

# Relationship between Giant Field Data and Ultimate Recoverable Oil

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## Introduction

Parts of the following are an expanded and modified version of a two-part article in the Oil and Gas Journal, April 2 and April 8, 2007 (Horn, 2007). The objectives of the current study are threefold--**to estimate**:

- a) the percentage of oil and gas found in giant fields ( $\geq 500$  million barrels oil,  $\geq 3$  trillion cubic feet gas) as compared to the total ultimate global inventory;
- b) percent contributions of the 20 largest oil fields and the 20 largest gas fields to the total global inventory; and
- c) remaining percentages of conventional oil and gas.

These objectives are carried out by linking estimates of ultimate recoverable oil and gas made by industry experts over the last 60 years (Salvador, 2005) with current data on 945 giant fields (556 oil and 389 gas, Horn, 2003, modified).

## Ultimate Oil Recoverable / Giant Field Relationships

Estimates of the ultimate worldwide recovery of oil by industry experts over a 60-year span have been tabulated by Salvador (2005, Table 8.). With some minor modifications based on reducing ranges for a few entries to an average value, Salvador's data are reproduced as Appendix 1. A further reduction of Salvador's data is shown in Table 1: averages of the estimates are made in ten-year spans. Thus, for example, at the end of decade 1960, global experts, on the average, predicted that the ultimate oil recovery would be 2,268 billion barrels. Averaging the Salvador data in ten-year intervals is carried out in order to conform time-wise with giant field data, also presented in ten-year intervals (Table 2).

A comparison of Tables 1 and 2 is graphed in Figure 1.

The percent giant oil field contributions to the decade global oil ultimate values (Table 2 decade values divided by Table 1 decade values) are shown in Table 3. The range of values is 32.1% to 56.8%. The current value is 43.4%.

Next, we look at the percent contribution of the 20 largest oil fields as a percentage of the current world estimate of 2,918 billion barrels. The results are shown in Table 4.

DECADE	Cumulative Billion Barrels
1940	838
1950	1,785
1960	2,268
1970	2,283
1980	2,046
1990	2,326
2000	2,918

Table 1. Global ultimate oil recoverable estimates of Appendix 1 averaged by decade.

Decade	Giant Oil Field Cumulative Discoveries	Cumulative Billion Barrels
1940 and earlier	147	363
1950	240	574
1960	311	900
1970	455	1,093
1980	674	1,162
1990	868	1,229
2000	945	1,267

Table 2. Decade ultimate recoverable sums, giant oil fields (plus condensate from all giant fields). Derived from Horn (2003, modified).

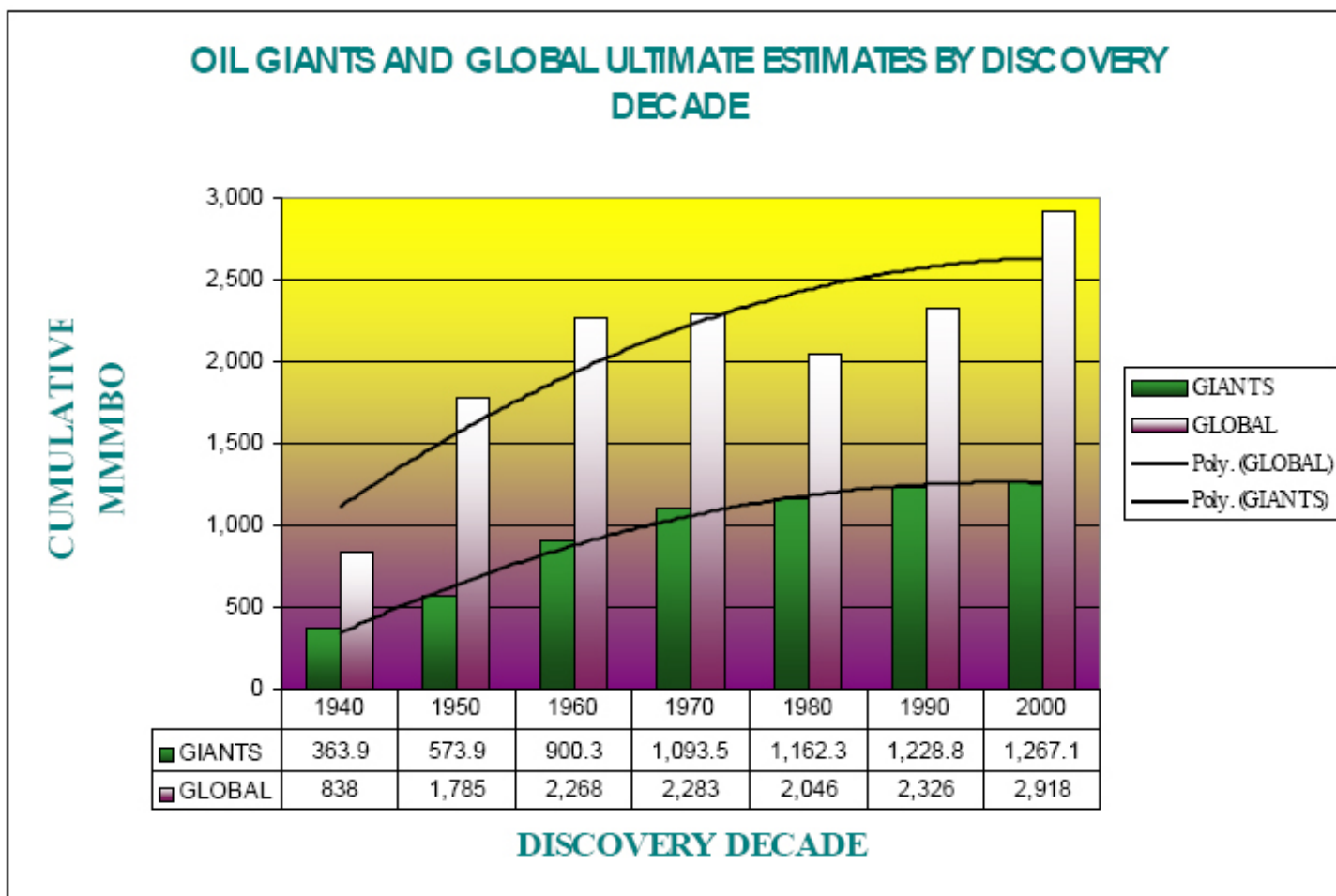


Figure 1. Comparison of world ultimate oil recoverable estimates with decade giant oil field ultimates. All discoveries before and including decade 1940 are summed in decade 1940. Decade 2000 giant field data incorporates information through April, 2007.

DECADE	% GIANT OIL FIELD CONTRIBUTION
1940	43.4
1950	32.1
1960	39.7
1970	47.9
1980	56.8
1990	52.8
2000	43.4

Table 3. Percent giant oil field contributions to the decade global oil ultimate estimates.

1	Rank	Field Name	Country	D.Y.	ULTIMATE RECOVERY OIL, MMBO	ULTIMATE RECOVERY CONDENSATE, MMBO	SUM, MMBO	PCT OF GLOBAL ULTIMATE	SUM PCT GLOBAL ULTIMATE
2	1	Ghawar	Saudi Arabia	1948	66,058		66,058	2.26%	2.26%
3	2	Greater Burgan	Kuwait	1938	46,000		46,000	1.58%	3.84%
4	3	Rumaila North & South	Iraq	1953	30,000		30,000	1.03%	4.87%
5	4	Ahwaz	Iran	1958	25,591		25,591	0.88%	5.75%
6	5	Kirkuk	Iraq	1927	25,000		25,000	0.86%	6.60%
7	6	Marun	Iran	1964	21,962		21,962	0.75%	7.35%
8	7	Safaniya	Saudi Arabia	1951	21,145		21,145	0.72%	8.08%
9	8	Pars South	Iran	1991	1,313	17,800	19,113	0.66%	8.73%
10	9	Agha Jari	Iran	1936	17,377		17,377	0.60%	9.33%
11	10	Zakum	UAE - Abu Dhabi	1964	17,223		17,223	0.59%	9.92%
12	11	Romashkino	Russia	1947	17,000		17,000	0.58%	10.50%
13	12	Manifa	Saudi Arabia	1957	16,820		16,820	0.58%	11.08%
14	13	Gachsaran	Iran	1928	16,247		16,247	0.56%	11.64%
15	14	Baghdad, East	Iraq	1979	16,000		16,000	0.55%	12.18%
16	15	Shaybah	Saudi Arabia	1968	15,700		15,700	0.54%	12.72%
17	16	Prudhoe Bay (Prudhoe Pool and 10 other oil pools)	USA - Alaska	1967	15,273		15,273	0.52%	13.25%
18	17	Tia Juana (Bolivar Coastal Complex)	Venezuela	1928	13,390		13,390	0.46%	13.70%
19	18	Zuluf	Saudi Arabia	1965	12,237		12,237	0.42%	14.12%
20	19	Majnoon	Iraq	1977	12,000		12,000	0.41%	14.54%
21	20	North Field	Qatar	1971		10,673	10,673	0.37%	14.90%

Table 4. Percent contribution of the 20 largest (oil+condensate) fields as a percentage of the current world ultimate estimate of 2,918 billion barrels.

### Ultimate Gas Recoverable / Giant Field Relationships

Estimates of the ultimate worldwide recovery of gas by industry experts over a 50-year span have also been tabulated by Salvador (2005, Table 13.). With some minor modifications based on reducing ranges for a few entries to an average value, Salvador's data are reproduced as Appendix 2. A further reduction of Salvador's data is shown in Table 5: averages of the estimates are made in ten-year spans. As with the oil estimates, this step is carried out in order to make Salvador's (2005) data conform time-wise to giant field data, also presented in ten-year intervals (Table 6).

A comparison of Tables 5 and 6 is graphed in Figure 2.

The percent giant gas field contributions to the decade global gas ultimate values (Table 6 decade values divided by Table 5 equivalent decade values) are shown in Table 7.

The percent contribution of the 20 largest gas fields as a percentage of the current world estimate of 14,271 tcf is shown in Table 8.

DECADE	TCF
1940	NO DATA
1950	5,500
1960	9,542
1970	9,889
1980	9,676
1990	13,172
2000	14,271

Table 5. Global ultimate gas recoverable estimates of Appendix 2 averaged by decade.

Decade	Giant Gas Field Cumulative Discoveries	Cumulative Ultimate Recovery, TCF
1940 and earlier	27	580
1950	56	1,137
1960	141	2,720
1970	247	4,923
1980	292	5,391
1990	344	6,102
2000	389	6,447

Table 6. Decade sums, giant gas fields. ultimate recoverable. Derived from (Horn, 2003, modified).

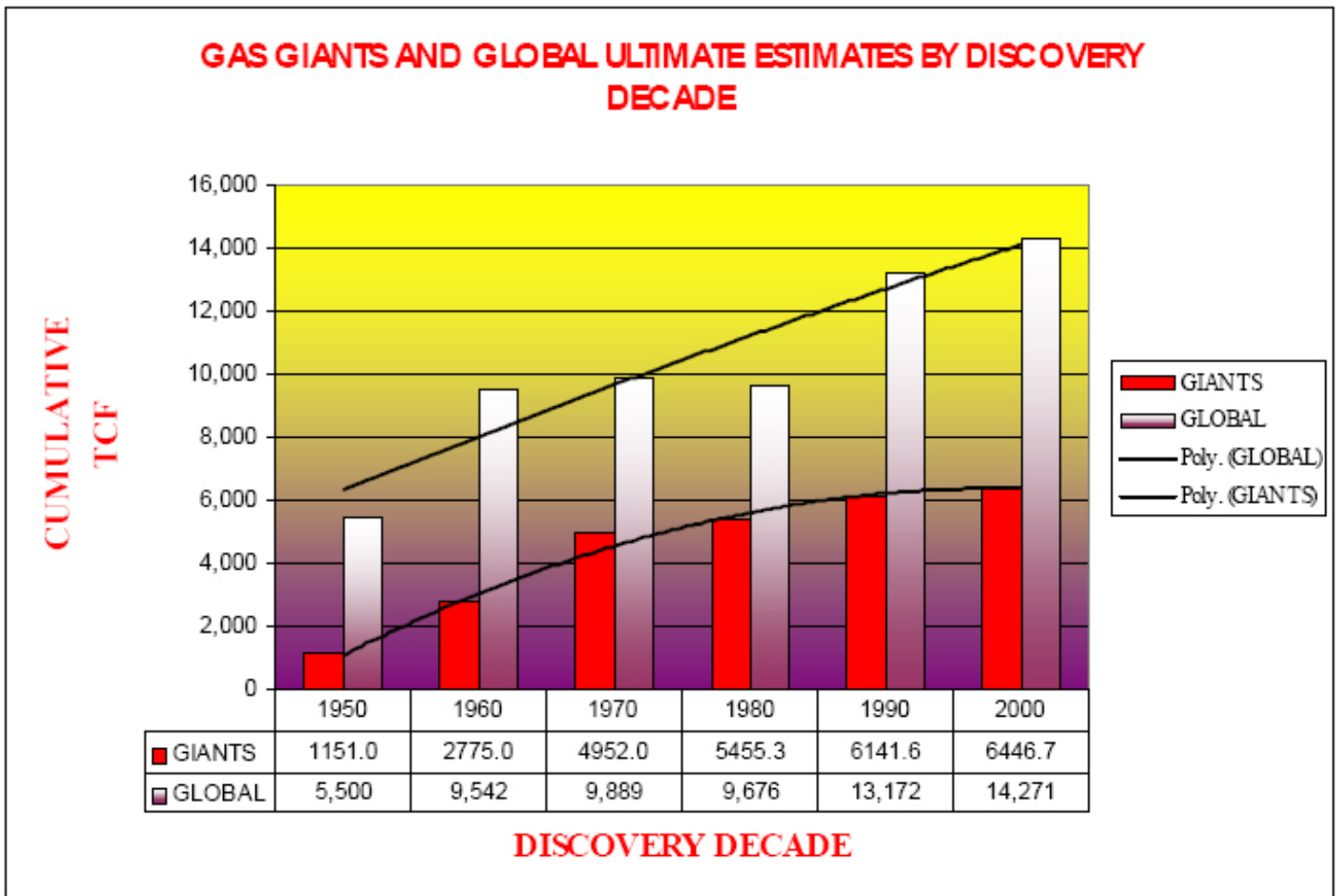


Figure 2. Comparison of world ultimate gas recoverable estimates with decade giant gas field ultimates. All discoveries before and including decade 1940 are summed in decade 1940. Decade 2000 giant field data incorporates information through November, 2006. Associated gas from all giant fields is included.

DECADE	% GIANT GAS FIELD CONTRIBUTION
1940	NO Data
1950	20.9
1960	29.0
1970	50.0
1980	56.4
1990	46.6
2000	45.2

Table 7. Percent giant gas field contributions to the decade global gas ultimate estimates.

Rank	Field Name	Country	D.Y.	ULTIMATE RECOVERY GAS, TCF	GLOBAL ULTIMAT E	GLOBAL ULTIMAT E
1	North Field	Qatar	1971	900.0	6.31%	6.31%
2	Pars South	Iran	1991	350.0	2.45%	8.76%
3	Urengoy (Vostochno Urengoy)	Russia	1966	335.4	2.35%	11.11%
4	Ghawar	Saudi Arabia	1948	186.2	1.31%	12.41%
5	Yamburg	Russia	1969	153.8	1.08%	13.49%
6	Zapolyaroye	Russia	1965	121.0	0.85%	14.34%
7	Hassi R'Mel	Algeria	1957	100.0	0.70%	15.04%
8	Astrakhan'	Russia	1976	89.6	0.63%	15.67%
9	Northwest Dome	Qatar	1976	80.0	0.56%	16.23%
10	Bovanenko	Russia	1971	76.4	0.54%	16.77%
11	Marun	Iran	1964	75.3	0.53%	17.29%
12	Arkticheskoye	Russia	1968	63.0	0.44%	17.73%
13	Orenburg (Krasnyy Kholm, Krasnoyarskoye)	Russia	1966	62.8	0.44%	18.17%
14	Shtokman	Russia	1988	60.0	0.42%	18.59%
15	Rag-E-Safid	Iran	1964	59.9	0.42%	19.01%
16	Kovykta	Russia	1986	58.0	0.41%	19.42%
17	Kyrtalol'skoye	Russia	1970	55.0	0.39%	19.81%
18	Leningrad (Kara)	Russia	1990	55.0	0.39%	20.19%
19	B. Structure	Iran	1972	50.0	0.35%	20.54%

Table 8. The percent contribution of the 20 largest gas fields, as a percentage of the current world ultimate estimate of 14,271 tcf.

### Comparing Present Reserves with Ultimate Recovery

Appendix 3 is a country-by-country list of year 2006 oil and gas reserves. The list is based on averaging Oil and Gas Journal (December 18, 2006) and World Oil (September, 2006) sources. From the last line of Appendix 3, the current world total reserves are 1,158.805 billion barrels of oil and 5,983.2 trillion cubic feet of gas.

From Table 1, the current ultimate recoverable oil estimate is 2,918 billion barrels. Therefore, the percentage of present oil reserves to ultimate oil is 39.7% (1,158.805/2,918).

From Table 5, the current ultimate recoverable gas estimate is 14,271 tcf. Therefore, the percentage of present gas reserves to ultimate gas is 41.9% (5,983.2/14,271).

## Conclusions

1. Based on current estimates, giant oil will contribute 43.4% to the worldwide ultimate recovery of oil (Table 3).
2. Also based on current estimates, giant gas will contribute 45.2% to the worldwide ultimate recovery of gas (Table 7).
3. Worldwide estimates of ultimate oil recovery have increased to 2,918 billion barrels currently from 2,046 billion barrels in the 1980's (Table 1). Trend analysis is interpreted as indicating that the estimates are "stabilizing" about 2,600 billion barrels (Figure 1).
4. Estimates of giant oil field ultimate recoverable appear to be "stabilizing" at about 1,200 billion barrels (Figure 1).
5. The percent contribution of the 20 largest (oil+condensate) fields, as a percentage of the current world ultimate estimate of 2,918 billion barrels, is 14.9% (Table 4).
6. Worldwide estimates of ultimate gas recovery have risen from about 9,676 tcf during decade 1980 to the present estimates of about 14,271 tcf (Table 5). Trend analysis (Figure 2) indicates that the estimate will continue to rise in the future.
7. Giant field ultimate gas recoverable appears to be "stabilizing" at about 6,000 tcf (Figure 2).
8. The percent contribution of the 20 largest gas fields, as a percentage of the current world ultimate estimate of 14,271 tcf, is 20.5% (Table 8).
9. The percentage of present oil reserves to estimated ultimate oil is about 40%. The percentage of present gas reserves to estimated ultimate gas is about 42%.

## References

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- Salvador, Amos, 2005, Energy: A historical perspective and 21st century forecast: AAPG Studies in Geology 54, p. 33-121. Tables 8 and 13.
- Horn, M.K., 2007, Giant fields trends 1 and 2: Oil and Gas Journal, April 2, p. 36-39, and April 9, p. 35-37.

## Appendices

### APPENDIX 1 (SALVADOR, 2005, TABLE 8)

#### ULTIMATE OIL ESTIMATES

DATE	SOURCE	MMMBO	AVG
1946	Pogue (Chase Manhattan Bank)	605	
1946	Duce (Aramco)	500	
1948	Weeks (Standard Oil Co., New Jersey)	610	
1949	Levorsen (Stanford)	1,635	838
1950	Levorsen (Stanford)	1,636	
1950	Weeks (Standard Oil Co., New Jersey)	1,100	
1950	Weeks (Standard Oil Co., New Jersey)	1,010	
1953	MacNaughton, personal communication	1,000	
1956	Hubbert (Shell)	1,250	
1958	Weeks (Standard Oil Co., New Jersey)	3,000	
1959	Weeks (Standard Oil Co., New Jersey)	3,500	1,785
1961	Weeks (Standard Oil Co., New Jersey)	3,500	
1962	Hubbert (Shell)	1,250	
1963	Weeks (Standard Oil Co., New Jersey)	2,000	
1965	Hendricks (U.S. Geological Survey)	2,232	
1967	Ryman (Standard Oil Co., New Jersey)	2,090	
1967	Royal Dutch Shell	1,800	
1968	Weeks (Weeks Petroleum Corp.)	3,550	
1969	Hubbert (U.S. Geological Survey)	1,725	2,268
1970	Weeks (Weeks Petroleum Corp.)	3,550	
1970	Moody (Mobil)	1,800	
1971	Weeks (Weeks Petroleum Corp.)	3,650	
1971	Warman (British Petroleum)	2,000	
1972	Linden (Institute of Gas Technology)	2,945	
1972	Moody and Emmerich (Mobil)	1,850	
1972	Warman (British Petroleum)	1,800	
1974	Parent and Linden (Institute of Gas Technology)	3,500	
1974	Kirby and Adams (British Petroleum)	1,800	
1975	Weeks (Weeks Petroleum Corp.)	3,180	
1975	Linden and Parent (Institute of Gas Technology)	2,685	
1975	National Academy of Sciences	2,326	
1975	Moody (consultant) and Esser (Mobil)	2,015	
1975	Moody (consultant) and Geiger (Mobil)	2,000	
1975	Moody (consultant)	1,850	
1975	MacKay (Bank of Montreal, Calgary)	1,025	
1976	Grossling (U.S. Geological Survey)	2,600	
1976	Barthel et al. (West Germany Geological Survey)	2,500	
1977	Parent and Linden (Institute of Gas Technology)	2,000	
1977	World Energy Conference	1,889	
1977	Klemme (Weeks Petroleum Corp.)	1,550	
1978	Desprairies (Institut Francais du Petrole)	2,370	
1978	Moody (consultant)	2,030	
1978	Nehring (Rand Corp.)	2,000	
1979	Wood (Cities Service)	2,163	2,283
1980	Schubert (World Energy Conference)	2,600	
1980	Roorda (Shell)	2,400	
1980	Halbouty and Moody (consultant)	2,280	

1980	Desprairies and Tissot (IFP)	2,015	
1980	Nehring (Rand Corp.)	1,800	
1981	Hubbert and Root (U.S. Geological Survey)	2,000	
1982	Bois (IFP)	2,600	
1982	Nehring (Rand Corp.)	1,800	
1983	Riva (Library of Congress)	1,953	
1983	Masters et al. (U.S. Geological Survey)	1,718	
1984	Burollet (Total)	2,213	
1984	Masters et al. (U.S. Geological Survey)	1,818	
1985	Tanzil (consultant)	2,594	
1986	Masters et al. (U.S. Geological Survey)	1,718	
1986	Ivanhoe (consultant)	1,700	
1987	Pecqueur (Elf Aquitaine)	2,200	
1987	Roadifer (Mobil)	2,000	
1987	Masters et al. (U.S. Geological Survey)	1,744	
1988	Riva (Library of Congress)	1,765	
1989	Bookout (Shell)	2,000	2,046
1990	Masters et al. (U.S. Geological Survey)	2,074	
1991	Riva (Library of Congress)	2,215	
1991	Masters et al. (U.S. Geological Survey)	2,079	
1991	Campbell (consultant)	1,650	
1992	Miller (British Petroleum)	4,000	
1992	Masters et al. (U.S. Geological Survey)	2,171	
1993	Townes (independent petroleum geologist)	2,800	
1993	Miremadi and Ismail (OPEC)	2,200	
1994	Masters et al. (U.S. Geological Survey)	2,272	
1994	Laherre`re (Petroconsultants)	1,800	
1995	Campbell (consultant)	1,650	
1996	MacKenzie (World Resources Institute)	2,200	
1996	Campbell (consultant)	1,750	
1997	Edwards (University of Colorado)	2,836	
1997	Masters et al. (U.S. Geological Survey)	2,272	
1997	Campbell (consultant)	1,800	
1997	Al-Jarri and Startzman (Texas A&M)	1,760	
1998	Linden (Illinois Institute of Technology)	4,000	
1998	Schollnberger (Amoco)	3,300	
1998	Hiller (Hanover, Germany)	2,220	
1998	Campbell and Laherre`re (consultants)	1,800	2,326
2000	U.S. Geological Survey	3,021	
2001	Edwards (University of Colorado)	3,210	
2001	Odell	3,000	
2001	Deffeyes (Princeton)	2,110	
2002	Edwards (University of Colorado)	3,251	2,918



**APPENDIX 2 (SALVADOR, 2005, TABLE 13)**

## ULTIMATE GAS ESTIMATES

DATE	SOURCE	TCF	AVG
1956	U.S. Department of Interior	5,000	
1958	Weeks (Standard Oil Co., New Jersey)	5,500	
1959	Weeks (Standard Oil Co., New Jersey)	6,000	5,500
1961	Weeks (Weeks Petroleum Corp.)	6,000	
1962	Weeks (Weeks Petroleum Corp.)	12,000	
1962	Hubbert (Shell)	7,500	
1965	Hendricks (U.S. Geological Survey)	15,280	
1967	Ryman (Standard Oil Co., New Jersey)	12,000	
1967	Royal Dutch Shell	10,200	
1968	Weeks (Weeks Petroleum Corp.)	6,900	
1968	World Energy Council—Survey of Energy Resources	6,000	
1969	Hubbert (U.S. Geological Survey)	10,000	9,542
1970	Weeks (Lewis G. Weeks Associates)	6,900	
1971	Weeks (Lewis G. Weeks Associates)	7,200	
1973	U.S. Federal Power Commission	16,370	
1973	Hubbert (U.S. Geological Survey)	12,000	
1975	Linden and Parent (Institute of Gas Technology)	9,740	
1975	Moody and Geiger (Mobil)	8,164	
1975	National Academy of Sciences	7,821	
1976	Adams and Kirkby (BP)	6,000	
1976	Barthel et al. (Bundersanstalt fur Geowissenschaften und Rohstoffe)	8,360	
1976	Grossling (U.S. Geological Survey)	19,600	
1977	Kalisch and Wander (American Gas Association)	10,510	
1977	Parent and Linden (Institute of Gas Technology)	9,350	
1977	Whiting (Texas A&M University)	7,000	
1978	Despaires (Institut Francais du Petrole)	7,800	
1978	McCormick et al. (American Gas Association)	11,430	
1978	World Energy Council—Survey of Energy Resources	9,980	9,889
1980	World Energy Council—Survey of Energy Resources	10,340	
1980	Meyerhoff (Meyerhoff and Cox Inc.)	7,670	
1980	Parent (Institute of Gas Technology)	8,550	
1980	Roorda (Shell)	10,200	
1982	Bois (Institut Francais du Petrole)	10,343	
1982	Parent (Institute of Gas Technology)	9,780	
1983	Riva (Library of Congress)	11,328	
1983	Parent (Institute of Gas Technology)	9,500	
1984	Toens and Van der Merwe (Nuclear Development Corp., South Africa)	10,167	
1987	Masters et al. (U.S. Geological Survey)	9,280	
1987	Pecqueur (Elf Aquitaine)	8,750	
1989	Bookout (Shell)	10,200	9,676
1990	Masters et al. (U.S. Geological Survey)	10,679	
1991	Masters et al. (U.S. Geological Survey)	10,782	
1992	Masters et al. (U.S. Geological Survey)	10,512	
1993	Masters et al. (U.S. Geological Survey)	10,517	
1994	Masters et al. (U.S. Geological Survey)	11,568	
1994	Global Gas Resources Workshop C.L. Ruthven, ed.	14,490	
1994	Fisher (University of Texas)	20,000	
1995	Enron	14,024	

1997	Enron	15,457	
1997	Masters et al. (U.S. Geological Survey)	11,568	
1997	Edwards (University of Colorado)	11,625	
1998	Krylov et al. (various Russian institutions)	14,124	
1998	Appert (Cedigaz)	15,890	13,172
2000	U.S. Geological Survey	15,401	
2001	Edwards (University of Colorado)	13,141	14,271

### APPENDIX 3 (WORLD OIL AND GAS RESERVES)

Derived from averaging Oil and Gas Journal and World Oil sources.

#### A. NORTH AMERICA

Canada	8,613	55.8	17,916
Mexico	12,353	17.3	15,229
United States	21,479	198.7	54,598
Others	N.A	N.A	N.A
<b>Total</b>	<b>42,443.5</b>	<b>271.8</b>	<b>87,743</b>

#### B. CENTRAL AND SOUTH AMERICA

Argentina	2,449	18.7	5,570
Barbados	3	0.0	4
Belize	7	0.0	7
Bolivia	448	25.4	4,673
Brazil	11,849	11.3	13,739
Chile	79	2.2	445
Colombia	1,453	5.4	2,345
Cuba	341	1.5	596
Ecuador	4,831	0.2	4,860
Guatemala	83	0.0	83
Peru	973	8.7	2,427
Suriname	111	0.0	111
Trinidad and Tobago	672	18.8	3,800
Venezuela	80,012	152.4	105,409
Other-Country Not Specified	N.A	N.A	N.A
<b>Total</b>	<b>103,310</b>	<b>244.6</b>	<b>144,069</b>

#### C. WESTERN EUROPE

Austria	62	0.7	180
Denmark	1,277	2.5	1,701
France	124	0.3	181
Germany	283	7.8	1,584
Greece	5	0.04	11
Ireland	0	0.35	58
Italy	684	5.9	1,668
Netherlands	163	50.3	8,538
Norway	7,941	82.8	21,740
Spain	151	0.1	166
Turkey	291	0.3	336
United Kingdom	3,813	17.4	6,714
Other-Country Not Specified	no data	no data	no data
<b>Total</b>	<b>14,723</b>	<b>168.5</b>	<b>42,813</b>

#### D. EASTERN EUROPE AND FORMER USSR

Albania	197	0.1	214
Azerbaijan	7,000	0.04	7,006
Belarus	198	0.04	204
Bulgaria	8	0.1	31
Croatia	69	1.1	244
Czech Republic	19	0.1	42
FSU - Russian Federation	67,200	1684.4	347,929
FSU - others (see individual federations)	N.A.	N.A.	N.A.

Georgia	35	0.04	41
Hungary	74	1.3	286
Kazakhstan	30,000	0.04	30,006
Kyrgyzstan	40	0.04	46
Lithuania	12	0.04	18
Poland	186	5.5	1,099
Romania	524	3.4	1,082
Serbia	78	0.04	83
Slovakia	9	0.04	15
Tajikstan	12	0.04	18
Turkmenistan	600	0.04	606
Ukraine	395	0.04	401
Uzbekistan	594	0.04	600
Other-Country Not Specified	no data	no data	no data
<b>Total</b>	<b>112,224</b>	<b>2040.8</b>	<b>452,351</b>

#### E. MIDDLE EAST

Abu Dhabi	92,200	0.04	92,206
Bahrain	126	0.04	131
Dubai	4,000	0.04	4,006
Iran	133,885	969.5	295,468
Iraq	115,000	98.0	131,333
Israel	2	0.04	8
Jordan	0	0.04	6
Kuwait	98,750	53.8	107,708
Neutral Zone	4,875	4.5	5,625
Oman	5,145	28.5	9,900
Qatar	17,777	908.3	169,152
Ras al Kaimah	100	0.04	106
Saudi Arabia	259,800	239.5	299,717
Sharjah	1,500	0.04	1,506
Syria	2,750	10.6	4,522
United Arab Emirates	N.A.	N.A.	N.A.
Yemen	2,985	17.0	5,810
Other-Country Not Specified	N.A.	N.A.	N.A.
<b>Total</b>	<b>738,894.1</b>	<b>2,329.85</b>	<b>1,127,203</b>

#### F. AFRICA

Algeria	11,810	161.2	38,678
Angola	8,525	3.0	9,025
Benin	8	0.04	15
Cameroon	400	3.9	1,050
Chad	1,500	0.0	1,500
Congo (Former Zaire)	180	0.0	186
Congo (Brazzaville)	1,753	3.7	2,365
Egypt	3,705	62.7	14,150
Equatorial Guinea	1,453	2.4	1,844
Ethiopia	0	0.88	147
Gabon	2,073	1.3	2,281
Ghana	15	0.80	148
Ivory Coast	100	1.00	267
Libya	37,757	52.1	46,436

Mauritania	100	1.00	267
Morocco	1	0.06	11
Mozambique	-	4.50	750
Namibia	-	2.20	367
Nigeria	36,698	181.95	67,023
Rwanda	-	2.00	333
Somalia	-	0.20	33
South Africa	15.0	0.0	15
Sudan	5,701	2.00	6,034
Tanzania	0	0.23	38
Tunisia	545	3.1	1,062
Other-Country Not Specified	N.A	N.A	N.A
<b>Total</b>	<b>112,338</b>	<b>490.12</b>	<b>194,026</b>

#### G. ASIA AND OCEANIA

Afghanistan	0	0.04	6
Australia	2,803	74.9	15,293
Bangladesh	28	0.04	34
Brunei	1,103	12.9	3,253
China	16,094	67.8	27,395
China, Taiwan	2	0.04	8
India	4,802	32.6	10,237
Indonesia	4,663	94.6	20,436
Japan	59	0.04	64
Malaysia	2,946	66.5	14,029
Myanmar	125	11.3	2,013
New Zealand	64	1.4	303
Pakistan	299	29.1	5,140
Papua New Guinea	214	13.0	2,372
Philippines	129	2.7	574
Thailand	612	18.8	3,750
Viet Nam	973	7.5	2,223
Other-Country Not Specified	no data	no data	no data
<b>Total</b>	<b>34,872</b>	<b>437.6</b>	<b>107,804</b>

<b>WORLD TOTAL</b>	<b>1,158,805</b>	<b>5983.2</b>	<b>2,156,008</b>
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