determination of Well Producibility (hereinafter referred to as 30 CFR 250.11), the lease is considered to have discovered resources.

Identified resources are resources whose location and quantity are known or are estimated from specific geologic or engineering evidence and include economic, marginally economic, and subeconomic components.

Unproved Reserves

After a lease qualifies under 30 CFR 250.11, the MMS Field Naming Committee reviews the new producible lease to assign it to an existing field or, if the lease is not associated with an established geologic structure, to a new field. Regardless of where the lease is assigned, the reserves associated with the lease are initially considered to be unproved reserves. Unproved reserves are based on geologic or engineering information similar to that used in estimates of proved reserves; but technical, contractual, economic, or regulatory uncertainties preclude such reserves being classified as proved.

Unproved reserves may be divided into two subclassifications, possible and probable, which are similarly based on the level of uncertainty.

"Unproved possible reserves are less certain than unproved probable reserves and can be estimated with a low degree of certainty, which is insufficient to indicate whether they are more likely to be recovered than not. Reservoir characteristics are such that a reasonable doubt exists that the project will be commercial" (SPE, 1987). After a lease qualifies under 30 CFR 250.11, the reserves associated with the lease are initially classified as unproved possible.

"Unproved probable reserves are less certain than proved reserves and can be estimated with a degree of certainty sufficient to indicate they are more likely to be recovered than not" (SPE, 1987). Reserves in fields for which a schedule leading to a Development and Production Plan (DPP) has been submitted to the MMS have been classified as unproved probable.

Proved Reserves

"Proved reserves can be estimated with reasonable certainty to be recoverable under current economic conditions, such as prices and costs prevailing at the time of the estimate. Proved reserves must either have facilities that are operational at the time of the estimate to process and transport those reserves to market or a commitment or reasonable expectation to install such facilities in the future" (SPE, 1987). Proved reserves can be subdivided into undeveloped and developed.

Proved undeveloped reserves are classified proved undeveloped when a relatively large expenditure is required to install production and/or transportation facilities, a commitment by the operator is made, and a timeframe to begin production is established. Proved undeveloped reserves are reserves expected to be recovered from (1) yet undrilled wells, (2) deepening existing wells, or (3) existing wells for which a relatively large expenditure is required for recompletion.

GLOSSARY

1 Proved developed reserves are classified as proved developed when the reserves are
2 expected to be recovered from existing wells (including reserves behind pipe). Reserves are
3 considered developed only after necessary production and transportation equipment have
4 been installed or when the installation costs are relatively minor. Proved developed reserves
5 are subcategorized as producing or non-producing" (SPE, 1987). This distinction is made at
6 the reservoir level and not at the field level.

- 7
- 8 • Any developed reservoir in a developed field that has not produced or has not had
9 sustained production during the past year is considered to contain proved developed
10 nonproducing reserves. This category includes reserves contained in nonproducing
11 reservoirs, contained reserves behind-pipe, and reservoirs awaiting well workovers or
12 transportation facilities.
- 13
- 14 • Once the first reservoir in a field begins production, the reservoir is considered to contain
15 proved developed producing reserves, and the field is considered on production. If a
16 reservoir had sustained production during the last year, it is considered to contain proved
17 developed producing reserves.

Production

18

19

20

21 Production represents the proved oil and gas reserves that were extracted from existing reserves¹².

22

23

24

25

26

27

28

29

¹² Adapted from Gas Energy Review, Gas Supply and Demand Committee, July 1995, Vol.23 No.7.

Illustration 3 Historical Estimates of Proved Reserves

Table 1. Total U.S. Proved Reserves of Crude Oil, Dry Natural Gas, and Natural Gas Liquids, 1992-2002

Year	Adjustments (1)	Net Revision s (2)	Revisions ^a Net of Sales			New Field Discoverie s (6)	New Reservoir Discoveries in Old Fields (7)	Total ^b Discoveries (8)	Estimated Production (9)	Proved ^c Reserves 12/31 (10)	Change from Prior Year (11)
			and Adjustmen ts (3)	and Acquisitions (4)	Extension s (5)						
Crude Oil (million barrels of 42 U.S. gallons)											
1992	290	735	1,025	NA	391	8	85	484	2,446	23,745	-937
1993	271	495	766	NA	356	319	110	785	2,339	22,957	-788 (-3%)
1994	189	1,007	1,196	NA	397	64	111	572	2,268	22,457	-500 (-2%)
1995	122	1,028	1,150	NA	500	114	343	957	2,213	22,351	-106 (-.5%)
1996	175	737	912	NA	543	243	141	927	2,173	22,017	-334 (-1%)
1997	520	914	1,434	NA	477	637	119	1,233	2,138	22,546	+529 (+2%)
1998	-638	518	-120	NA	327	152	120	599	1,991	21,034	-1,512 (-7%)
1999	139	1,819	1,958	NA	259	321	145	725	1,952	21,765	+731 (+3%)
2000	143	746	889	-20	766	276	249	1,291	1,880	22,045	+280 (+1%)
2001	-4	-158	-162	-87	866	1,407	292	2,565	1,915	22,446	+401 (+2%)
2002	416	720	1,136	24	492	300	154	946	1,875	22,677	+231 (+1%)
										Over 10 yrs	-1,068 (-4.5%)
Dry Natural Gas (billion cubic feet, 14.73 psia, 60° Fahrenheit)											
1992	2,235	6,093	8,328	NA	4,675	649	1,724	7,048	17,423	165,015	-2,047
1993	972	5,349	6,321	NA	6,103	899	1,866	8,868	17,789	162,415	-2,600 (-2%)
1994	1,945	5,484	7,429	NA	6,941	1,894	3,480	12,315	18,322	163,837	+1,422 (+1%)
1995	580	7,734	8,314	NA	6,843	1,666	2,452	10,961	17,966	165,146	+1,309 (+8%)
1996	3,785	4,086	7,871	NA	7,757	1,451	3,110	12,318	18,861	166,474	+1,328 (+1%)
1997	-590	4,902	4,312	NA	10,585	2,681	2,382	15,648	19,211	167,223	+749 (+.5%)
1998	-1,635	5,740	4,105	NA	8,197	1,074	2,162	11,433	18,720	164,041	-3,182 (-2%)
1999	982	10,504	11,486	NA	7,043	1,568	2,196	10,807	18,928	167,406	+3,365 (+2%)
2000	-891	6,962	6,071	4,031	14,787	1,983	2,368	19,138	19,219	177,427	+10,021 (+6%)
2001	2,742	-2,318	424	2,630	16,380	3,578	2,800	22,758	19,779	183,460	+6,033 (+3%)
2002	3,727	937	4,664	380	14,769	1,332	1,694	17,795	19,353	186,946	+3,486 (+2%)
										Over 10 yrs	+21,933 (+13%)
Natural Gas Liquids (million barrels of 42 U.S. gallons)											
1992	225	261	486	NA	190	20	64	274	773	7,451	-13
1993	102	124	226	NA	245	24	64	333	788	7,222	-229 (-3%)
1994	43	197	240	NA	314	54	131	499	791	7,170	-52 (-1%)
1995	192	277	469	NA	432	52	67	551	791	7,399	+229 (+3%)
1996	474	175	649	NA	451	65	109	625	850	7,823	+424 (+6%)
1997	-15	289	274	NA	535	114	90	739	864	7,973	+150 (+2%)
1998	-361	208	-153	NA	383	66	88	537	833	7,524	-449 (-6%)
1999	99	727	826	NA	313	51	88	452	896	7,906	+382 (+5%)
2000	-83	459	376	145	645	92	102	839	921	8,345	+439 (+6%)
2001	-429	-132	-561	102	717	138	142	997	890	7,993	-352 (-4%)
2002	62	31	93	54	612	48	78	738	884	7,994	+1 (0%)
										Over 10 yrs	+543 (+7%)

^a Revisions and adjustments = Col. 1 + Col. 2.

^b Total discoveries = Col. 5 + Col. 6 + Col. 7.

^c Proved reserves = Col. 10 from prior year + Col. 3 + Col. 4 + Col. 8 - Col. 9.

NA=Not available.

Notes: Old means discovered in a prior year. New means discovered during the report year. The production estimates in this table are based on data reported on Form EIA-23, "Annual Survey of Domestic Oil and Gas Reserves" and Form EIA-64A, "Annual Report of the Origin of Natural Gas Liquids Production." They may differ from the official EIA production data for crude oil, natural gas, and natural gas liquids for 2002 contained in the *Petroleum Supply Annual 2002*, DOE/EIA-0340(02) and the *Natural Gas Annual 2002*, DOE/EIA-0131(02).

Acquisitions: The volume of proved reserves gained by the purchase of an existing fields or properties, from the date of purchase or transfer.

Adjustments: The quantity which preserves an exact annual reserves balance within each State or State subdivision of the following form:

These adjustments are the yearly changes in the published reserve estimates that cannot be attributed to the estimates for other reserve change categories because of the survey and statistical estimation methods employed. For example, variations as a result of changes in the operator frame, different random samples or imputations for missing or unreported reserve changes, could contribute to adjustments.

Extensions: The reserves credited to a reservoir because of enlargement of its proved area. Normally the ultimate size of newly discovered fields, or newly discovered reservoirs in old fields, is determined by wells drilled in years subsequent to discovery. When such wells add to the proved area of a previously discovered reservoir, the increase in proved reserves is classified as an extension.

New Field Discoveries: The volumes of proved reserves of crude oil, natural gas and/or natural gas liquids discovered in new fields during the report year.

New Reservoir Discoveries in Old Fields: The volumes of proved reserves of crude oil, natural gas, and/or natural gas liquids discovered during the report year in new reservoir(s) located in old fields.

Production, Crude Oil: The volumes of crude oil which are extracted from oil reservoirs during the report year. These volumes are determined through measurement of the volumes delivered from lease storage tanks, (i.e., at the point of custody transfer) with adjustment for (1) net differences between opening and closing lease inventories, and for (2) basic sediment and water. Oil used on the lease is considered production.

Production, Natural Gas, Dry: The volume of natural gas withdrawn from reservoirs during the report year less (1) the volume returned to such reservoirs in cycling, repressuring of oil reservoirs and conservation operations; less (2) shrinkage resulting from the removal of lease condensate and plant liquids; and less (3) nonhydrocarbon gases where they occur in sufficient quantity to render the gas unmarketable. Volumes of gas withdrawn from gas storage reservoirs and native gas, which has been transferred to the storage category, are not considered production. This is not the same as marketed production, since the latter also excludes vented and flared gas, but contains plant liquids.

Production, Natural Gas Liquids: The volume of natural gas liquids removed from natural gas in lease separators, field facilities, gas processing plants or cycling plants during the report year.

Revisions: Changes to prior year--end proved reserves estimates, either positive or negative, resulting from new information other than an increase in proved acreage (extension). Revisions include increases of proved reserves associated with the installation of improved recovery techniques or equipment. They also include correction of prior report year arithmetical or clerical errors and adjustments to prior year--end production volumes to the extent that these alter reported prior year reserves estimates.

Sales: The volume of proved reserves deducted from an operator's total reserves when selling an existing field or property, during the calendar year.