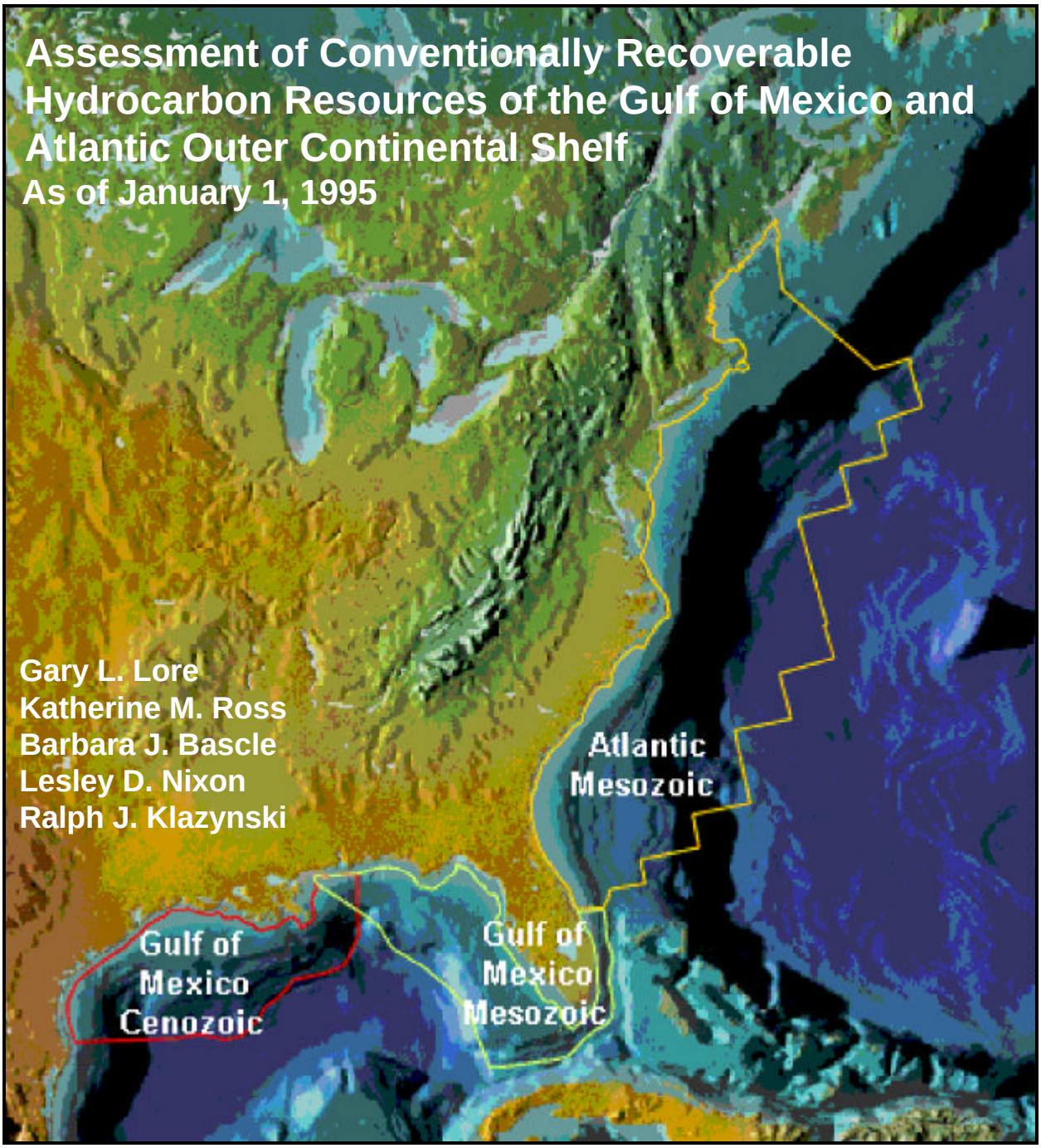
OCS Report
MMS 99-0034

Assessment of Conventionally Recoverable Hydrocarbon Resources of the Gulf of Mexico and Atlantic Outer Continental Shelf

As of January 1, 1995



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Gulf of Mexico and Atlantic Margin Economic Results

The Gulf of Mexico and Atlantic Margin includes submerged Federal lands from the U.S.-Canada International Boundary south to the U.S.-Mexico International Boundary (figure 1). Water depths in the Margin range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

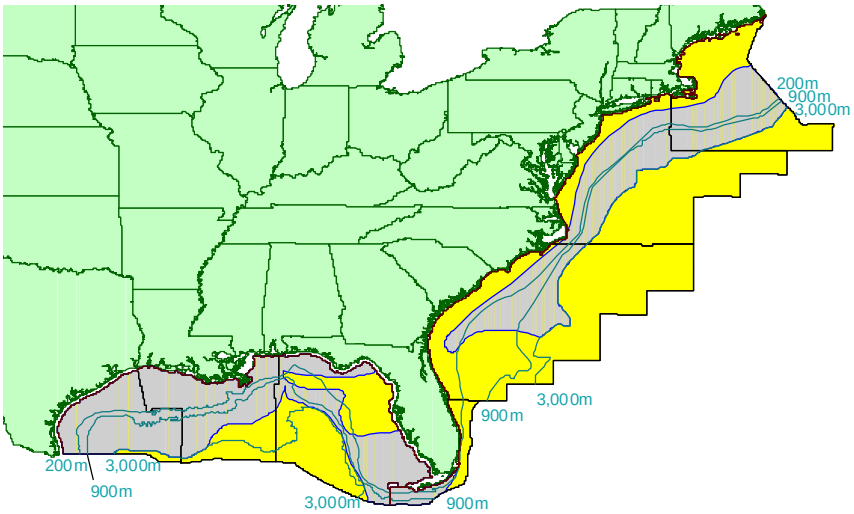

Figure 1. Gulf of Mexico and Atlantic Margin Map. The Margin is shaded in yellow, and the gray pattern indicates the extent of the assessed plays.

The mean total endowment for the Margin is predominantly gas, with 68 percent of the total resources occurring as gas (figure 2). There is a trend towards a less gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 71 percent gas, the 201-900m range consisting of 56 percent gas, and the deepest water depth range consisting of 62 percent gas. The largest concentration of the mean total endowment (70% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of less than 200m (figure 3 and figure 4). The 201-900m range has 11 percent, and the 901-3,000m range has 19 percent of the BOE mean total endowment.

The Gulf of Mexico Cenozoic Province portion of the Margin is well developed in the 0-200m range with an extensive infrastructure already in place, less so in the 201-900m range, and minimally in the 901-3,000m range. The two Mesozoic Provinces are still in their initial development phase. There has been production in the Margin's two shallower ranges, but as of the date of this study, only proved and unproved reserves and reserves appreciation occurred in the 901-3,000m range (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Significant amounts of undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total Margin.

Assessment results indicate that the total Margin undiscovered economically recoverable resources are notable, with a range of 4.364 to 7.094 Bbo and 57.252 to 70.695 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean economically recoverable resources are estimated at 5.350 Bbo and 63.295 Tcfg. A graphical representation of these results, incorporating every 5th-percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, 41 percent of the gas in the Margin remains to be discovered, and 42 percent of the oil remains to be discovered (figure 9). Moreover, 21 percent of the gas, oil, and BOE mean total endowment is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

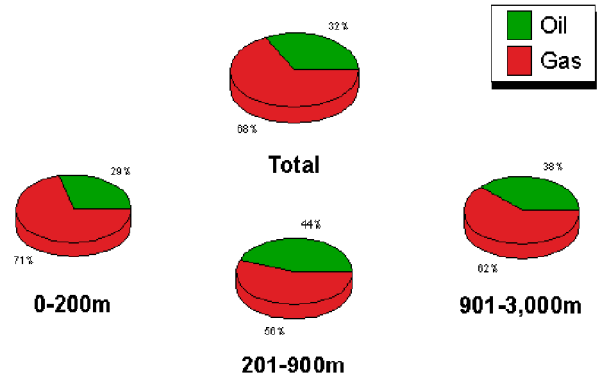

Figure 2. Gulf of Mexico and Atlantic Margin Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

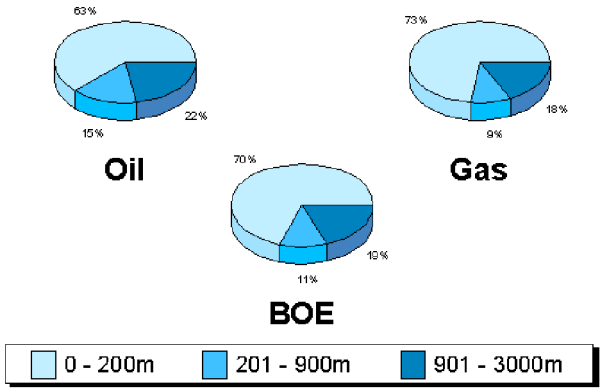

Figure 4. Gulf of Mexico and Atlantic Margin Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

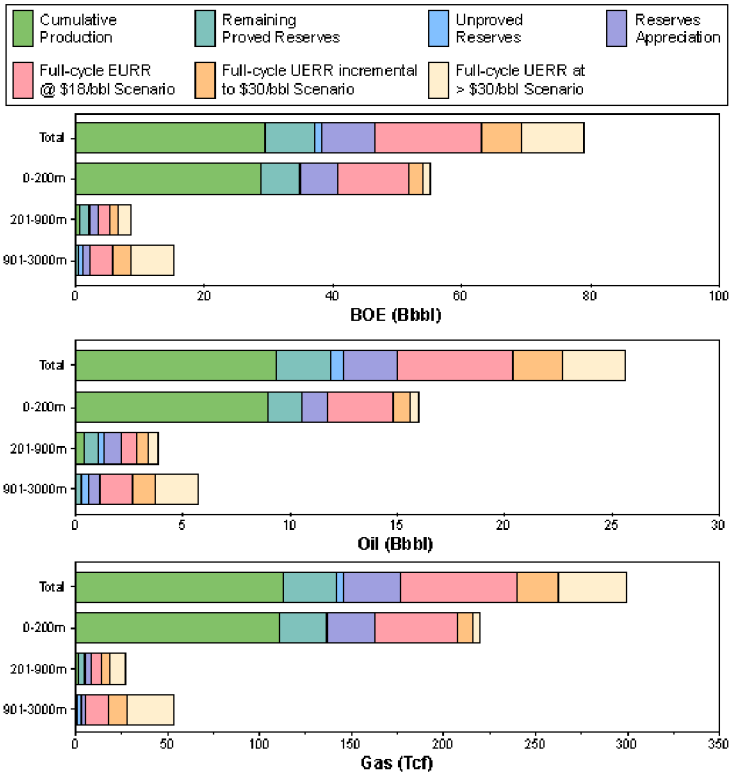

Figure 3. Gulf of Mexico and Atlantic Margin Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Number of Pools	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves				
Original proved	2,114	11.853	141.891	37.101
Cumulative production	--	9.338	112.633	29.379
Remaining proved	--	2.516	29.258	7.722
Unproved	69	0.639	3.603	1.280
Appreciation (P & U)	--	2.507	31.028	8.028
Undiscovered Conventionally Recoverable Resources				
95th percentile	--	8.017	104.286	27.402
Mean	2,475	10.615	123.140	32.526
5th percentile	--	13.689	144.011	38.217
Total Endowment				
95th percentile	--	23.016	280.808	73.811
Mean	4,658	25.614	299.662	78.935
5th percentile	--	28.688	320.533	84.626

Table 1. Total Gulf of Mexico and Atlantic Margin Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	10.534	136.232	34.775
Cumulative production	8.938	110.943	28.678
Remaining proved	1.597	25.289	6.096
Unproved	0.033	0.761	0.168
Appreciation (P & U)	1.172	25.375	5.687
Undiscovered Conventionally Recoverable Resources			
95th percentile	3.881	53.916	13.474
Mean	4.292	57.315	14.491
5th percentile	4.576	63.854	15.938
Total Endowment			
95th percentile	15.620	216.283	54.105
Mean	16.032	219.683	55.121
5th percentile	16.316	226.222	56.569

Table 2. Gulf of Mexico and Atlantic Margin 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	1.043	4.753	1.889
Cumulative production	0.400	1.689	0.701
Remaining proved	0.643	3.064	1.188
Unproved	0.281	0.874	0.437
Appreciation (P & U)	0.778	3.044	1.320
Undiscovered Conventionally Recoverable Resources			
95th percentile	1.430	16.843	4.427
Mean	1.749	18.712	5.078
5th percentile	2.276	20.831	5.983
Total Endowment			
95th percentile	3.532	25.515	8.072
Mean	3.851	27.383	8.723
5th percentile	4.378	29.503	9.628

Table 3. Gulf of Mexico and Atlantic Margin 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.276	0.905	0.437
Cumulative production	0.000	0.000	0.000
Remaining proved	0.276	0.905	0.437
Unproved	0.324	1.969	0.675
Appreciation (P & U)	0.557	2.609	1.022
Undiscovered Conventionally Recoverable Resources			
95th percentile	3.839	44.978	11.842
Mean	4.571	47.868	13.088
5th percentile	6.406	51.163	15.510
Total Endowment			
95th percentile	4.997	50.461	13.976
Mean	5.729	53.352	15.222
5th percentile	7.564	56.646	17.643

Table 4. Gulf of Mexico and Atlantic Margin 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		4.364	57.252	14.551
Mean		5.350	63.295	16.613
5th percentile		7.094	70.695	19.674
Half-Cycle	1.00			
95th percentile		4.791	62.301	15.876
Mean		5.784	68.462	17.966
5th percentile		7.374	76.883	21.055
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		6.632	79.526	20.783
Mean		7.672	85.684	22.918
5th percentile		9.367	92.942	25.905
Half-Cycle	1.00			
95th percentile		7.019	83.936	21.954
Mean		8.077	89.895	24.072
5th percentile		9.892	97.023	27.156

Table 5. Total Gulf of Mexico and Atlantic Margin Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		2.651	40.514	9.860
Mean		3.043	45.512	11.142
5th percentile		3.385	52.431	12.714
Half-Cycle	1.00			
95th percentile		2.769	43.237	10.462
Mean		3.209	48.100	11.768
5th percentile		3.551	54.919	13.323
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		3.429	49.936	12.315
Mean		3.857	53.379	13.355
5th percentile		4.218	59.400	14.788
Half-Cycle	1.00			
95th percentile		3.527	50.646	12.539
Mean		3.924	54.133	13.556
5th percentile		4.277	60.227	14.994

Table 6. Gulf of Mexico and Atlantic Margin 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.485	3.961	1.190
Mean		0.782	5.633	1.784
5th percentile		1.294	8.650	2.833
Half-Cycle	1.00			
95th percentile		0.536	4.451	1.328
Mean		0.849	6.319	1.973
5th percentile		1.353	9.979	3.129
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.817	7.400	2.134
Mean		1.272	10.283	3.102
5th percentile		1.826	12.844	4.112
Half-Cycle	1.00			
95th percentile		0.997	8.758	2.556
Mean		1.349	11.245	3.350
5th percentile		1.869	13.726	4.312

Table 7. Gulf of Mexico and Atlantic Margin 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.808	8.859	2.384
Mean		1.497	12.140	3.657
5th percentile		3.196	15.620	5.975
Half-Cycle	1.00			
95th percentile		1.039	10.611	2.927
Mean		1.708	13.992	4.198
5th percentile		3.388	17.220	6.452
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		1.802	18.749	5.138
Mean		2.569	22.078	6.498
5th percentile		4.385	25.626	8.945
Half-Cycle	1.00			
95th percentile		1.984	20.819	5.689
Mean		2.822	24.603	7.200
5th percentile		4.641	28.461	9.705

Table 8. Gulf of Mexico and Atlantic Margin 901-3,000m Water Depth Economic Assessment Results Table.

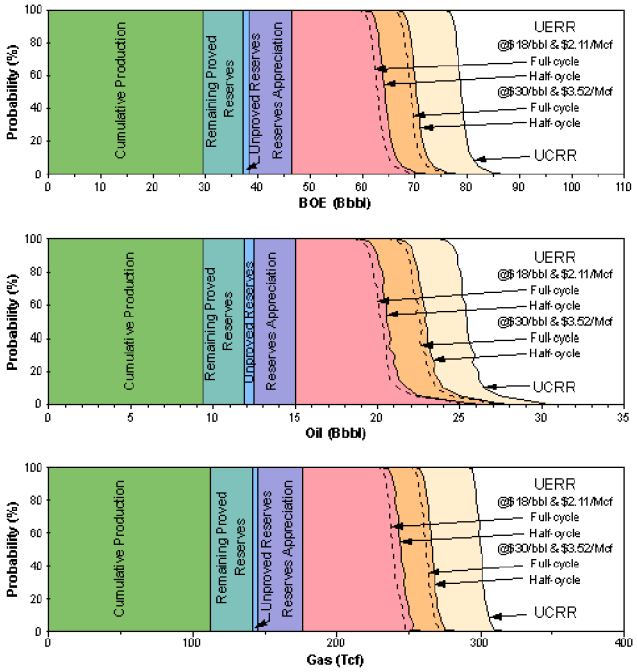

Figure 5. Gulf of Mexico and Atlantic Margin Total Endowment by Resource Category.

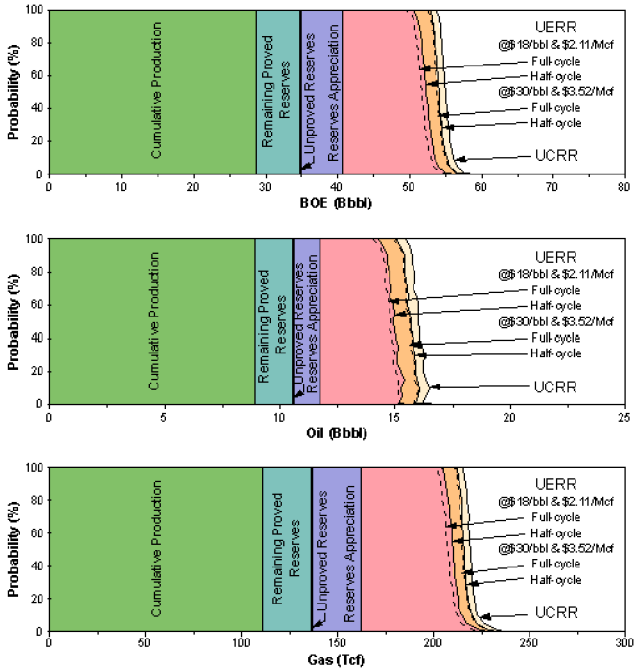

Figure 6. Gulf of Mexico and Atlantic Margin 0-200m Water Depth Total Endowment by Resource Category.

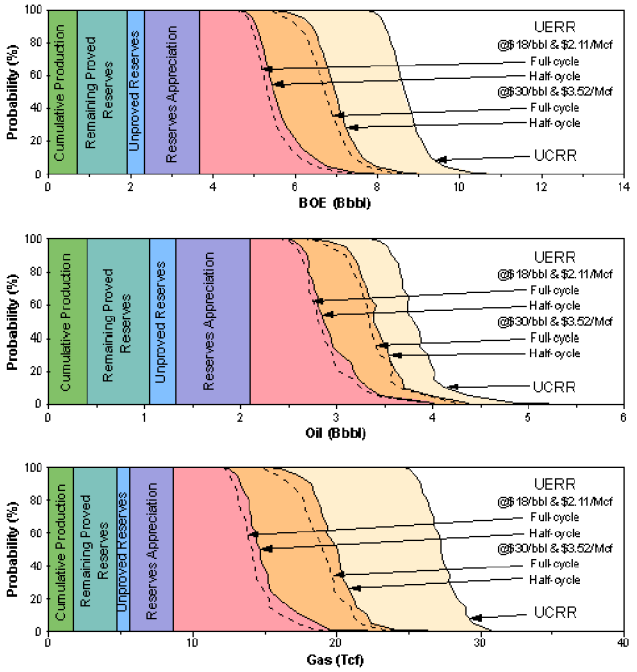

Figure 7. Gulf of Mexico and Atlantic Margin 201-900m Water Depth Total Endowment by Resource Category.

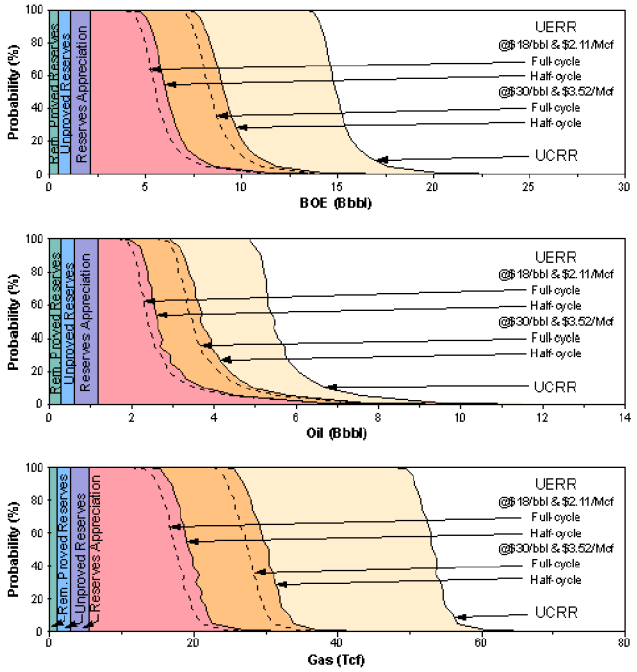

Figure 8. Gulf of Mexico and Atlantic Margin 901-3,000m Water Depth Total Endowment by Resource Category.

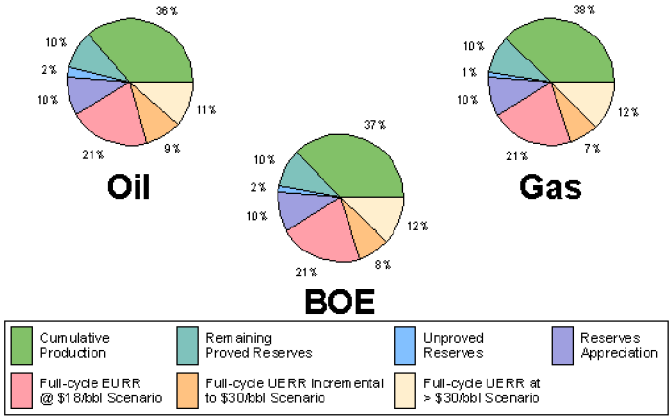

Figure 9. Total Gulf of Mexico and Atlantic Margin Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

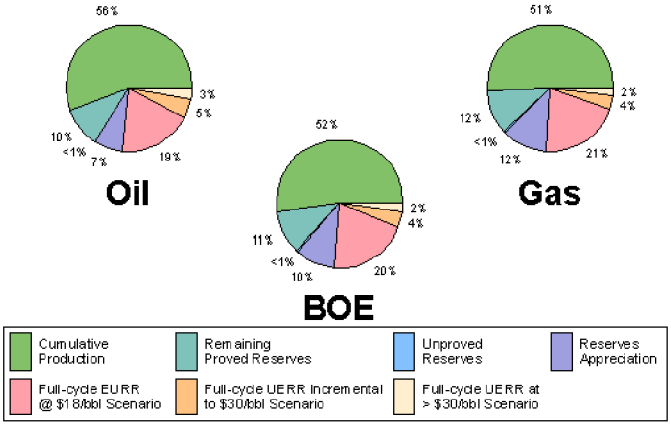

Figure 10. Gulf of Mexico and Atlantic Margin 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

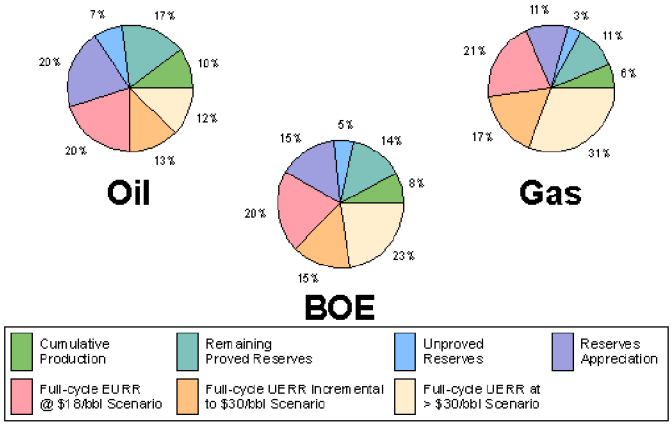

Figure 11. Gulf of Mexico and Atlantic Margin 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

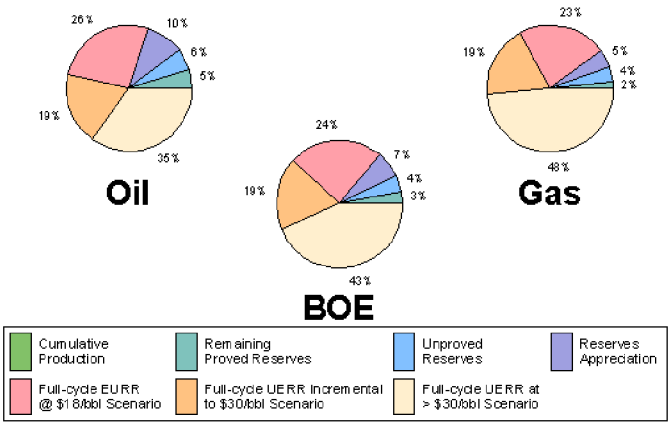

Figure 12. Gulf of Mexico and Atlantic Margin 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

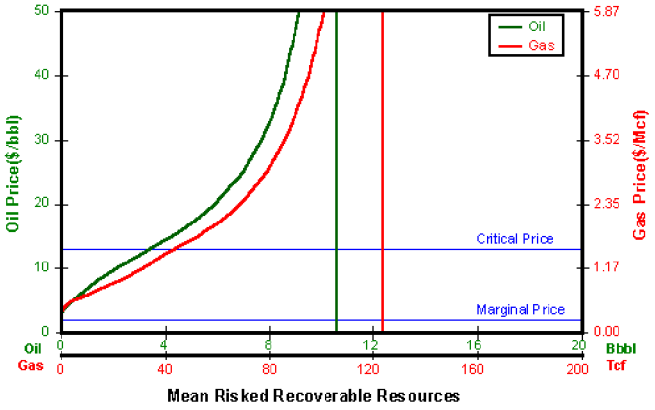

Figure 13. Total Gulf of Mexico and Atlantic Margin Full-Cycle Price-Supply Curve.

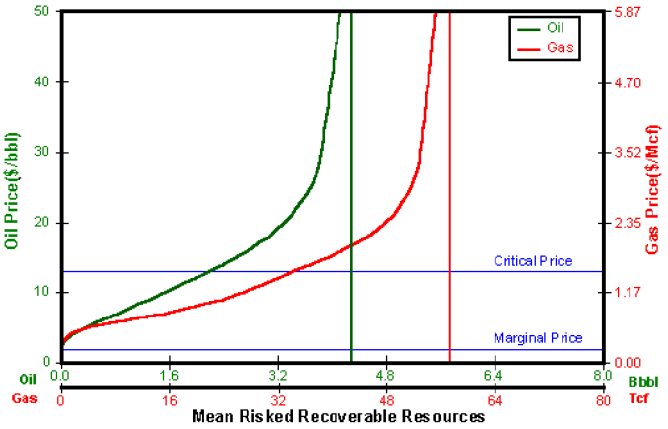

Figure 14. Gulf of Mexico and Atlantic Margin 0-200m Water Depth Full-Cycle Price-Supply Curve.

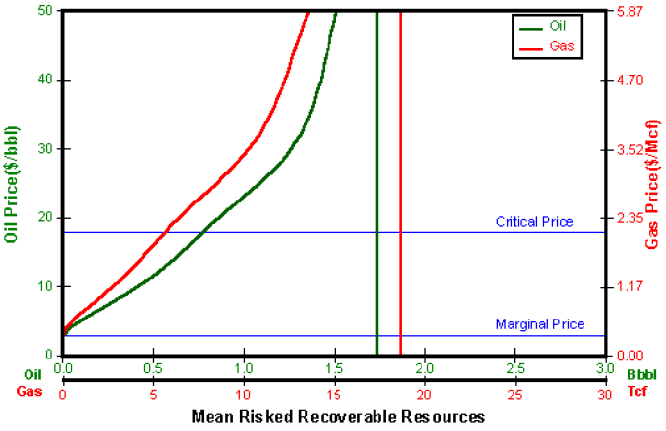

Figure 15. Gulf of Mexico and Atlantic Margin 201-900m Water Depth Full-Cycle Price-Supply Curve.

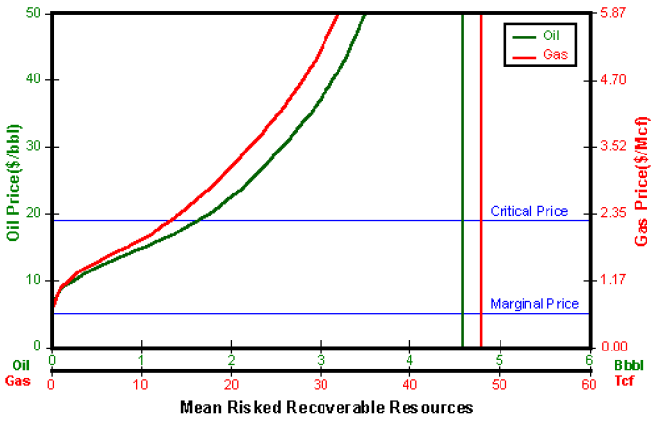

Figure 16. Gulf of Mexico and Atlantic Margin 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

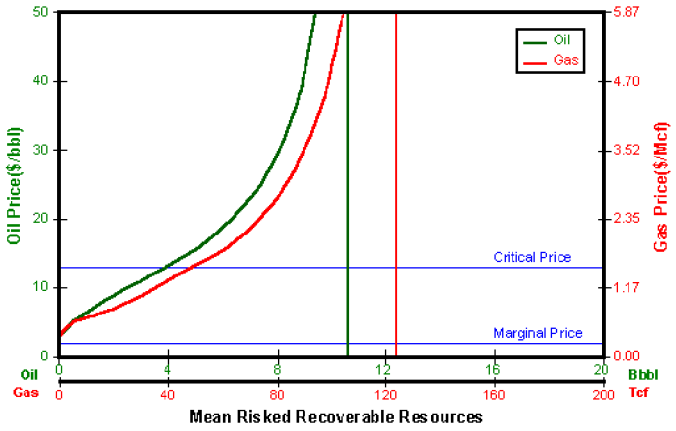

Figure 17. Total Gulf of Mexico and Atlantic Margin Half-Cycle Price-Supply Curve.

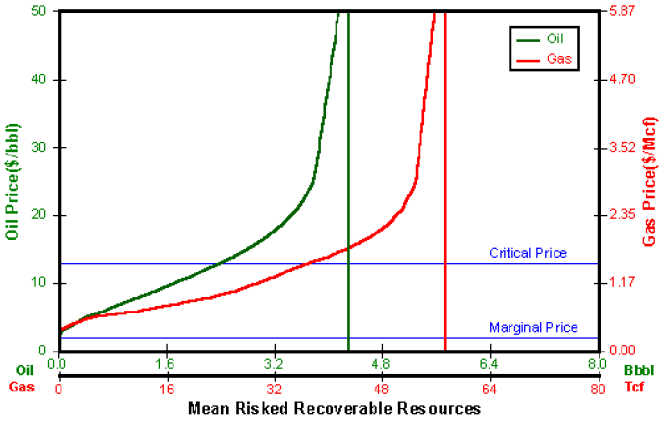

Figure 18. Gulf of Mexico and Atlantic Margin 0-200m Water Depth Half-Cycle Price-Supply Curve.

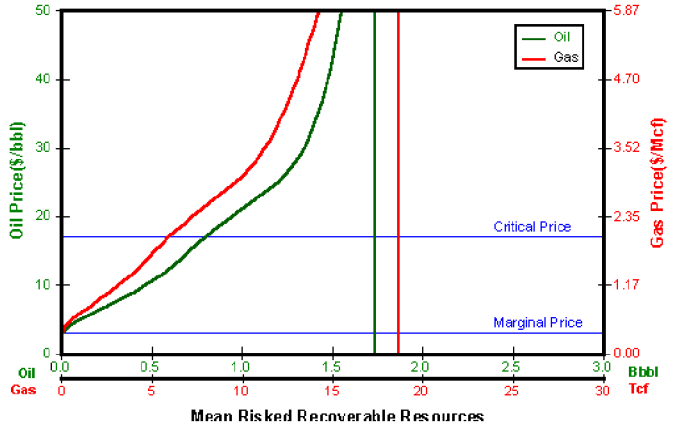

Figure 19. Gulf of Mexico and Atlantic Margin 201-900m Water Depth Half-Cycle Price-Supply Curve.

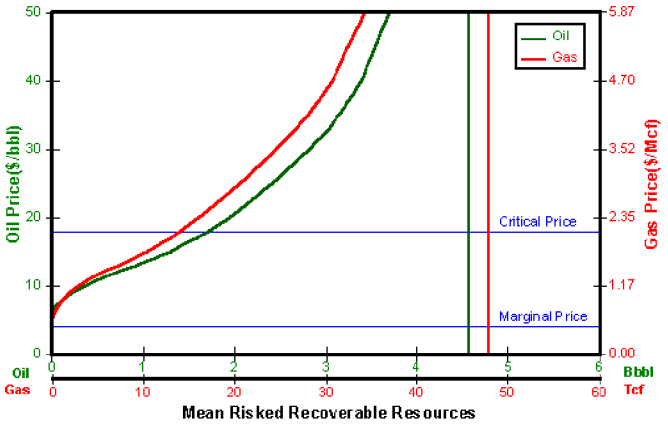

Figure 20. Gulf of Mexico and Atlantic Margin 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

Gulf of Mexico Region Economic Results

The Gulf of Mexico Region includes submerged Federal lands offshore Texas, Louisiana, Mississippi, Alabama, and Florida, and extends to the U.S.-Mexico International Boundary in the west and the U.S.-Cuba International Boundary in the east (figure 1). Water depths in the Region range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

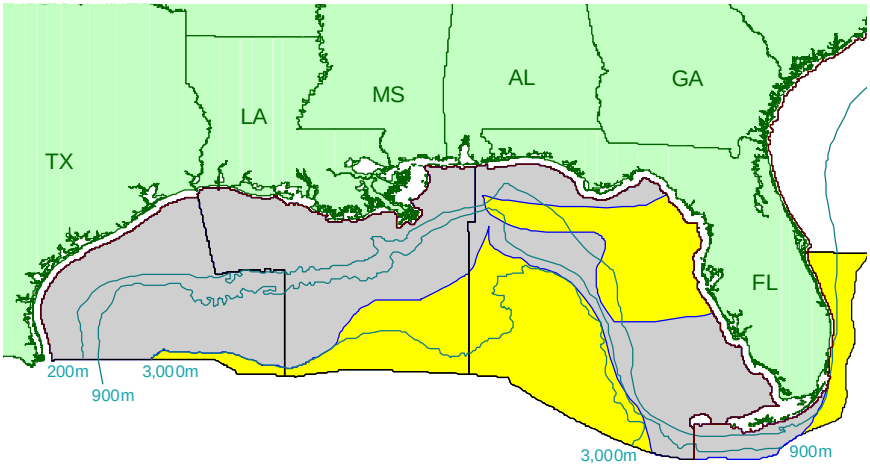

Figure 1. Gulf of Mexico Region Map. The Region is shaded in yellow, and the gray pattern indicates the extent of the assessed plays.

The mean total endowment for this Region is predominantly gas, with 67 percent of the total resources occurring as gas (figure 2). There is a trend towards a less gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 71 percent gas, the 201-900m range consisting of 52 percent gas, and the deepest water depth range consisting of 61 percent gas. The largest concentration of the mean total endowment (74% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of less than 200m (figure 3 and figure 4). The 201-900m range has roughly 9 percent, and the 901-3,000m range has 17 percent of the BOE mean total endowment.

The Region is well developed in the 0-200m range with an extensive infrastructure already in place, less so in the 201-900m range, and minimally in the 901-3,000m range. There has been production in the two shallower ranges, but as of the date of this study, only proved and unproved reserves and reserves appreciation occurred in the 901-3,000m range (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Significant amounts of undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total Region.

Assessment results indicate that the total Region undiscovered economically recoverable resources are notable, with a range of 4.016 to 6.627 Bbo and 53.737 to

62.162 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean economically recoverable resources are estimated at 4.941 Bbo and 57.941 Tcfg. A graphical representation of these results, incorporating every 5th-percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, only 36 percent of the gas in the Region remains to be discovered, and only 35 percent of the oil remains to be discovered (figure 9). Moreover, 21 percent of the gas, oil, and BOE mean total endowment is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

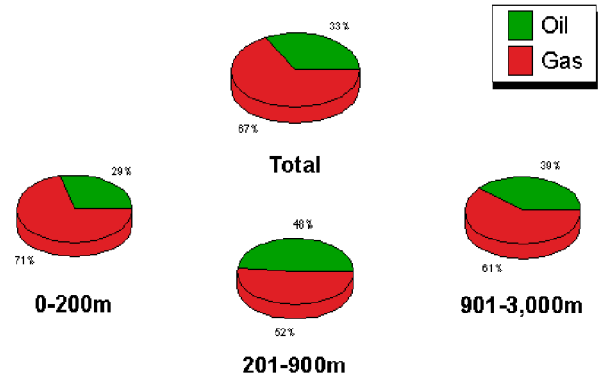

Figure 4 Gulf of Mexico Region Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

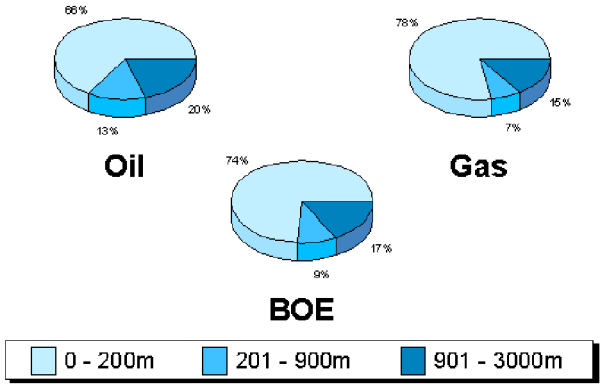

Figure 3. Gulf of Mexico Region Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

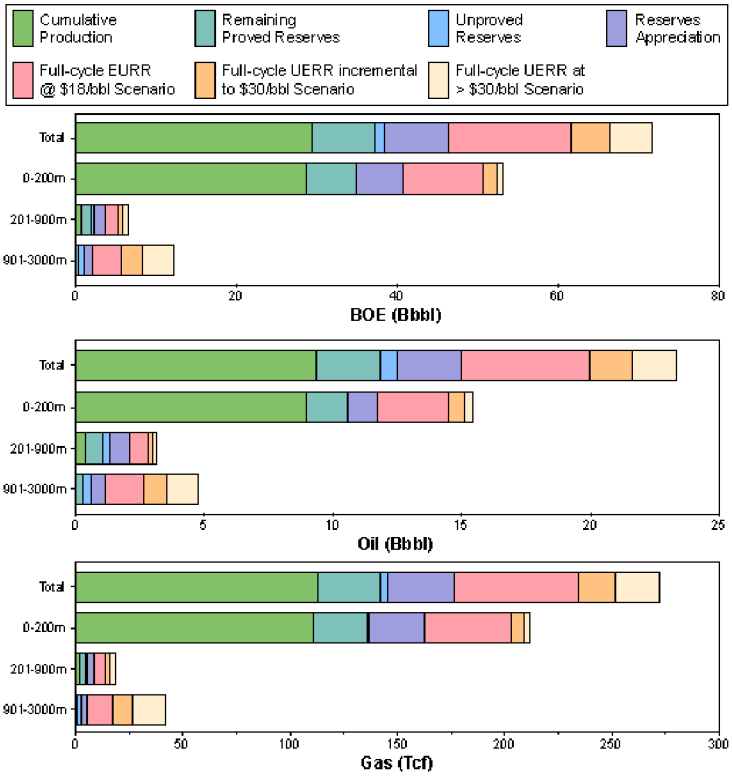

Figure 2. Gulf of Mexico Region Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Number of Pools	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves				
Original proved	2,114	11.853	141.891	37.101
Cumulative production	–	9.338	112.633	29.379
Remaining proved	–	2.516	29.258	7.722
Unproved	69	0.639	3.603	1.280
Appreciation (P & U)	–	2.507	31.028	8.028
Undiscovered Conventionally Recoverable Resources				
95th percentile	–	6.038	82.323	21.218
Mean	1,973	8.344	95.661	25.366
5th percentile	–	11.138	110.286	29.990
Total Endowment				
95th percentile	–	21.037	258.845	67.627
Mean	4,156	23.343	272.183	71.775
5th percentile	–	26.137	286.808	76.399

Table 1. Total Gulf of Mexico Region Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	10.534	136.232	34.775
Cumulative production	8.938	110.943	28.678
Remaining proved	1.597	25.289	6.096
Unproved	0.033	0.761	0.168
Appreciation (P & U)	1.172	25.375	5.687
Undiscovered Conventionally Recoverable Resources			
95th percentile	3.296	47.936	11.825
Mean	3.712	49.331	12.490
5th percentile	4.178	50.721	13.203
Total Endowment			
95th percentile	15.035	210.304	52.456
Mean	15.452	211.699	53.120
5th percentile	15.918	213.089	53.834

Table 2. Gulf of Mexico Region 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	1.043	4.753	1.889
Cumulative production	0.400	1.689	0.701
Remaining proved	0.643	3.064	1.188
Unproved	0.281	0.874	0.437
Appreciation (P & U)	0.778	3.044	1.320
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.825	9.105	2.445
Mean	1.033	10.208	2.849
5th percentile	1.355	11.628	3.424
Total Endowment			
95th percentile	2.927	17.776	6.090
Mean	3.135	18.879	6.494
5th percentile	3.457	20.299	7.069

Table 3. Gulf of Mexico Region 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.276	0.905	0.437
Cumulative production	0.000	0.000	0.000
Remaining proved	0.276	0.905	0.437
Unproved	0.324	1.969	0.675
Appreciation (P & U)	0.557	2.609	1.022
Undiscovered Conventionally Recoverable Resources			
95th percentile	2.955	34.152	9.032
Mean	3.593	36.513	10.090
5th percentile	5.367	39.420	12.381
Total Endowment			
95th percentile	4.112	39.636	11.165
Mean	4.751	41.996	12.224
5th percentile	6.524	44.903	14.514

Table 4. Gulf of Mexico Region 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		4.016	53.737	13.577
Mean		4.941	57.941	15.251
5th percentile		6.627	62.162	17.688
Half-Cycle	1.00			
95th percentile		4.350	58.428	14.747
Mean		5.306	62.300	16.391
5th percentile		6.967	66.495	18.799
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		5.697	71.606	18.439
Mean		6.639	75.298	20.038
5th percentile		8.241	79.251	22.343
Half-Cycle	1.00			
95th percentile		5.963	74.379	19.197
Mean		6.865	78.100	20.762
5th percentile		8.485	81.964	23.069

Table 5. Total Gulf of Mexico Region Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		2.374	38.807	9.279
Mean		2.771	40.722	10.017
5th percentile		3.186	42.653	10.775
Half-Cycle	1.00			
95th percentile		2.497	41.085	9.808
Mean		2.901	42.859	10.527
5th percentile		3.322	44.855	11.304
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		2.980	45.136	11.012
Mean		3.368	46.745	11.686
5th percentile		3.856	48.159	12.425
Half-Cycle	1.00			
95th percentile		3.018	45.852	11.177
Mean		3.423	47.318	11.843
5th percentile		3.905	48.730	12.575

Table 6. Gulf of Mexico Region 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.476	3.859	1.162
Mean		0.701	5.200	1.626
5th percentile		1.030	6.817	2.243
Half-Cycle	1.00			
95th percentile		0.513	4.381	1.292
Mean		0.736	5.633	1.739
5th percentile		1.056	7.383	2.369
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.651	5.993	1.718
Mean		0.870	7.244	2.159
5th percentile		1.196	8.747	2.752
Half-Cycle	1.00			
95th percentile		0.672	6.358	1.803
Mean		0.892	7.602	2.245
5th percentile		1.205	9.166	2.836

Table 7. Gulf of Mexico Region 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.830	8.627	2.365
Mean		1.477	12.053	3.621
5th percentile		3.170	15.275	5.888
Half-Cycle	1.00			
95th percentile		1.008	10.665	2.906
Mean		1.670	13.822	4.130
5th percentile		3.360	16.857	6.360
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		1.731	18.492	5.021
Mean		2.398	21.216	6.173
5th percentile		4.158	24.342	8.490
Half-Cycle	1.00			
95th percentile		1.873	20.385	5.500
Mean		2.545	23.056	6.648
5th percentile		4.303	26.086	8.944

Table 8. Gulf of Mexico Region 901-3,000m Water Depth Economic Assessment Results Table.

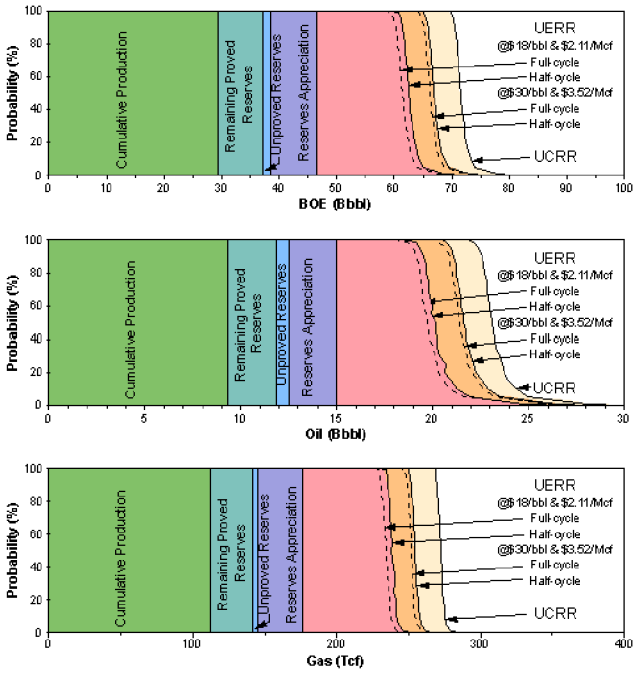

Figure 5. Gulf of Mexico Region Total Endowment by Resource Category.

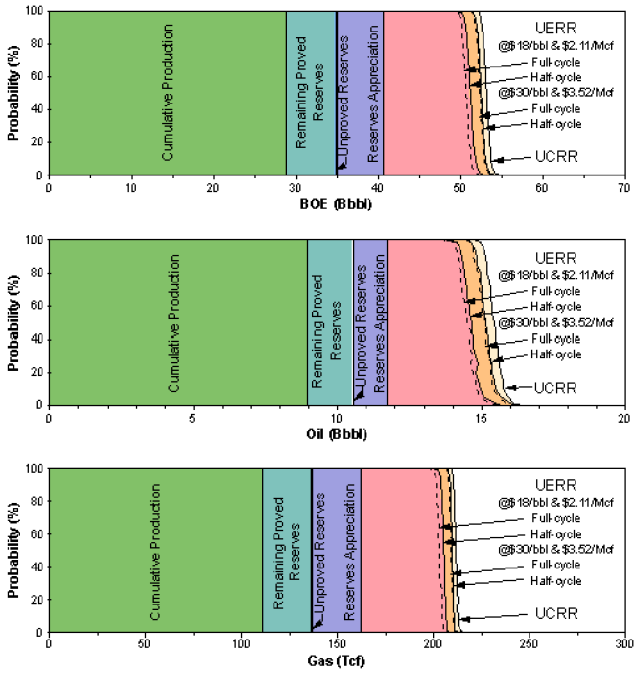

Figure 6. Gulf of Mexico Region 0-200m Water Depth Total Endowment by Resource Category.

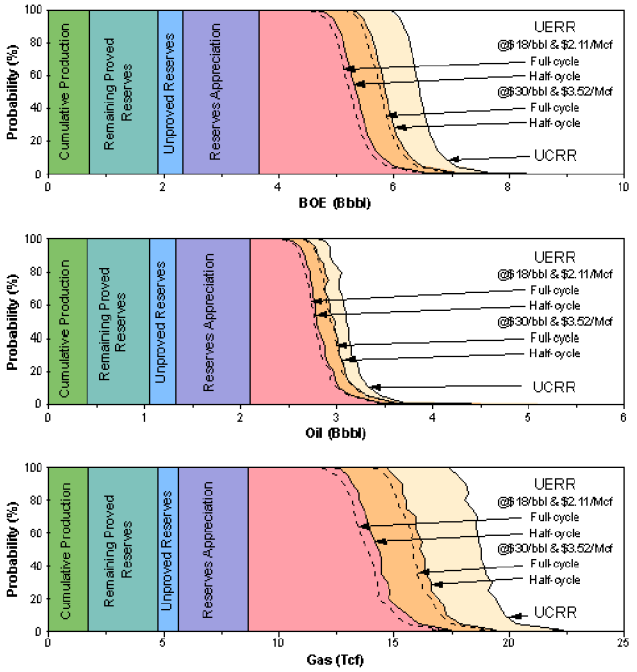

Figure 7. Gulf of Mexico Region 201-900m Water Depth Total Endowment by Resource Category.

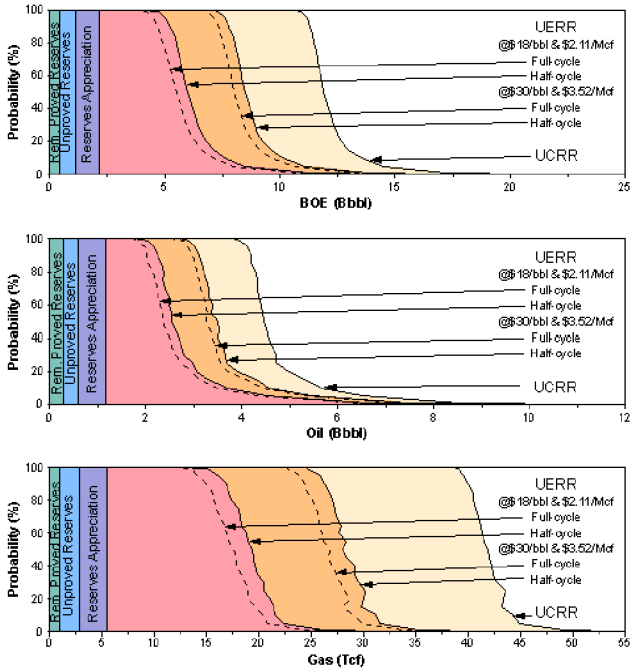

Figure 8. Gulf of Mexico Region 901-3,000m Water Depth Total Endowment by Resource Category.

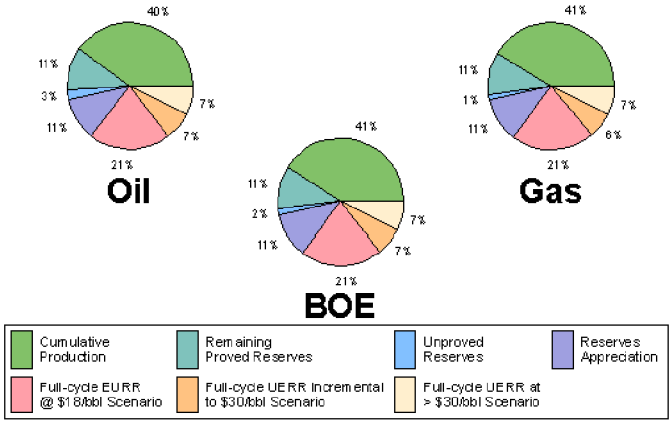

Figure 9. Total Gulf of Mexico Region Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

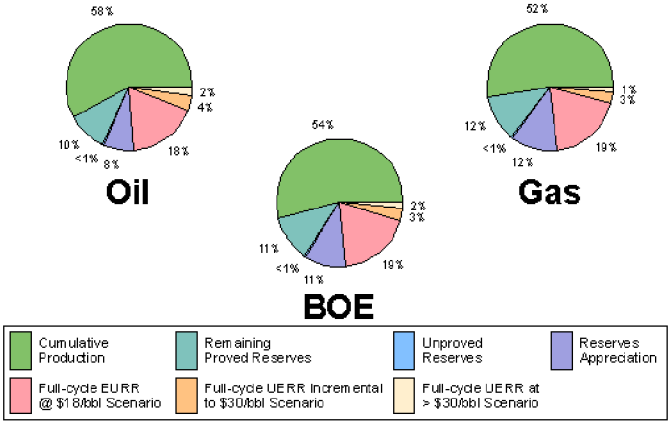

Figure 10. Gulf of Mexico Region 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

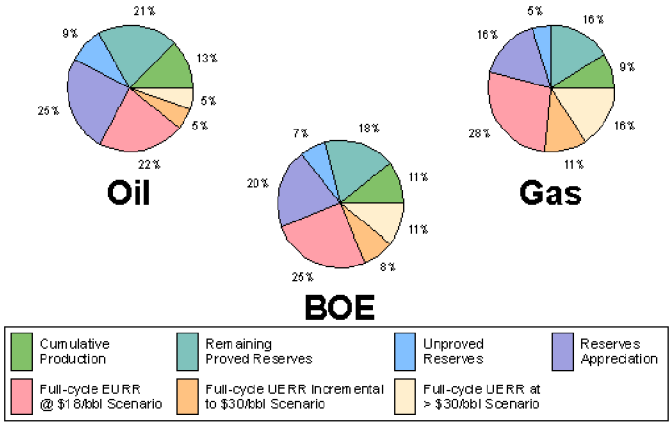

Figure 11. Gulf of Mexico Region 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

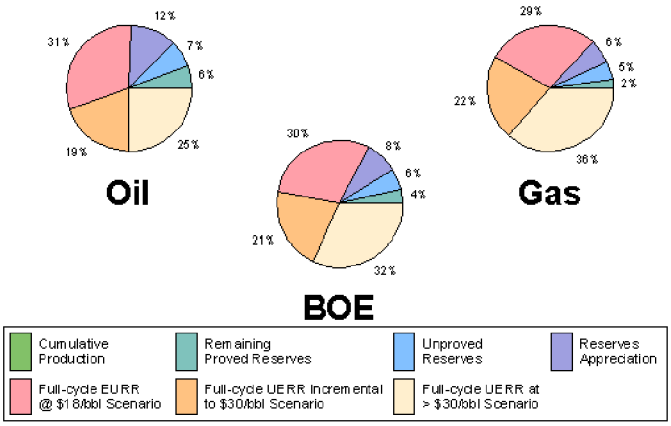

Figure 12. Gulf of Mexico Region 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

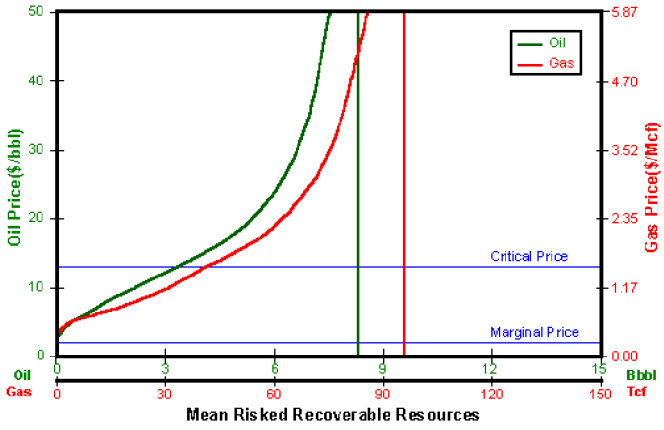

Figure 13. Total Gulf of Mexico Region Full-Cycle Price-Supply Curve.

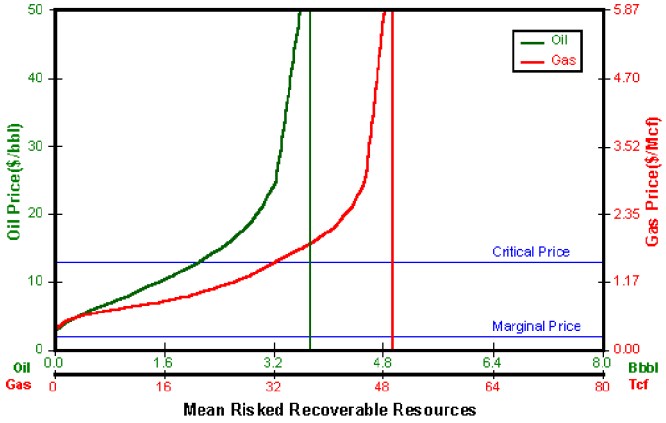

Figure 14. Gulf of Mexico Region 0-200m Water Depth Full-Cycle Price-Supply Curve.

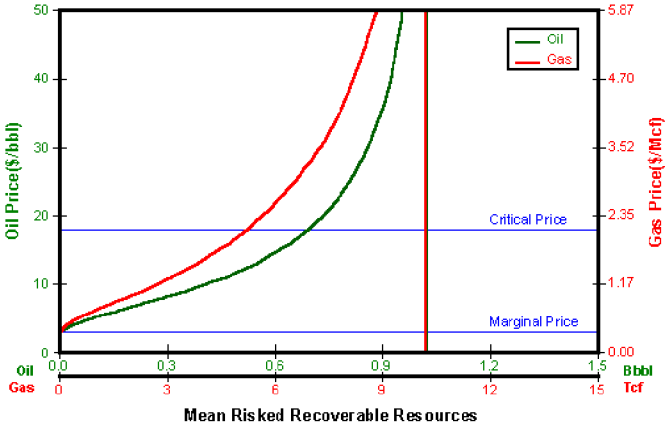

Figure 15. Gulf of Mexico Region 201-900m Water Depth Full-Cycle Price-Supply Curve.

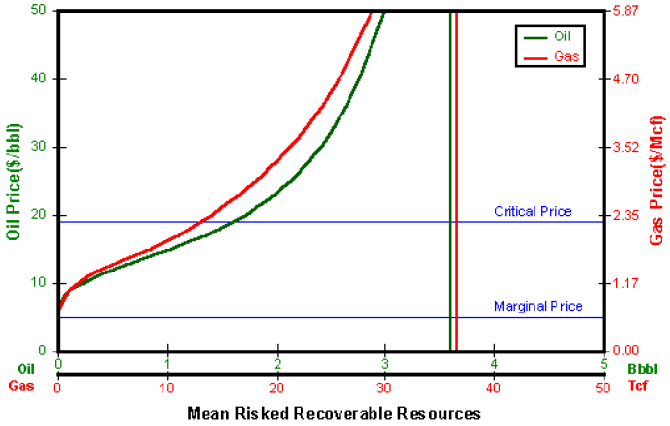

Figure 16. Gulf of Mexico Region 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

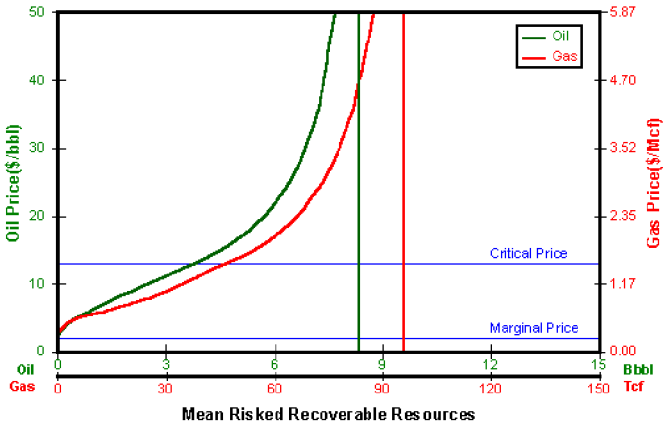

Figure 17. Total Gulf of Mexico Region Half-Cycle Price-Supply Curve.

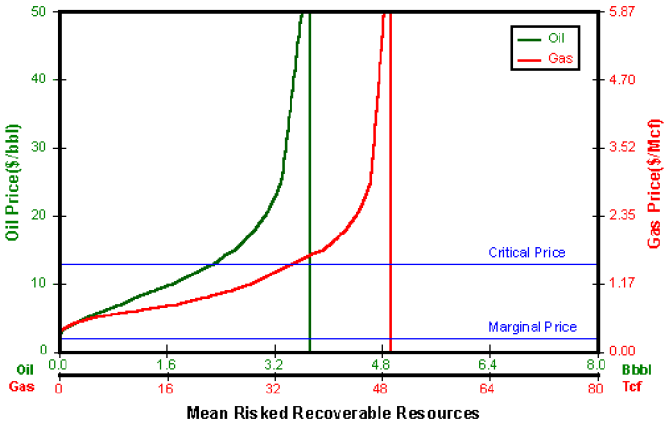

Figure 18. Gulf of Mexico Region 0-200m Water Depth Half-Cycle Price-Supply Curve.

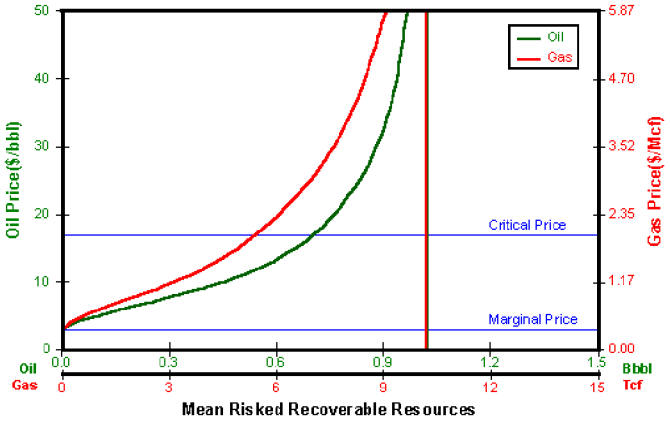

Figure 19. Gulf of Mexico Region 201-900m Water Depth Half-Cycle Price-Supply Curve.

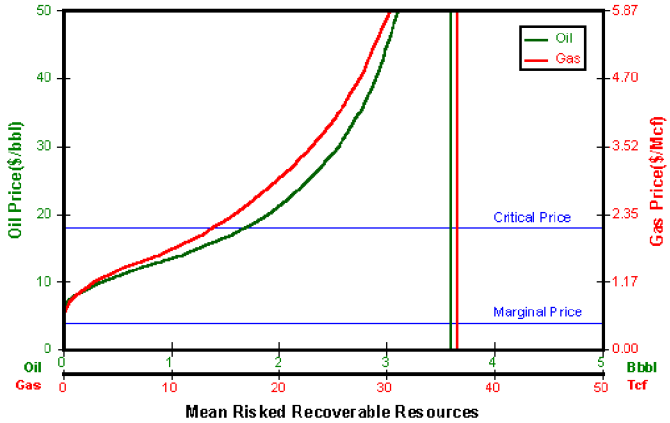

Figure 20. Gulf of Mexico Region 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

Atlantic Region Economic Results

The Atlantic Region includes submerged Federal lands from the U.S.-Canada International Boundary south to offshore Florida (figure 1). Water depths in the Region range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

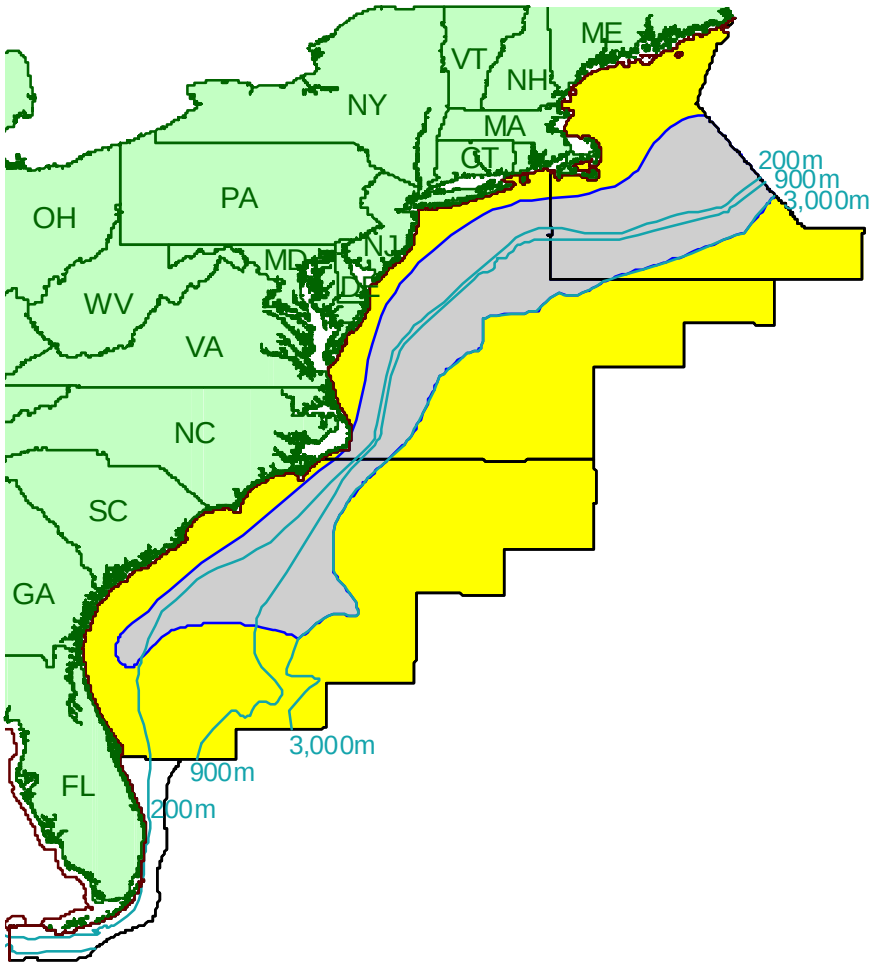

Figure 1. Atlantic Region Map. The Region is shaded in yellow, and the gray pattern indicates the extent of the assessed plays.

The mean total endowment for this Region is predominantly gas, with 68 percent of the total resources occurring as gas (figure 2). There is a very slight trend towards a less gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 71 percent gas, the 201-900m range consisting of 68 percent gas, and the deepest water depth range consisting of 67 percent gas. The largest concentration of the mean total endowment (41% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of more than 900m (figure 3 and figure 4). Each of the other two water depth ranges have 28 to 31 percent of the BOE mean total endowment.

The Region is not developed in any of the water depth ranges, and there is no infrastructure in place. As of the date of this study, there has been no production or reserves in any of the ranges (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in

table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total Region.

Assessment results indicate that the total Region undiscovered economically recoverable resources are modest, with a range of 0.000 to 0.808 Bbo and 0.000 to 11.688 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean economically recoverable resources are estimated at 0.368 Bbo and 5.203 Tcfg. A graphical representation of these results, incorporating every 5th- percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, all of the oil and gas in the Region remains to be discovered, and only 19 percent of the gas and 16 percent of the oil are projected to be economically recoverable at the $18/bbl scenario (figure 9). Therefore, 18 percent of the mean total endowment, on a BOE basis, is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

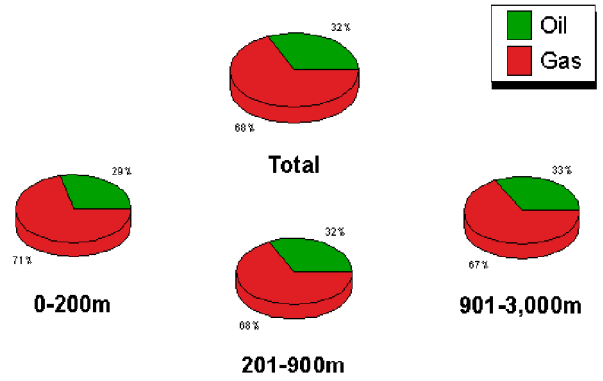

Figure 2. Atlantic Region Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

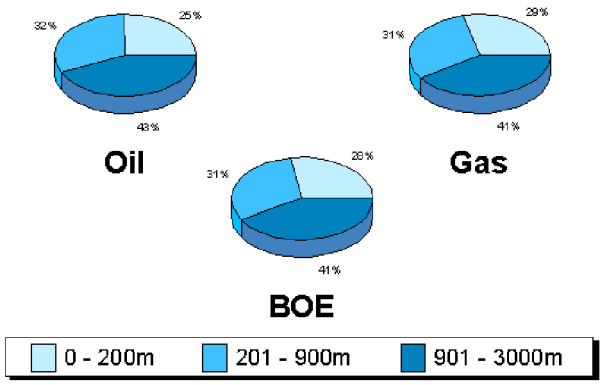

Figure 4. Atlantic Region Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

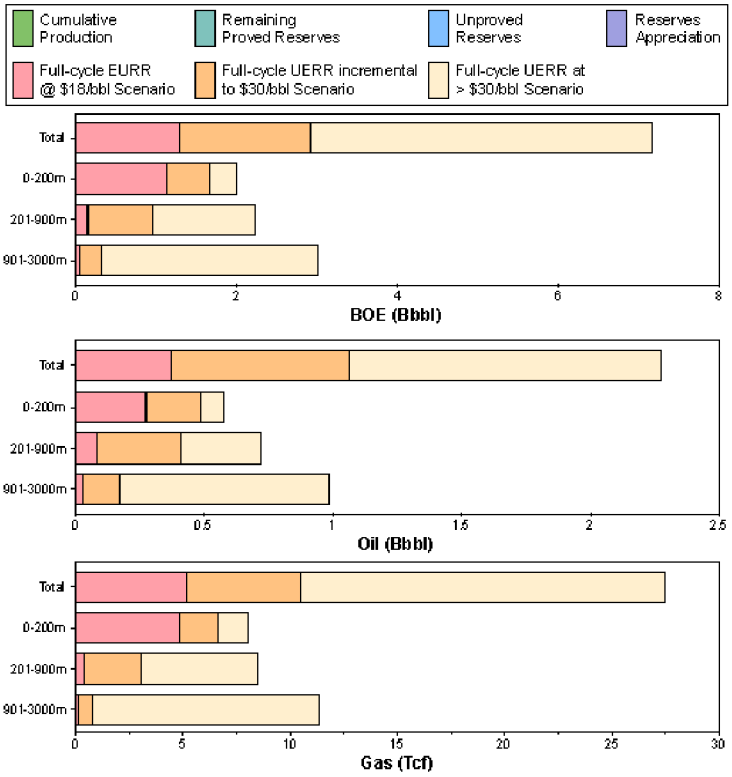

Figure 3. Atlantic Region Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Number of Pools	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves				
Original proved	0	0.000	0.000	0.000
Cumulative production	--	0.000	0.000	0.000
Remaining proved	--	0.000	0.000	0.000
Unproved	0	0.000	0.000	0.000
Appreciation (P & U)	--	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources				
95th percentile	--	1.267	15.855	4.475
Mean	502	2.271	27.480	7.161
5th percentile	--	3.667	43.372	10.684
Total Endowment				
95th percentile	--	1.267	15.855	4.475
Mean	502	2.271	27.480	7.161
5th percentile	--	3.667	43.372	10.684

Table 1. Total Atlantic Region Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.418	4.790	1.271
Mean	0.576	8.004	2.000
5th percentile	0.669	14.557	3.259
Total Endowment			
95th percentile	0.418	4.790	1.271
Mean	0.576	8.004	2.000
5th percentile	0.669	14.557	3.259

Table 2. Atlantic Region 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.524	6.994	1.769
Mean	0.722	8.512	2.236
5th percentile	0.995	10.519	2.867
Total Endowment			
95th percentile	0.524	6.994	1.769
Mean	0.722	8.512	2.236
5th percentile	0.995	10.519	2.867

Table 3. Atlantic Region 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.087	0.223	0.127
Mean	0.191	0.359	0.255
5th percentile	0.371	0.529	0.465
Total Endowment			
95th percentile	0.087	0.223	0.127
Mean	0.191	0.359	0.255
5th percentile	0.371	0.529	0.465

Table 4. Atlantic Region 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.92			
95th percentile		0.000	0.000	0.000
Mean		0.368	5.203	1.294
5th percentile		0.808	11.688	2.888
Half-Cycle	0.97			
95th percentile		0.125	1.154	0.331
Mean		0.452	5.989	1.518
5th percentile		0.910	12.404	3.118
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.587	5.855	1.628
Mean		1.063	10.479	2.927
5th percentile		1.644	16.444	4.570
Half-Cycle	1.00			
95th percentile		0.788	7.242	2.076
Mean		1.234	11.966	3.363
5th percentile		1.854	17.661	4.997

Table 5. Total Atlantic Region Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.90			
95th percentile		0.000	0.000	0.000
Mean		0.274	4.810	1.129
5th percentile		0.427	12.027	2.567
Half-Cycle	0.94			
95th percentile		0.037	0.378	0.105
Mean		0.313	5.279	1.252
5th percentile		0.447	12.398	2.653
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.338	3.361	0.936
Mean		0.486	6.653	1.669
5th percentile		0.578	13.179	2.923
Half-Cycle	1.00			
95th percentile		0.346	3.600	0.987
Mean		0.499	6.848	1.718
5th percentile		0.586	13.395	2.970

Table 6. Atlantic Region 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.22			
95th percentile		0.000	0.000	0.000
Mean		0.083	0.375	0.150
5th percentile		0.449	2.933	0.971
Half-Cycle	0.31			
95th percentile		0.000	0.000	0.000
Mean		0.118	0.652	0.234
5th percentile		0.519	3.629	1.165
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.95			
95th percentile		0.044	0.209	0.081
Mean		0.408	3.047	0.950
5th percentile		0.740	5.276	1.679
Half-Cycle	0.98			
95th percentile		0.225	1.514	0.495
Mean		0.463	3.622	1.108
5th percentile		0.809	5.648	1.814

Table 7. Atlantic Region 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.05			
95th percentile		0.000	0.000	0.000
Mean		0.026	0.104	0.045
5th percentile		0.146	0.656	0.262
Half-Cycle	0.08			
95th percentile		0.000	0.000	0.000
Mean		0.040	0.157	0.068
5th percentile		0.311	1.381	0.557
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.42			
95th percentile		0.000	0.000	0.000
Mean		0.173	0.798	0.315
5th percentile		0.638	3.572	1.273
Half-Cycle	0.63			
95th percentile		0.000	0.000	0.000
Mean		0.277	1.505	0.545
5th percentile		0.759	4.446	1.551

Table 8. Atlantic Region 901-3,000m Water Depth Economic Assessment Results Table.

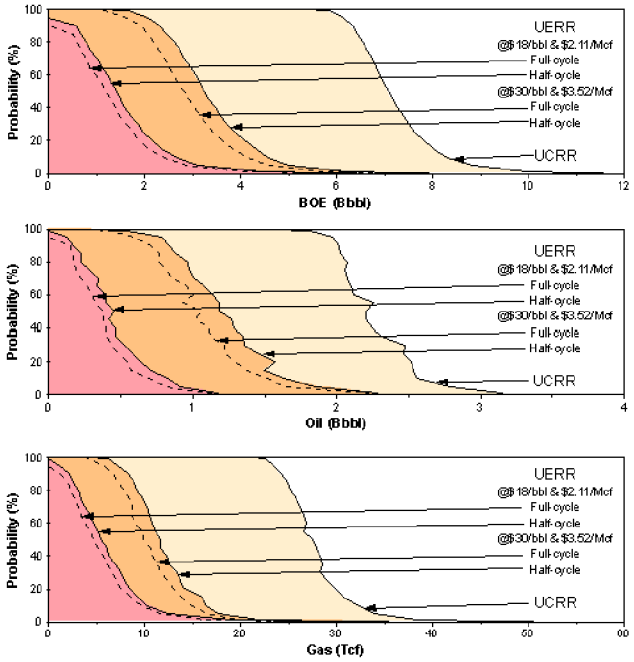

Figure 5. Atlantic Region Total Endowment by Resource Category.

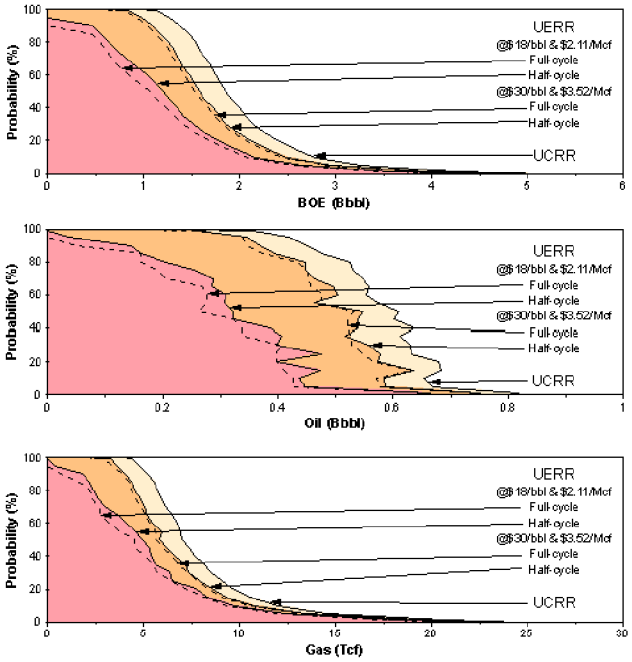

Figure 6. Atlantic Region 0-200m Water Depth Total Endowment by Resource Category.

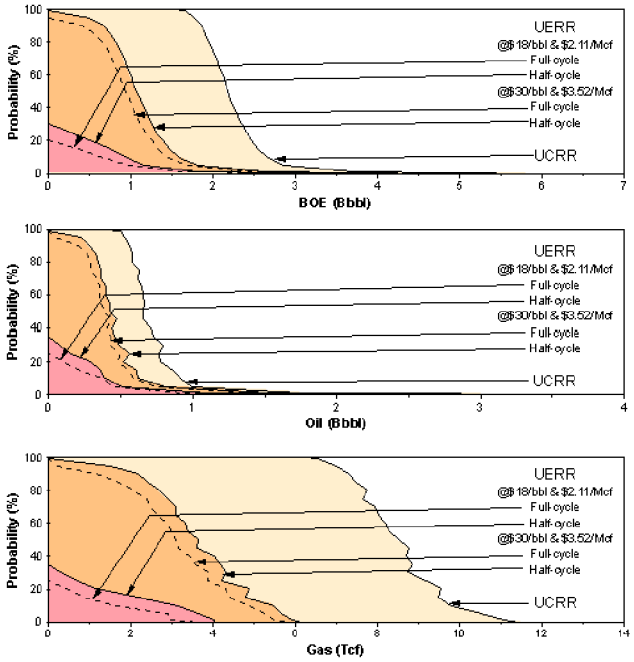

Figure 7. Atlantic Region 201-900m Water Depth Total Endowment by Resource Category.

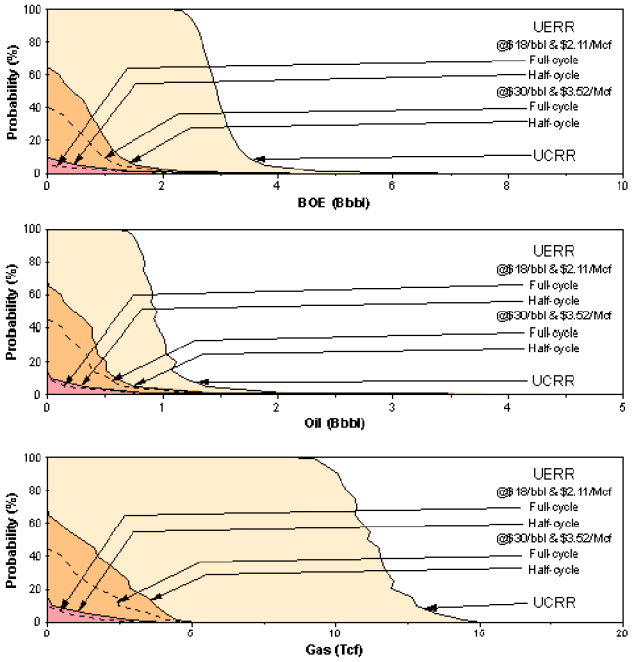

Figure 8. Atlantic Region 901-3,000m Water Depth Total Endowment by Resource Category.

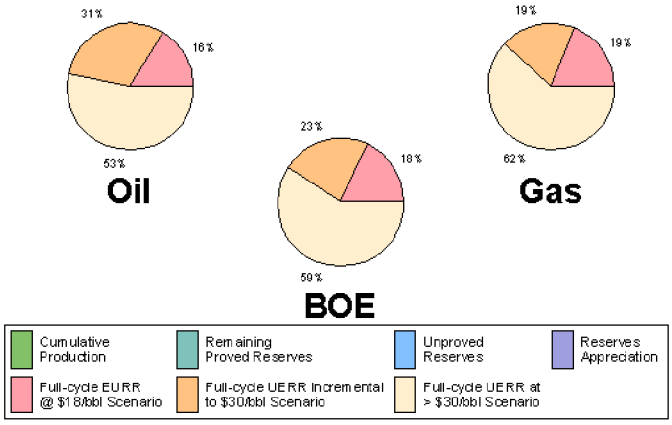

Figure 9. Total Atlantic Region Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

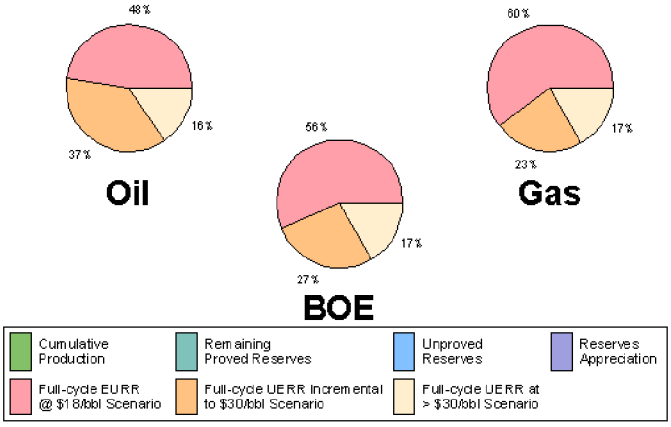

Figure 10. Atlantic Region 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

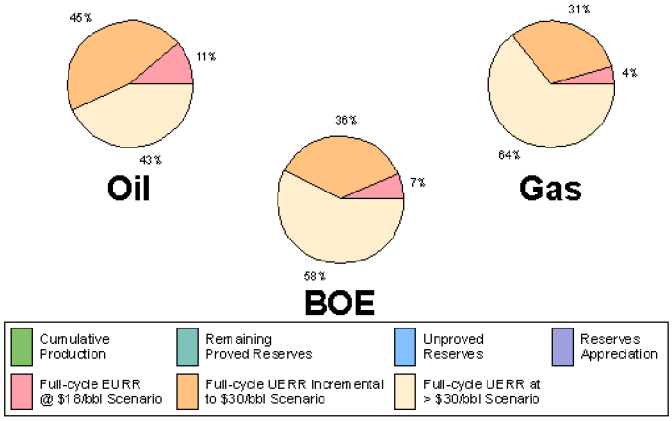

Figure 11. Atlantic Region 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

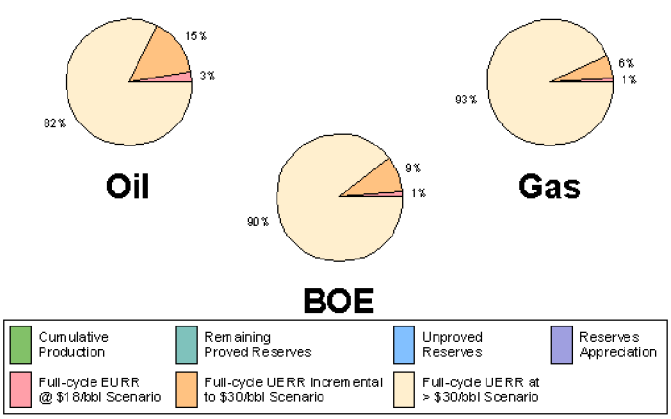

Figure 12. Atlantic Region 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

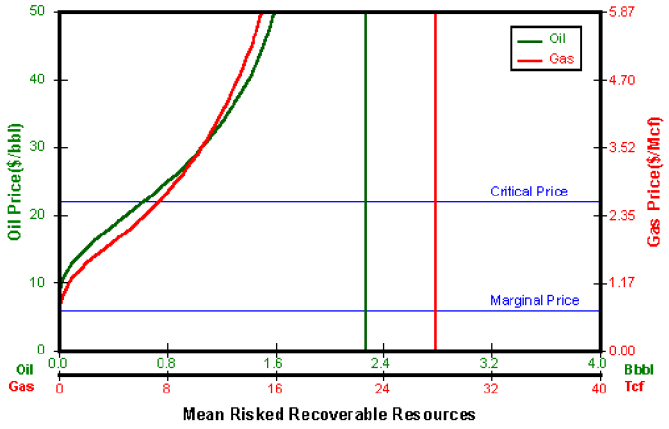

Figure 13. Total Atlantic Region Full-Cycle Price-Supply Curve.

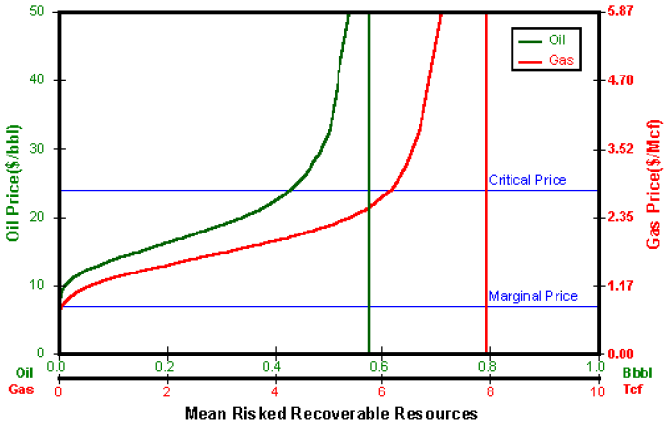

Figure 14. Atlantic Region 0-200m Water Depth Full-Cycle Price-Supply Curve.

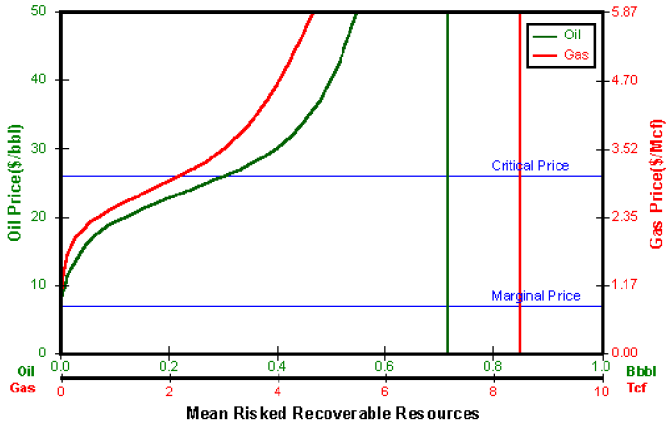

Figure 15. Atlantic Region 201-900m Water Depth Full-Cycle Price-Supply Curve.

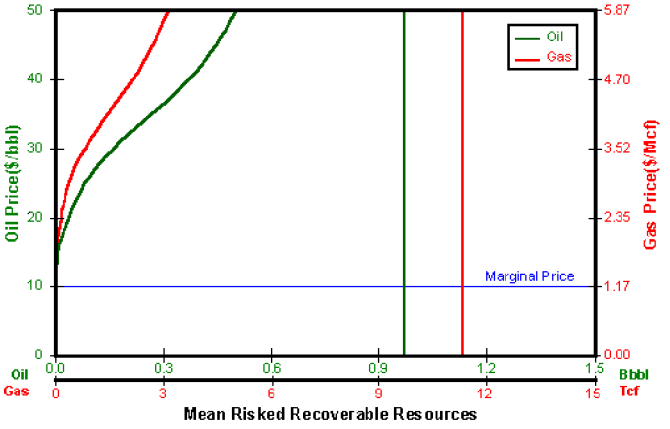

Figure 16. Atlantic Region 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

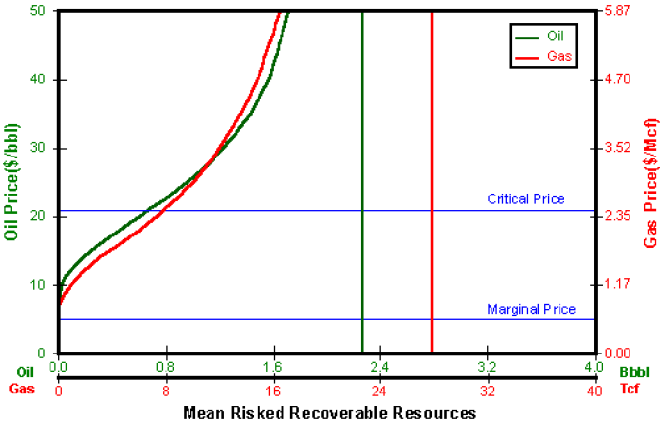

Figure 17. Total Atlantic Region Half-Cycle Price-Supply Curve.

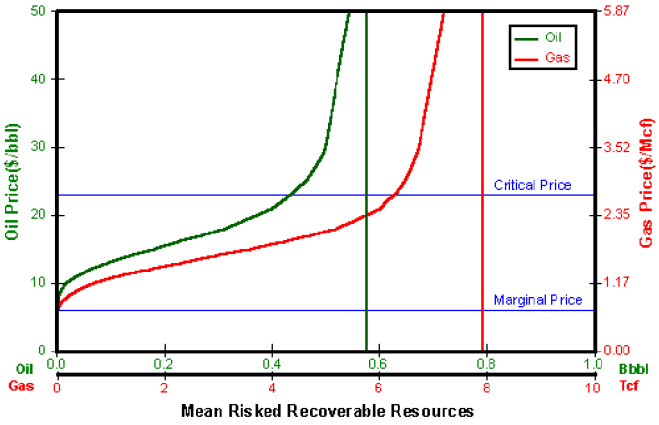

Figure 18. Atlantic Region 0-200m Water Depth Half-Cycle Price-Supply Curve.

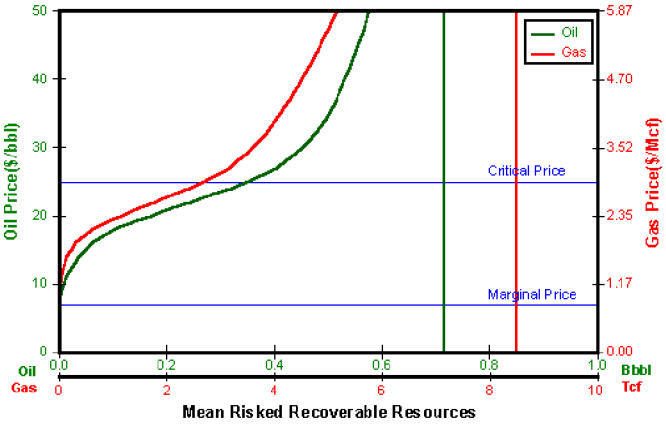

Figure 19. Atlantic Region 201-900m Water Depth Half-Cycle Price-Supply Curve.

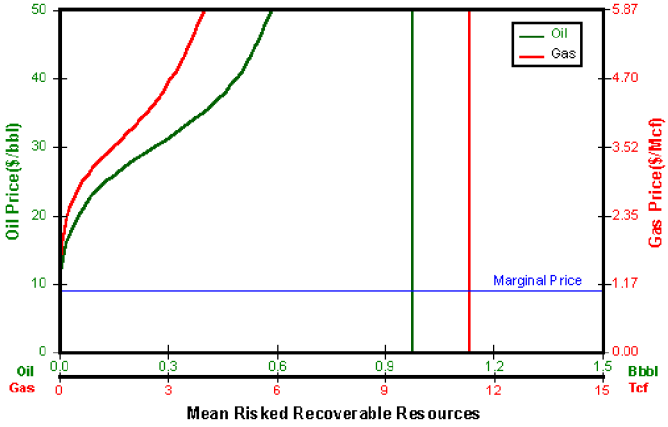

Figure 20. Atlantic Region 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

Gulf of Mexico Cenozoic Province Economic Results

The Gulf of Mexico Cenozoic Province includes submerged Federal lands offshore Texas, Louisiana, Mississippi, and Alabama, and extends to the U.S.-Mexico International Boundary in the west (figure 1). Water depths in the Province range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

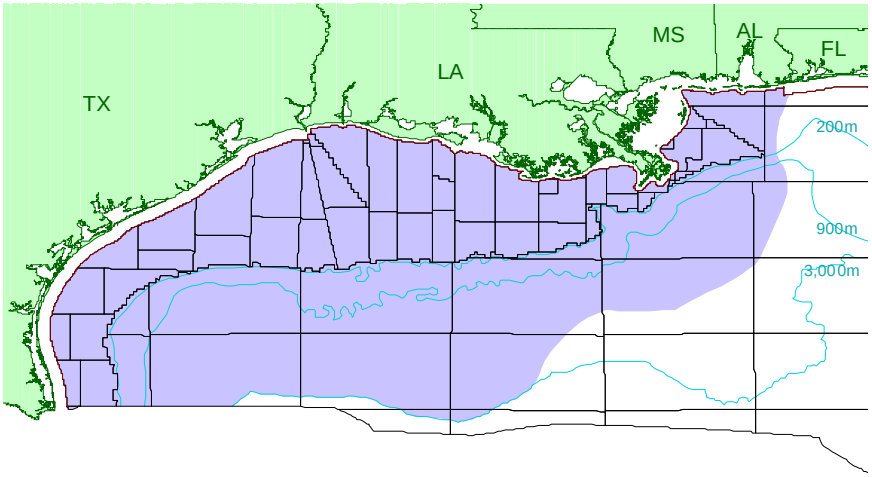

Figure 1. Gulf of Mexico Cenozoic Province Map. The shaded areas indicate the extent of the assessed plays in the Province.

The mean total endowment for this Province is predominantly gas, with 69 percent of the total resources occurring as gas (figure 2). There is a slight trend towards a less gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 72 percent gas, the 201-900m range consisting of 53 percent gas, and the deepest water depth range consisting of 62 percent gas. The largest concentration of the mean total endowment (73% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of less than 200m (figure 3 and figure 4). The 201-900m range has roughly 9 percent, and the 901-3,000m range has 18 percent of the BOE mean total endowment.

The Province is well developed in the 0-200m range with an extensive infrastructure already in place, less so in the 201-900m range, and minimally in the 901-3,000m range. There has been production in the two shallower ranges, but as of the date of this study, only proved and unproved reserves and reserves appreciation occurred in the 901-3,000m range (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Significant amounts of undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total Province.

Assessment results indicate that the total Province undiscovered economically recoverable resources are significant, with a range of 3.005 to 5.338 Bbo and 48.764 to 56.780 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl

scenario. The mean economically recoverable resources are estimated at 3.794 Bbo and 53.028 Tcfg. A graphical representation of these results, incorporating every 5th-percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, only 34 percent of the gas in the Province remains to be discovered, and less than 30 percent of the oil remains to be discovered (figure 9). Moreover, 18 to 20 percent of the gas, oil, and BOE mean total endowment is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

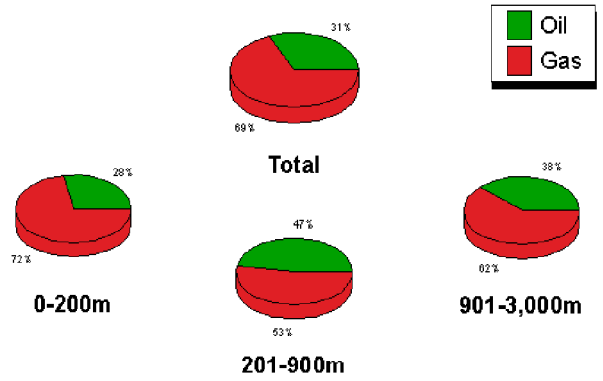

Figure 2. Gulf of Mexico Cenozoic Province Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

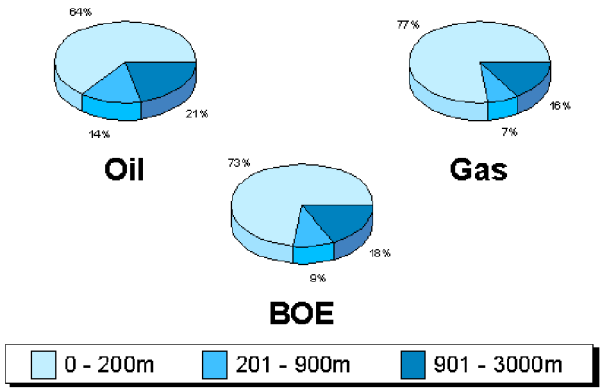

Figure 4. Gulf of Mexico Cenozoic Province Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

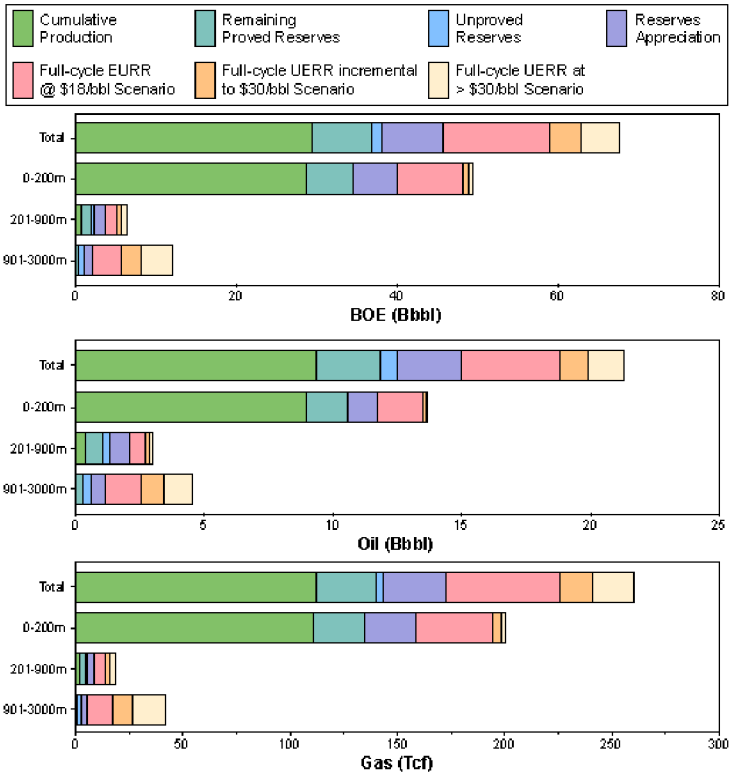

Figure 3. Gulf of Mexico Cenozoic Province Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Number of Pools	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves				
Original proved	2,105	11.853	140.318	36.821
Cumulative production	--	9.337	112.434	29.344
Remaining proved	--	2.516	27.884	7.477
Unproved	67	0.638	3.006	1.172
Appreciation (P & U)	--	2.505	29.389	7.735
Undiscovered Conventionally Recoverable Resources				
95th percentile	--	4.428	74.766	18.199
Mean	1,794	6.291	87.553	21.870
5th percentile	--	8.584	101.639	25.977
Total Endowment				
95th percentile	--	19.424	247.479	63.927
Mean	3,966	21.287	260.266	67.598
5th percentile	--	23.580	274.352	71.705

Table 1. Total Gulf of Mexico Cenozoic Province Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	10.534	134.660	34.495
Cumulative production	8.938	110.745	28.643
Remaining proved	1.597	23.914	5.852
Unproved	0.032	0.164	0.061
Appreciation (P & U)	1.170	23.735	5.394
Undiscovered Conventionally Recoverable Resources			
95th percentile	1.747	40.131	8.888
Mean	1.934	41.759	9.365
5th percentile	2.132	43.618	9.893
Total Endowment			
95th percentile	13.484	196.689	48.838
Mean	13.671	200.317	49.314
5th percentile	13.869	202.176	49.843

Table 2. Gulf of Mexico Cenozoic Province 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	1.043	4.753	1.889
Cumulative production	0.400	1.689	0.701
Remaining proved	0.643	3.064	1.188
Unproved	0.281	0.874	0.437
Appreciation (P & U)	0.778	3.044	1.320
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.744	8.937	2.334
Mean	0.911	10.072	2.703
5th percentile	1.174	11.693	3.255
Total Endowment			
95th percentile	2.847	17.608	5.980
Mean	3.013	18.743	6.348
5th percentile	3.276	20.365	6.900

Table 3. Gulf of Mexico Cenozoic Province 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.276	0.905	0.437
Cumulative production	0.000	0.000	0.000
Remaining proved	0.276	0.905	0.437
Unproved	0.324	1.969	0.675
Appreciation (P & U)	0.557	2.609	1.022
Undiscovered Conventionally Recoverable Resources			
95th percentile	2.828	33.414	8.773
Mean	3.400	36.159	9.834
5th percentile	5.079	39.613	12.127
Total Endowment			
95th percentile	3.985	38.898	10.906
Mean	4.557	41.642	11.967
5th percentile	6.236	45.096	14.261

Table 4. Gulf of Mexico Cenozoic Province 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		3.005	48.764	11.682
Mean		3.794	53.028	13.230
5th percentile		5.338	56.780	15.441
Half-Cycle	1.00			
95th percentile		3.253	52.603	12.613
Mean		4.053	56.600	14.125
5th percentile		5.632	60.148	16.334
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		4.175	64.580	15.666
Mean		4.927	68.220	17.066
5th percentile		6.539	71.732	19.302
Half-Cycle	1.00			
95th percentile		4.374	67.102	16.314
Mean		5.096	70.826	17.699
5th percentile		6.704	74.216	19.909

Table 5. Total Gulf of Mexico Cenozoic Province Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		1.600	33.984	7.647
Mean		1.759	35.818	8.132
5th percentile		1.982	37.656	8.682
Half-Cycle	1.00			
95th percentile		1.623	35.346	7.913
Mean		1.792	37.144	8.401
5th percentile		2.006	38.995	8.944
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		1.717	38.128	8.502
Mean		1.876	39.868	8.970
5th percentile		2.061	41.827	9.503
Half-Cycle	1.00			
95th percentile		1.715	38.606	8.584
Mean		1.884	40.284	9.053
5th percentile		2.075	42.166	9.577

Table 6. Gulf of Mexico Cenozoic Province 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.454	3.843	1.138
Mean		0.635	5.169	1.554
5th percentile		0.902	6.942	2.138
Half-Cycle	1.00			
95th percentile		0.489	4.175	1.232
Mean		0.665	5.584	1.659
5th percentile		0.935	7.335	2.240
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.609	5.863	1.652
Mean		0.772	7.163	2.047
5th percentile		1.045	8.790	2.609
Half-Cycle	1.00			
95th percentile		0.620	6.329	1.746
Mean		0.792	7.518	2.130
5th percentile		1.070	9.114	2.692

Table 7. Gulf of Mexico Cenozoic Province 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.738	8.743	2.294
Mean		1.406	12.016	3.544
5th percentile		3.069	15.715	5.865
Half-Cycle	1.00			
95th percentile		0.931	10.608	2.818
Mean		1.603	13.810	4.060
5th percentile		3.231	17.570	6.358
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		1.646	18.115	4.870
Mean		2.273	21.132	6.033
5th percentile		3.908	24.862	8.331
Half-Cycle	1.00			
95th percentile		1.810	20.020	5.372
Mean		2.416	22.975	6.504
5th percentile		4.064	26.616	8.799

Table 8. Gulf of Mexico Cenozoic Province 901-3,000m Water Depth Economic Assessment Results Table.

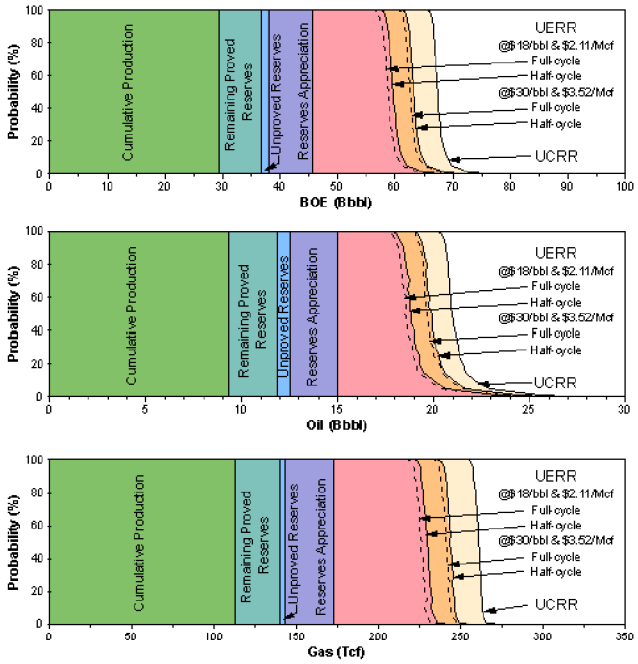

Figure 5. Gulf of Mexico Cenozoic Province Total Endowment by Resource Category.

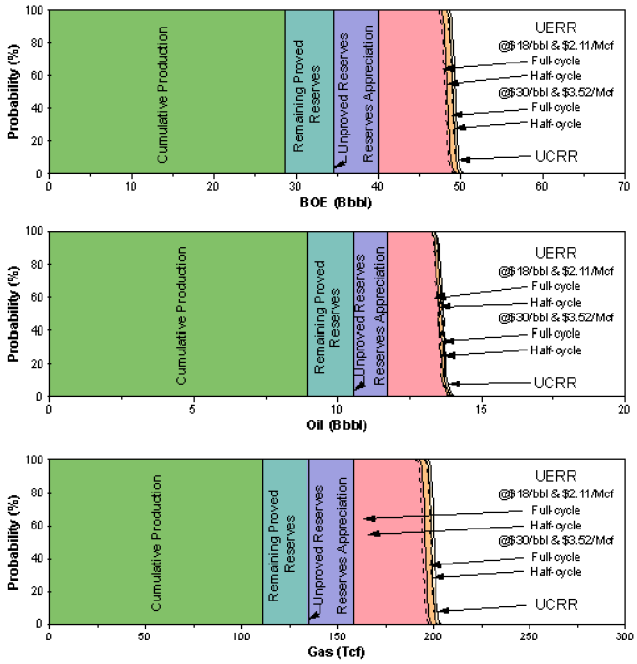

Figure 6. Gulf of Mexico Cenozoic Province 0-200m Water Depth Total Endowment by Resource Category.

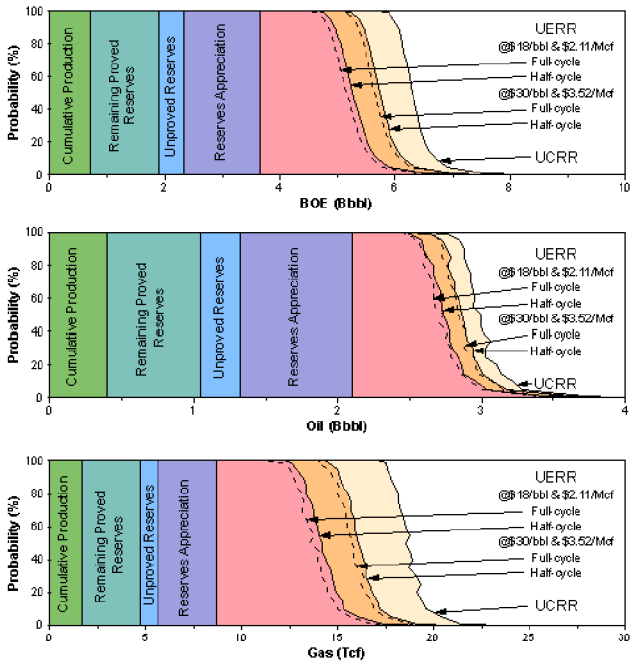

Figure 7. Gulf of Mexico Cenozoic Province 201-900M Water Depth Total Endowment by Resource Category.

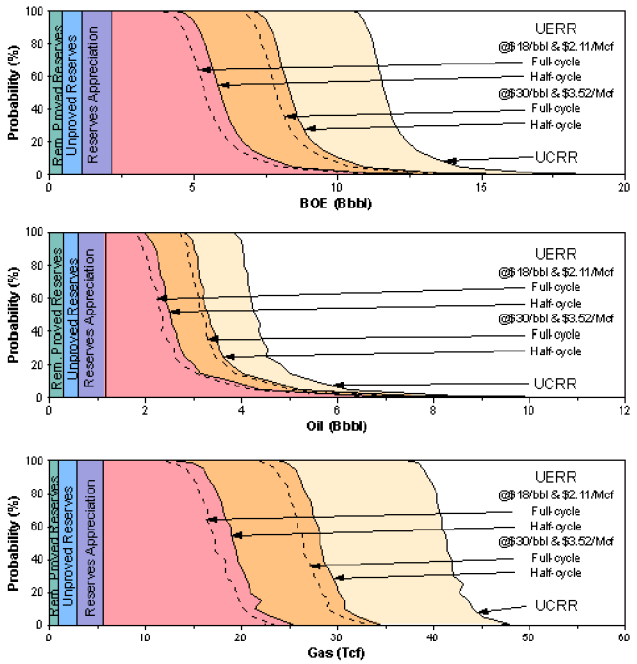

Figure 8. Gulf of Mexico Cenozoic Province 901-3,000m Water Depth Total Endowment by Resource Category.

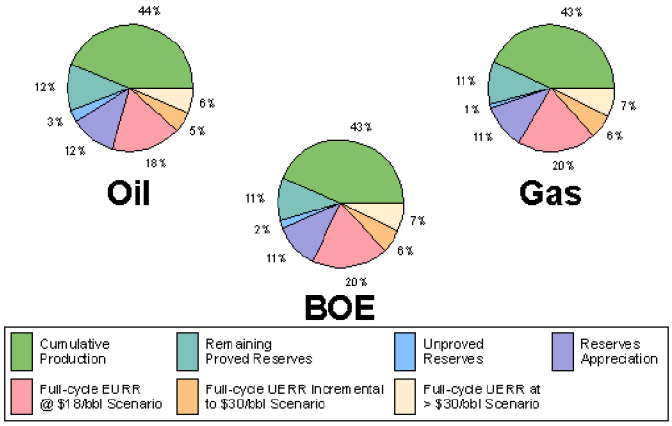

Figure 9. Total Gulf of Mexico Ceozoic Province Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

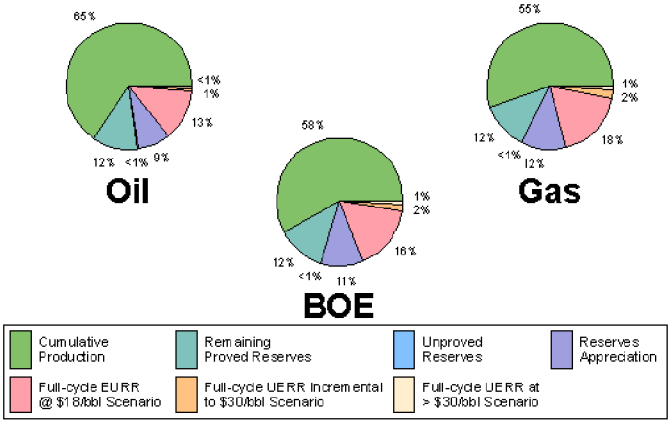

Figure 10. Gulf of Mexico Cenozoic Province 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

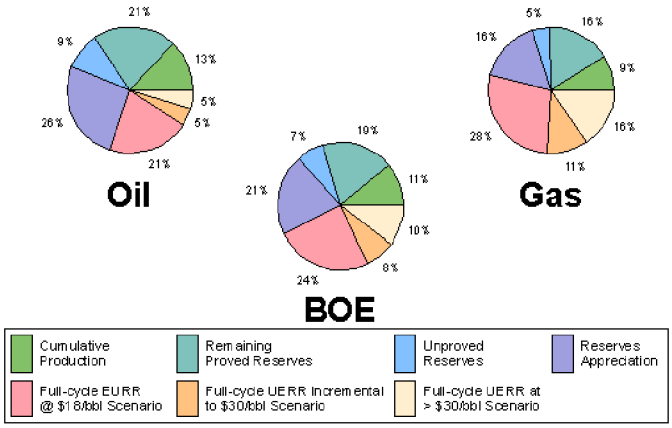

Figure 11. Gulf of Mexico Cenozoic Province 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

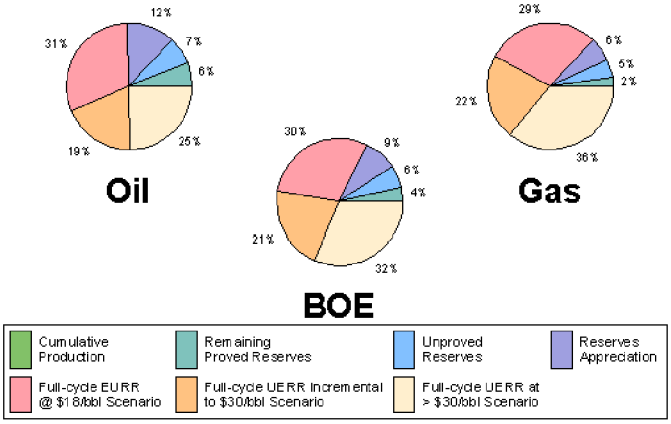

Figure 12. Gulf of Mexico Cenozoic Province 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

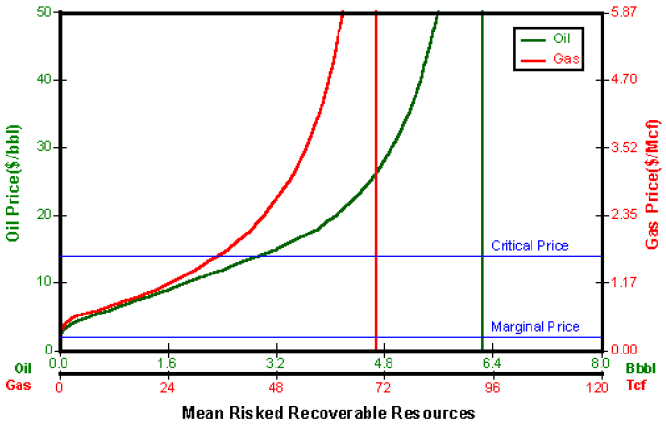

Figure 13. Total Gulf of Mexico Cenozoic Province Full-Cycle Price-Supply Curve.

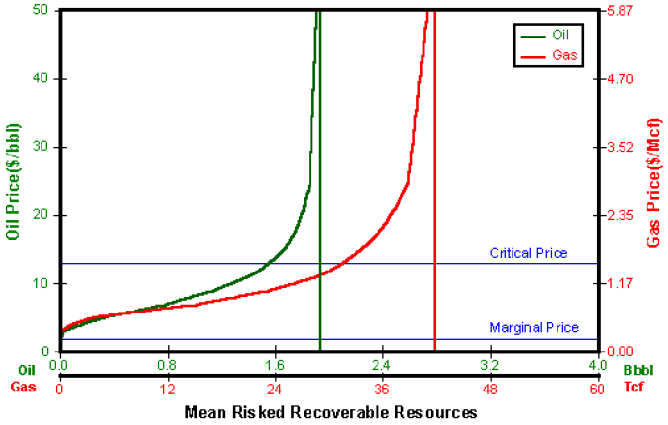

Figure 14. Gulf of Mexico Cenozoic Province 0-200m Water Depth Full-Cycle Price-Supply Curve.

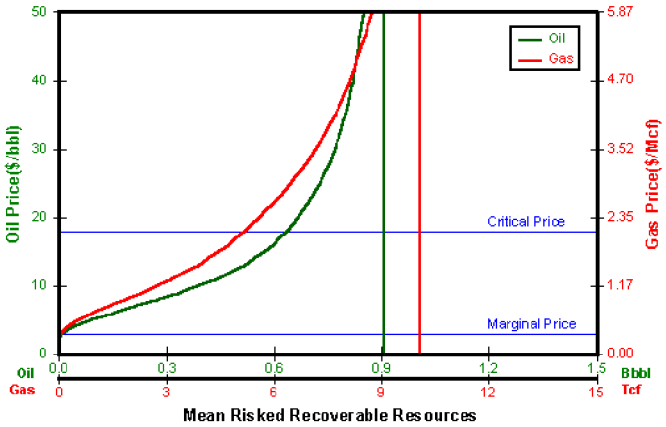

Figure 15. Gulf of Mexico Cenozoic Province 201-900m Water Depth Full-Cycle Price-Supply Curve.

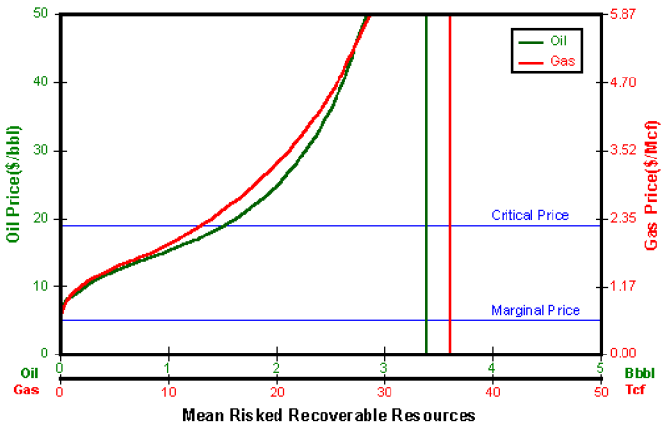

Figure 16. Gulf of Mexico Cenozoic Province 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

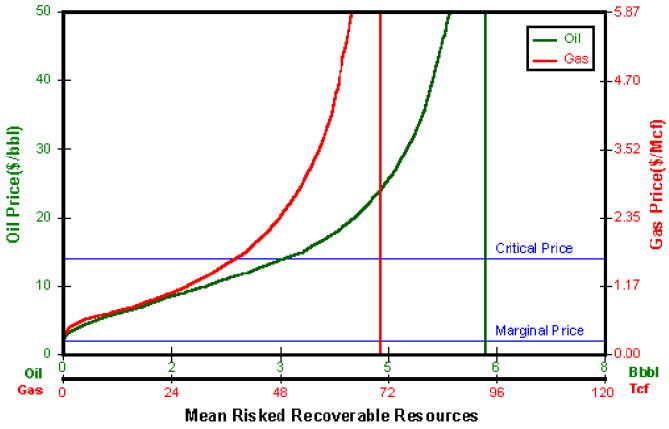

Figure 17. Total Gulf of Mexico Cenozoic Province Half-Cycle Price-Supply Curve.

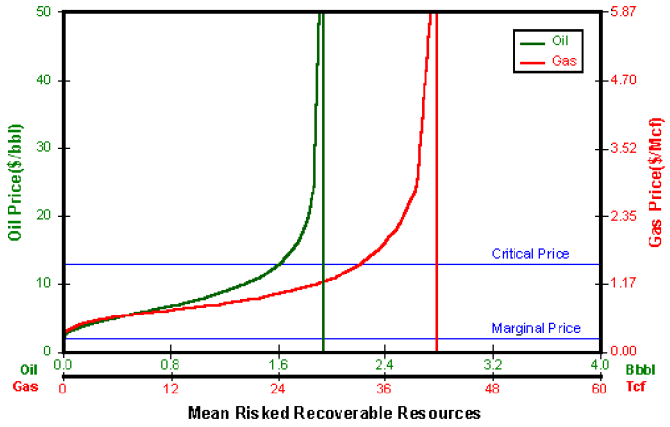

Figure 18. Gulf of Mexico Cenozoic Province 0-200m Water Depth Half-Cycle Price-Supply Curve.

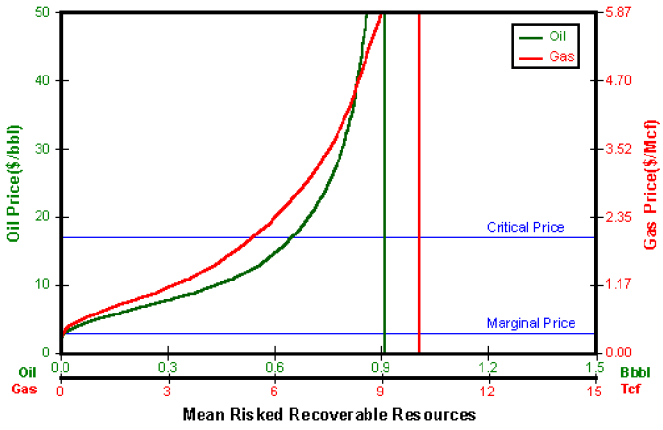

Figure 19. Gulf of Mexico Cenozoic Province 201-900m Water Depth Half-Cycle Price-Supply Curve.

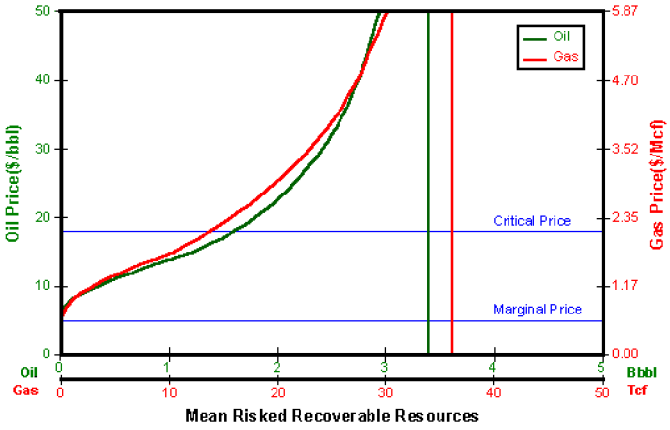

Figure 20. Gulf of Mexico Cenozoic Province 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

Gulf of Mexico Mesozoic Province Economic Results

The Gulf of Mexico Mesozoic Province includes submerged Federal lands offshore Mississippi, Alabama, and Florida south to the U.S.-Cuba International Boundary (figure 1). Water depths in the Province range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

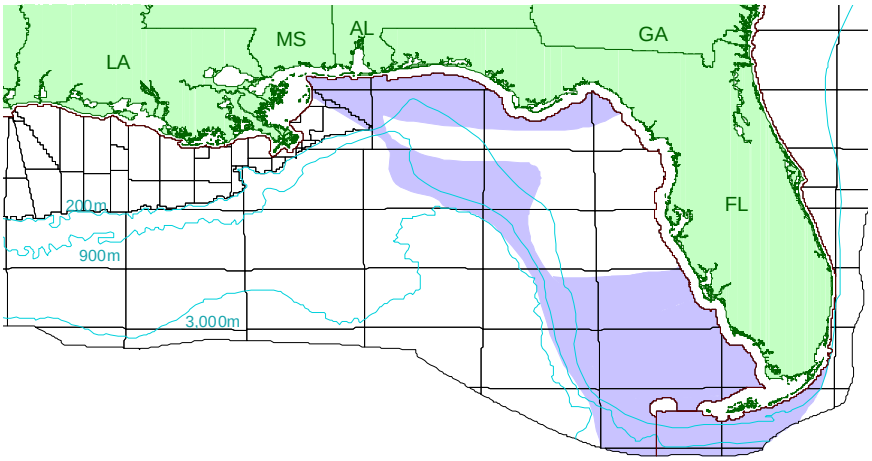

Figure 1. Gulf of Mexico Mesozoic Province Map. The shaded areas indicate the extent of the assessed plays in the Province.

The mean total endowment for this Province is almost equally distributed as oil and gas, with 49 percent of the total resources occurring as gas (figure 2). There is a definite trend towards a less gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 53 percent gas, the 201-900m range consisting of 18 percent gas, and the deepest water depth range consisting of 25 percent gas. The largest concentration of the mean total endowment (91% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of less than 200m (figure 3 and figure 4). Each of the other two water depth ranges have 3 to 6 percent of the BOE mean total endowment.

The Province is sparsely developed with minimal infrastructure in place in the 0-200m water depth range, and is not yet developed in the other two water depth ranges. As of the date of this study, there have been production and reserves only in the 0-200m range (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total Province.

Assessment results indicate that the total Province undiscovered economically recoverable resources are modest, with a range of 0.759 to 1.672 Bbo and 3.921 to 5.892 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean economically recoverable resources are estimated at 1.154 Bbo and 4.969 Tcfg. A graphical representation of these results, incorporating every 5th- percentile result for

UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, most of the gas (67%) and almost all of the oil (99%) in the Province remain to be discovered. However, once development begins in earnest, 42 percent of the gas and 56 percent of the oil are projected to be economically recoverable at the $18/bbl scenario (figure 9). Therefore, almost half (49%) of the mean total endowment, on a BOE basis, is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

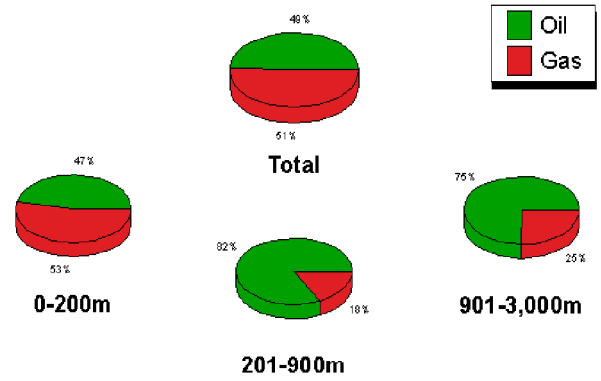

Figure 2. Gulf of Mexico Mesozoic Province Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

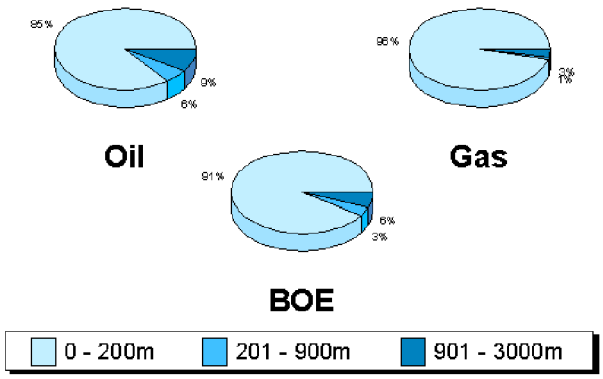

Figure 4. Gulf of Mexico Mesozoic Province Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

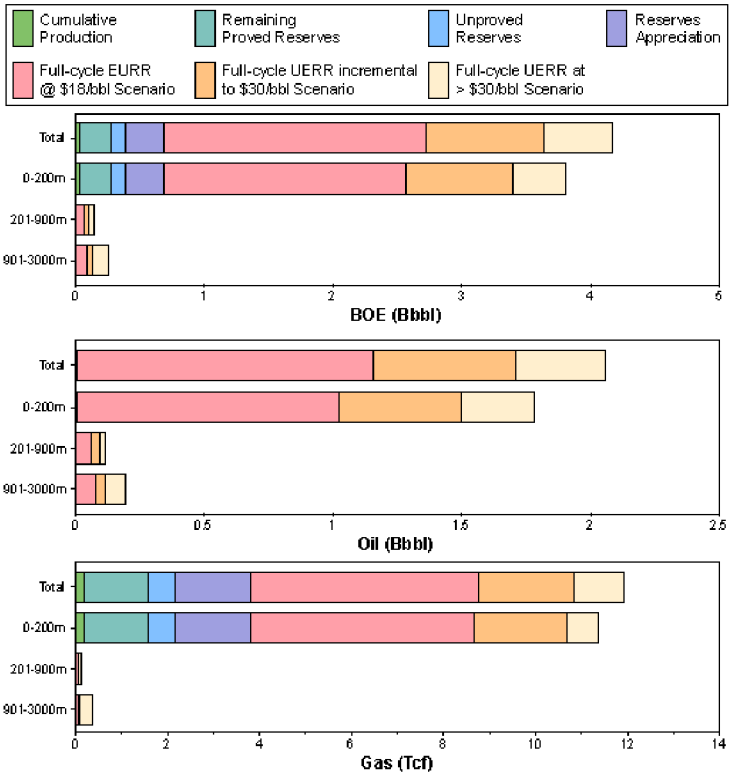

Figure 3. Gulf of Mexico Mesozoic Province Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Number of Pools	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves				
Original proved	9	<0.001	1.572	0.280
Cumulative production	--	<0.001	0.198	0.035
Remaining proved	--	<0.001	1.374	0.245
Unproved	2	0.001	0.597	0.107
Appreciation (P & U)	--	0.002	1.640	0.294
Undiscovered Conventionally Recoverable Resources				
95th percentile	--	1.360	7.106	2.678
Mean	179	2.053	8.108	3.495
5th percentile	--	2.933	9.194	4.455
Total Endowment				
95th percentile	--	1.363	10.915	3.359
Mean	190	2.056	11.917	4.176
5th percentile	--	2.936	13.003	5.136

Table 1. Total Gulf of Mexico Mesozoic Province Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	<0.001	1.572	0.280
Cumulative production	<0.001	0.198	0.035
Remaining proved	<0.001	1.374	0.245
Unproved	0.001	0.597	0.107
Appreciation (P & U)	0.002	1.640	0.294
Undiscovered Conventionally Recoverable Resources			
95th percentile	1.404	7.157	2.678
Mean	1.777	7.567	3.123
5th percentile	2.247	8.050	3.679
Total Endowment			
95th percentile	1.407	10.966	3.358
Mean	1.780	11.376	3.804
5th percentile	2.250	11.859	4.360

Table 2. Gulf of Mexico Mesozoic Province 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.071	0.091	0.087
Mean	0.117	0.139	0.142
5th percentile	0.190	0.225	0.230
Total Endowment			
95th percentile	0.071	0.091	0.087
Mean	0.117	0.139	0.142
5th percentile	0.190	0.225	0.230

Table 3. Gulf of Mexico Mesozoic Province 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.087	0.223	0.127
Mean	0.191	0.359	0.255
5th percentile	0.371	0.529	0.465
Total Endowment			
95th percentile	0.087	0.223	0.127
Mean	0.191	0.359	0.255
5th percentile	0.371	0.529	0.465

Table 4. Gulf of Mexico Mesozoic Province 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.759	3.921	1.457
Mean		1.154	4.969	2.038
5th percentile		1.672	5.892	2.720
Half-Cycle	1.00			
95th percentile		0.835	4.982	1.721
Mean		1.266	5.792	2.297
5th percentile		1.796	6.612	2.972
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		1.259	6.530	2.421
Mean		1.706	7.024	2.956
5th percentile		2.225	7.477	3.555
Half-Cycle	1.00			
95th percentile		1.318	6.682	2.507
Mean		1.766	7.202	3.047
5th percentile		2.278	7.585	3.628

Table 5. Total Gulf of Mexico Mesozoic Province Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.727	3.606	1.369
Mean		1.021	4.874	1.889
5th percentile		1.497	5.889	2.545
Half-Cycle	1.00			
95th percentile		0.749	4.861	1.614
Mean		1.111	5.687	2.123
5th percentile		1.602	6.442	2.748
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		1.104	6.505	2.262
Mean		1.496	6.864	2.717
5th percentile		1.971	7.302	3.270
Half-Cycle	1.00			
95th percentile		1.164	6.660	2.349
Mean		1.543	7.027	2.794
5th percentile		2.017	7.464	3.345

Table 6. Gulf of Mexico Mesozoic Province 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.88			
95th percentile		0.000	0.000	0.000
Mean		0.061	0.048	0.070
5th percentile		0.140	0.137	0.164
Half-Cycle	0.92			
95th percentile		0.000	0.000	0.000
Mean		0.066	0.053	0.075
5th percentile		0.143	0.136	0.167
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.041	0.017	0.044
Mean		0.092	0.071	0.104
5th percentile		0.165	0.163	0.194
Half-Cycle	1.00			
95th percentile		0.044	0.027	0.049
Mean		0.094	0.077	0.108
5th percentile		0.168	0.159	0.196

Table 7. Gulf of Mexico Mesozoic Province 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.40			
95th percentile		0.000	0.000	0.000
Mean		0.077	0.054	0.086
5th percentile		0.300	0.223	0.340
Half-Cycle	0.47			
95th percentile		0.000	0.000	0.000
Mean		0.086	0.060	0.097
5th percentile		0.304	0.214	0.342
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.74			
95th percentile		0.000	0.000	0.000
Mean		0.118	0.089	0.134
5th percentile		0.318	0.233	0.360
Half-Cycle	0.81			
95th percentile		0.000	0.000	0.000
Mean		0.127	0.100	0.145
5th percentile		0.321	0.267	0.368

Table 8. Gulf of Mexico Mesozoic Province 901-3,000m Water Depth Economic Assessment Results Table.

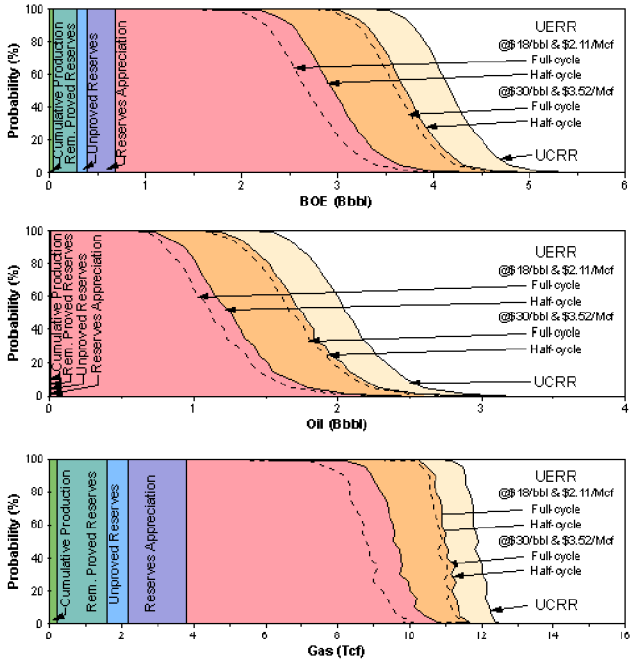

Figure 5. Gulf of Mexico Mesozoic Province Total Endowment by Resource Category.

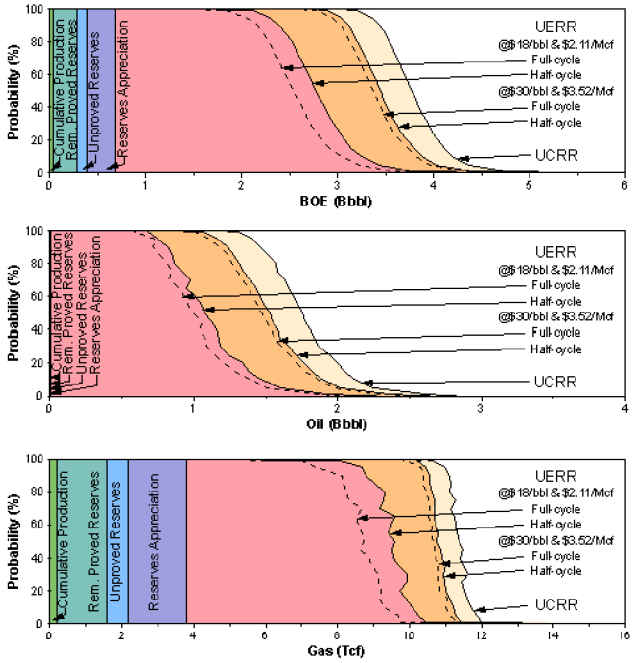

Figure 6. Gulf of Mexico Mesozoic Province 0-200m Water Depth Total Endowment by Resource Category.

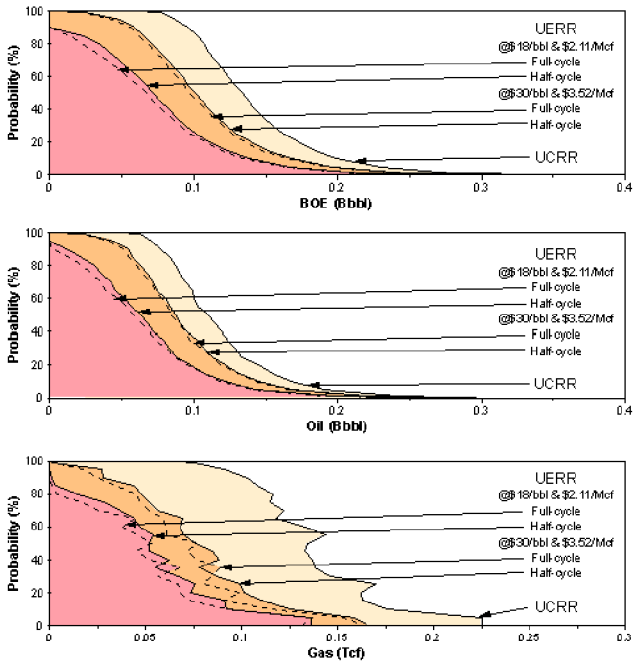

Figure 7. Gulf of Mexico Mesozoic Province 201-900m Water Depth Total Endowment by Resource Category.

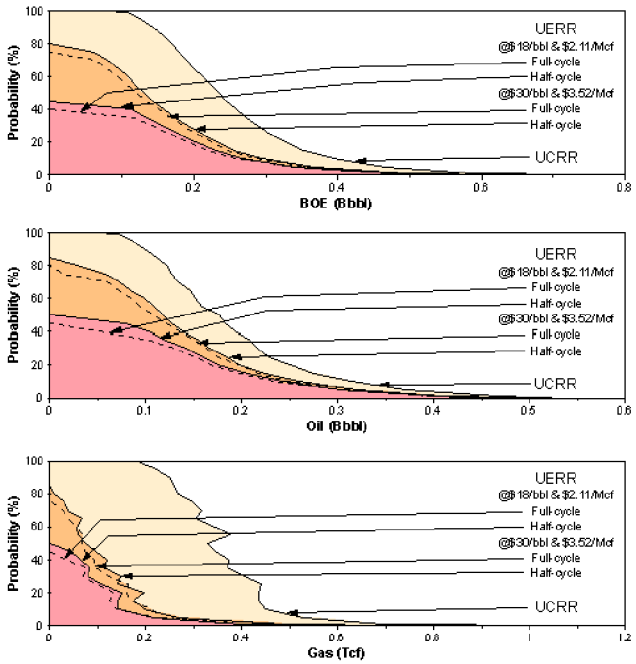

Figure 8. Gulf of Mexico Mesozoic Province 901-3,000m Water Depth Total Endowment by Resource Category.

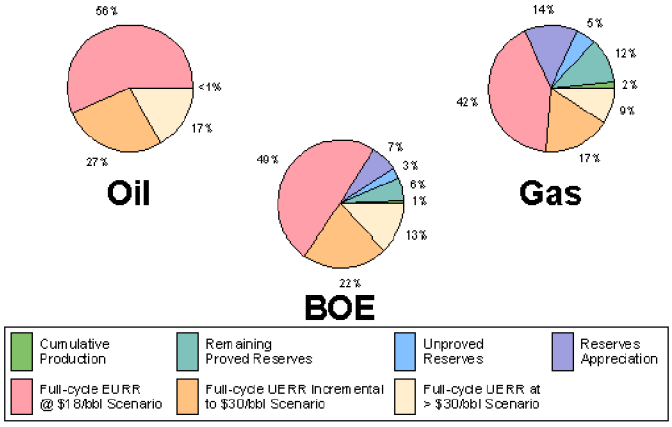

Figure 9. Total Gulf of Mexico Mesozoic Province Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

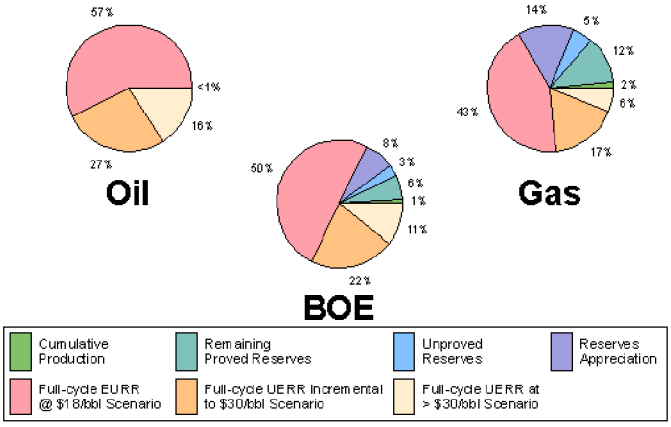

Figure 10. Gulf of Mexico Mesozoic Province 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

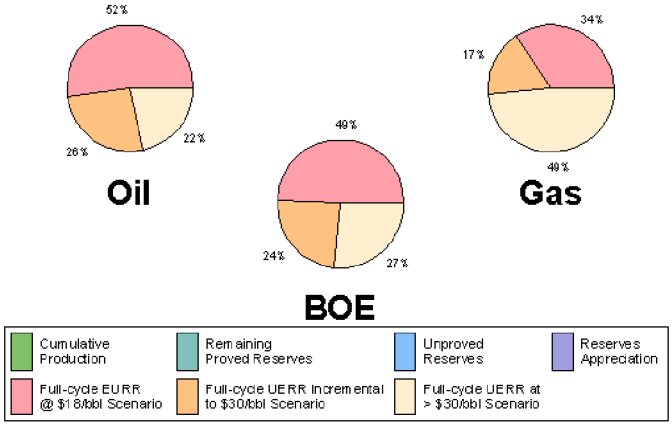

Figure 11. Gulf of Mexico Mesozoic Province 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

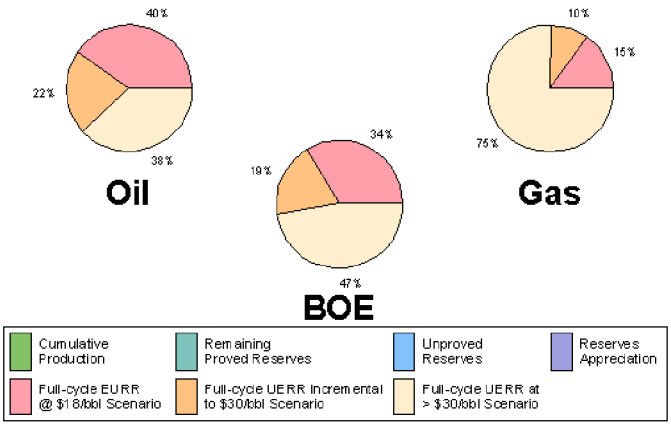

Figure 12. Gulf of Mexico Mesozoic Province 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

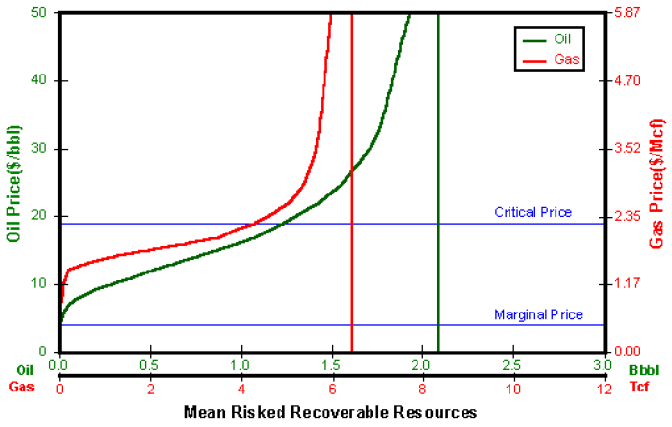

Figure 13. Total Gulf of Mexico Mesozoic Province Full-Cycle Price-Supply Curve.

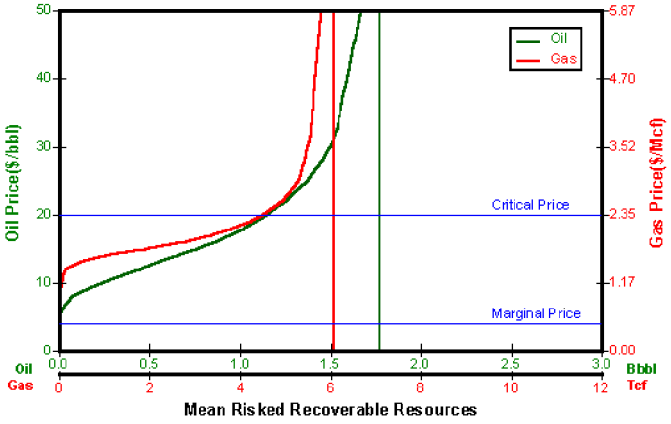

Figure 14. Gulf of Mexico Mesozoic Province 0-200m Water Depth Full-Cycle Price-Supply Curve.

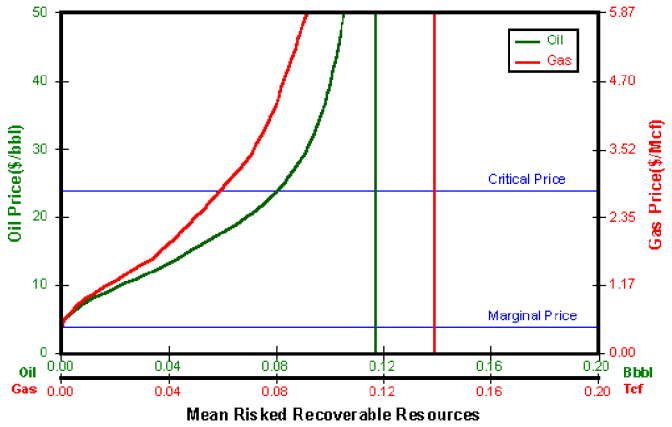

Figure 15. Gulf of Mexico Mesozoic Province 201-900m Water Depth Full-Cycle Price-Supply Curve.

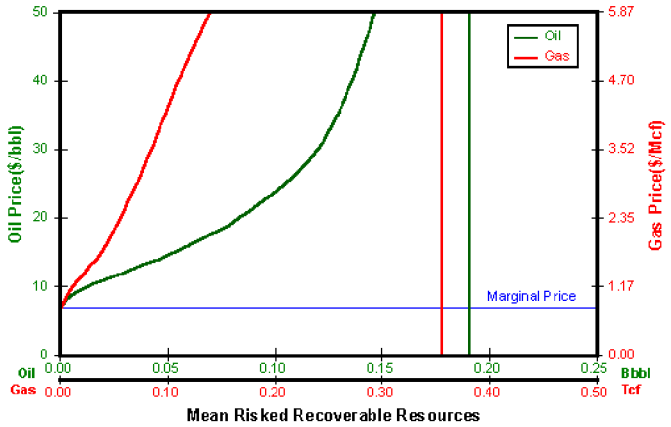

Figure 16. Gulf of Mexico Mesozoic Province 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

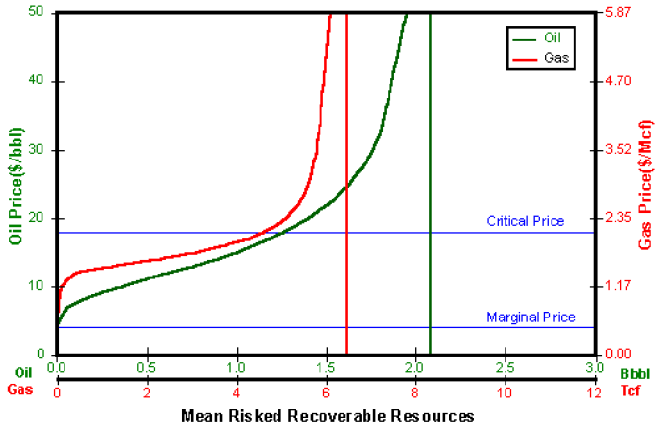

Figure 17. Total Gulf of Mexico Mesozoic Province Half-Cycle Price-Supply Curve.

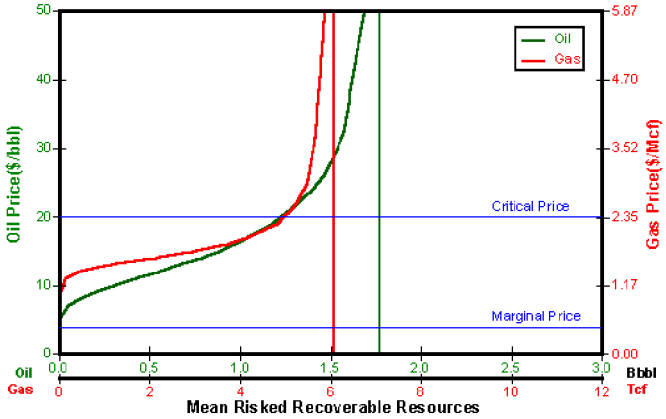

Figure 18. Gulf of Mexico Mesozoic Province 0-200m Water Depth Half-Cycle Price-Supply Curve.

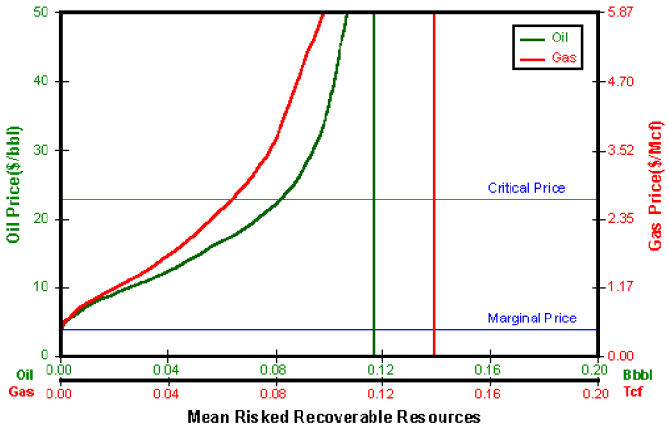

Figure 19. Gulf of Mexico Mesozoic Province 201-900m Water Depth Half-Cycle Price-Supply Curve.

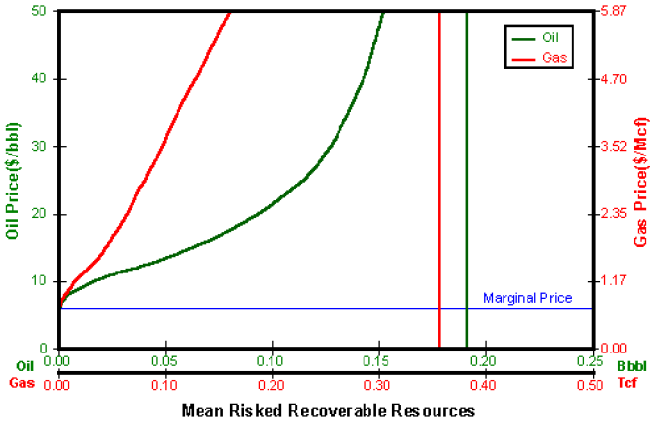

Figure 20. Gulf of Mexico Mesozoic Province 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

Atlantic Mesozoic Province Economic Results

The Atlantic Mesozoic Province includes submerged Federal lands from the U.S.-Canada International Boundary south to offshore Florida (figure 1). Water depths in the Province range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

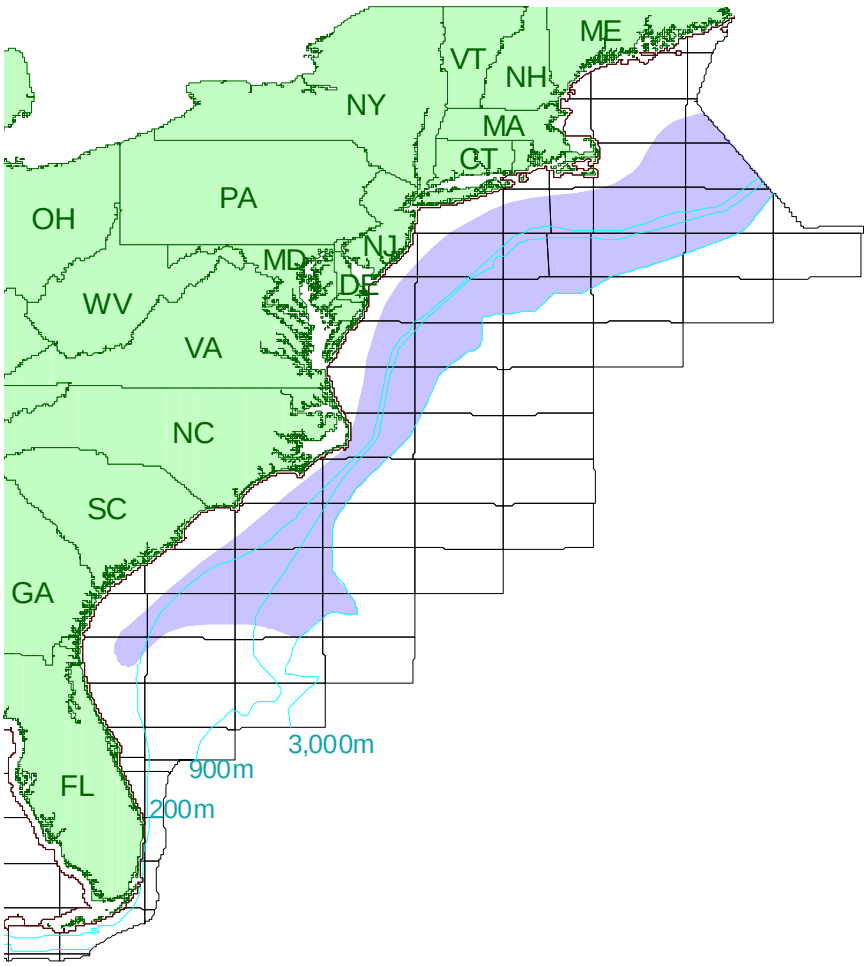

Figure 1. Atlantic Mesozoic Province Map. The shaded areas indicate the extent of the assessed plays in the Province.

The mean total endowment for this Province is predominantly gas, with 68 percent of the total resources occurring as gas (figure 2). There is a very slight trend towards a less gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 71 percent gas, the 201-900m range consisting of 68 percent gas, and the deepest water depth range consisting of 67 percent gas. The largest concentration of the mean total endowment (41% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of more than 900m (figure 3 and figure 4). Each of the other two water depth ranges have 28 to 31 percent of the BOE mean total endowment.

The Province is not developed in any of the water depth ranges, and there is no infrastructure in place. As of the date of this study, there has been no production or reserves in any of the ranges (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in

table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total Province.

Assessment results indicate that the total Province undiscovered economically recoverable resources are modest, with a range of 0.000 to 0.808 Bbo and 0.000 to 11.688 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean economically recoverable resources are estimated at 0.368 Bbo and 5.203 Tcfg. A graphical representation of these results, incorporating every 5th- percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, all of the oil and gas in the Province remains to be discovered, and only 19 percent of the gas and 16 percent of the oil are projected to be economically recoverable at the $18/bbl scenario (figure 9). Therefore, 18 percent of the mean total endowment, on a BOE basis, is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

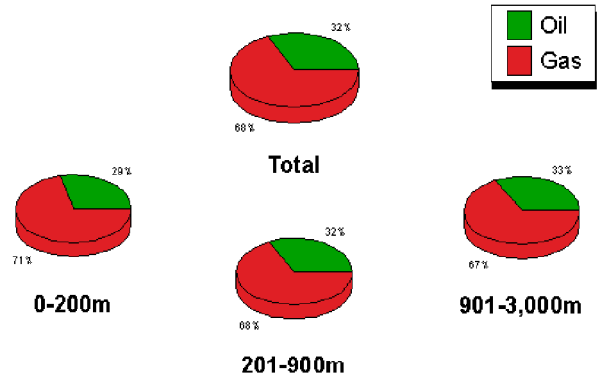

Figure 2. Atlantic Mesozoic Province Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

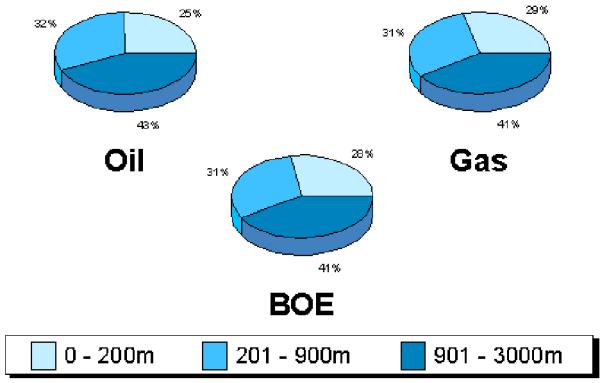

Figure 4. Atlantic Mesozoic Province Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

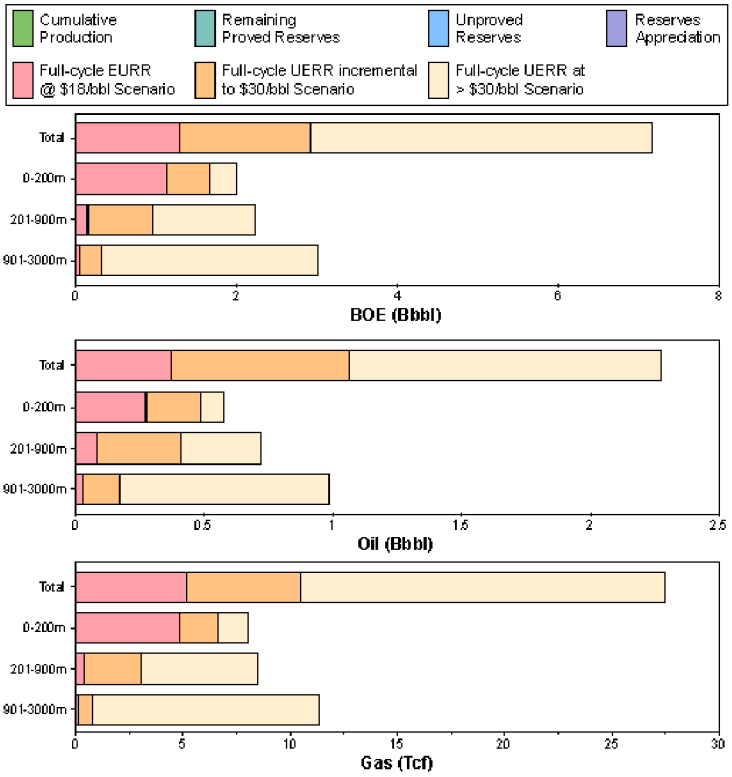

Figure 3. Atlantic Mesozoic Province Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Number of Pools	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves				
Original proved	0	0.000	0.000	0.000
Cumulative production	--	0.000	0.000	0.000
Remaining proved	--	0.000	0.000	0.000
Unproved	0	0.000	0.000	0.000
Appreciation (P & U)	--	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources				
95th percentile	--	1.267	15.855	4.475
Mean	502	2.271	27.480	7.161
5th percentile	--	3.667	43.372	10.684
Total Endowment				
95th percentile	--	1.267	15.855	4.475
Mean	502	2.271	27.480	7.161
5th percentile	--	3.667	43.372	10.684

Table 1. Total Atlantic Mesozoic Province Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.418	4.790	1.271
Mean	0.576	8.004	2.000
5th percentile	0.669	14.557	3.259
Total Endowment			
95th percentile	0.418	4.790	1.271
Mean	0.576	8.004	2.000
5th percentile	0.669	14.557	3.259

Table 2. Atlantic Mesozoic Province 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.524	6.994	1.769
Mean	0.722	8.512	2.236
5th percentile	0.995	10.519	2.867
Total Endowment			
95th percentile	0.524	6.994	1.769
Mean	0.722	8.512	2.236
5th percentile	0.995	10.519	2.867

Table 3. Atlantic Mesozoic Province 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.753	9.695	2.478
Mean	0.983	11.353	3.003
5th percentile	1.385	13.485	3.784
Total Endowment			
95th percentile	0.753	9.695	2.478
Mean	0.983	11.353	3.003
5th percentile	1.385	13.485	3.784

Table 4. Atlantic Mesozoic Province 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.92			
95th percentile		0.000	0.000	0.000
Mean		0.368	5.203	1.294
5th percentile		0.808	11.688	2.888
Half-Cycle	0.97			
95th percentile		0.125	1.154	0.331
Mean		0.452	5.989	1.518
5th percentile		0.910	12.404	3.118
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.587	5.855	1.628
Mean		1.063	10.479	2.927
5th percentile		1.644	16.444	4.570
Half-Cycle	1.00			
95th percentile		0.788	7.242	2.076
Mean		1.234	11.966	3.363
5th percentile		1.854	17.661	4.997

Table 5. Total Atlantic Mesozoic Province Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.90			
95th percentile		0.000	0.000	0.000
Mean		0.274	4.810	1.129
5th percentile		0.427	12.027	2.567
Half-Cycle	0.94			
95th percentile		0.037	0.378	0.105
Mean		0.313	5.279	1.252
5th percentile		0.447	12.398	2.653
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.338	3.361	0.936
Mean		0.486	6.653	1.669
5th percentile		0.578	13.179	2.923
Half-Cycle	1.00			
95th percentile		0.346	3.600	0.987
Mean		0.499	6.848	1.718
5th percentile		0.586	13.395	2.970

Table 6. Atlantic Mesozoic Province 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.22			
95th percentile		0.000	0.000	0.000
Mean		0.083	0.375	0.150
5th percentile		0.449	2.933	0.971
Half-Cycle	0.31			
95th percentile		0.000	0.000	0.000
Mean		0.118	0.652	0.234
5th percentile		0.519	3.629	1.165
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.95			
95th percentile		0.044	0.209	0.081
Mean		0.408	3.047	0.950
5th percentile		0.740	5.276	1.679
Half-Cycle	0.98			
95th percentile		0.225	1.514	0.495
Mean		0.463	3.622	1.108
5th percentile		0.809	5.648	1.814

Table 7. Atlantic Mesozoic Province 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.05			
95th percentile		0.000	0.000	0.000
Mean		0.026	0.104	0.045
5th percentile		0.146	0.656	0.262
Half-Cycle	0.08			
95th percentile		0.000	0.000	0.000
Mean		0.040	0.157	0.068
5th percentile		0.311	1.381	0.557
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.42			
95th percentile		0.000	0.000	0.000
Mean		0.173	0.798	0.315
5th percentile		0.638	3.572	1.273
Half-Cycle	0.63			
95th percentile		0.000	0.000	0.000
Mean		0.277	1.505	0.545
5th percentile		0.759	4.446	1.551

Table 8. Atlantic Mesozoic Province 901-3,000m Water Depth Economic Assessment Results Table.

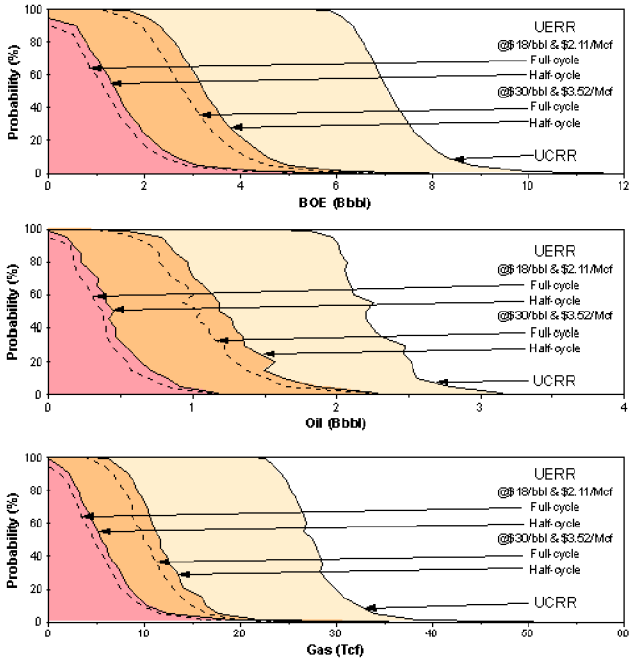

Figure 5. Atlantic Mesozoic Province Total Endowment by Resource Category.

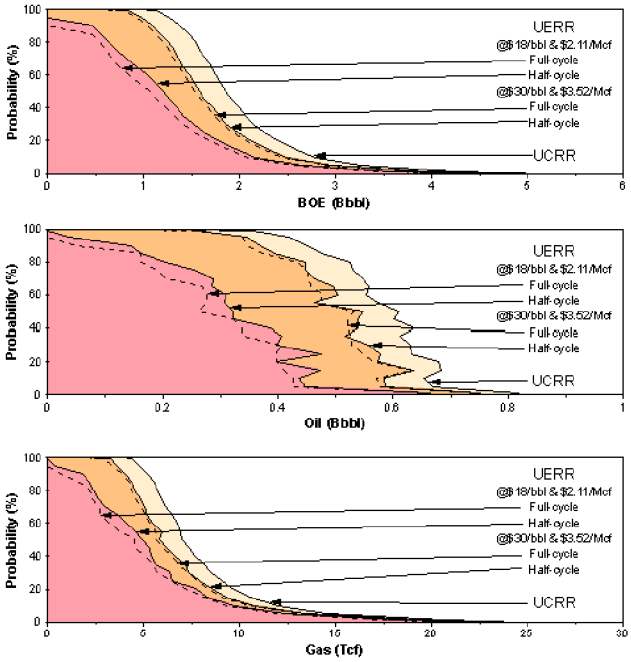

Figure 6. Atlantic Mesozoic Province 0-200m Water Depth Total Endowment by Resource Category.

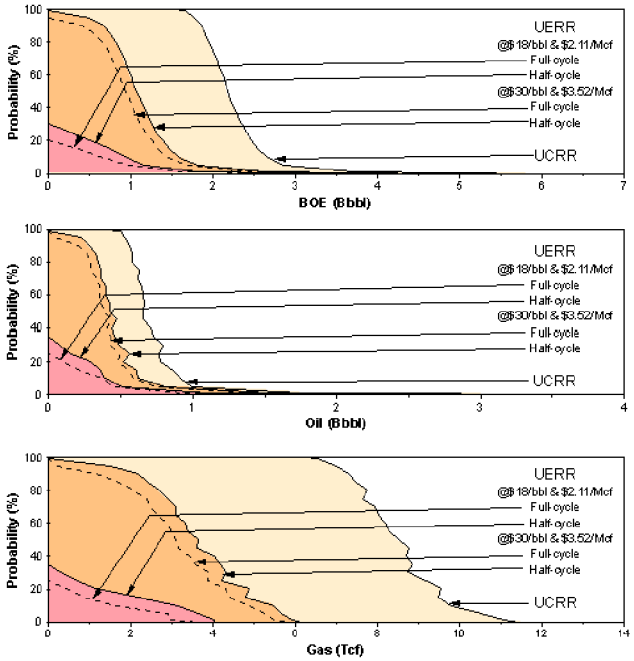

Figure 7. Atlantic Mesozoic Province 201-900m Water Depth Total Endowment by Resource Category.

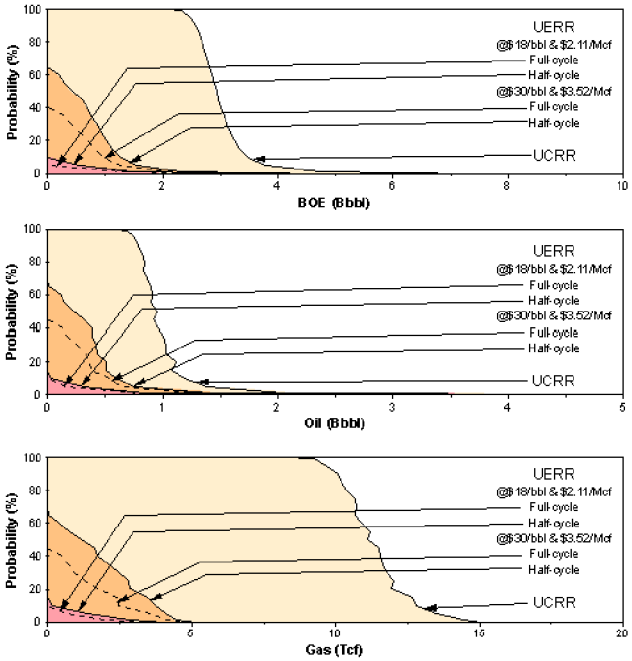

Figure 8. Atlantic Mesozoic Province 901-3,000m Water Depth Total Endowment by Resource Category.

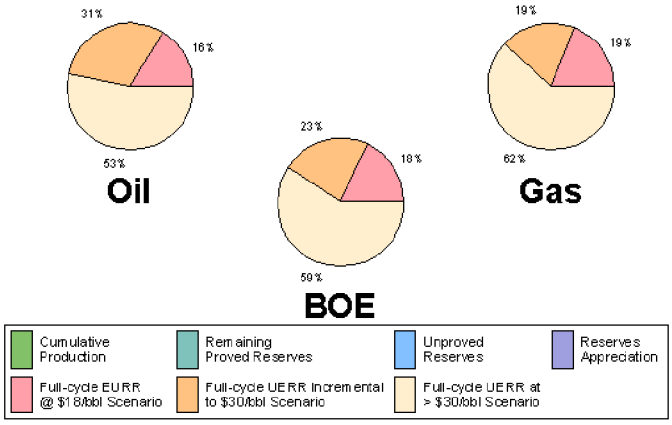

Figure 9. Total Atlantic Mesozoic Province Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

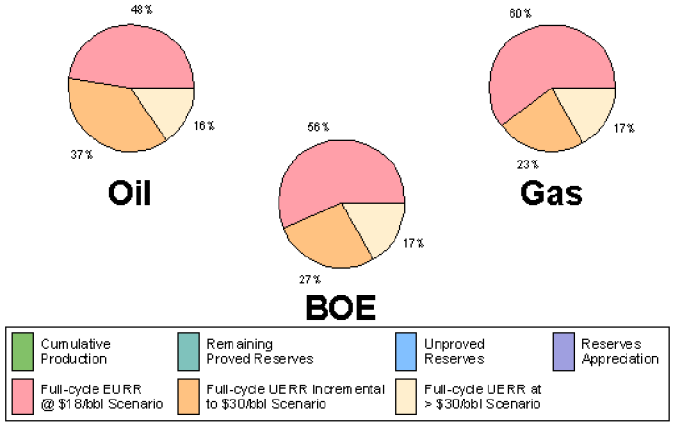

Figure 10. Atlantic Mesozoic Province 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

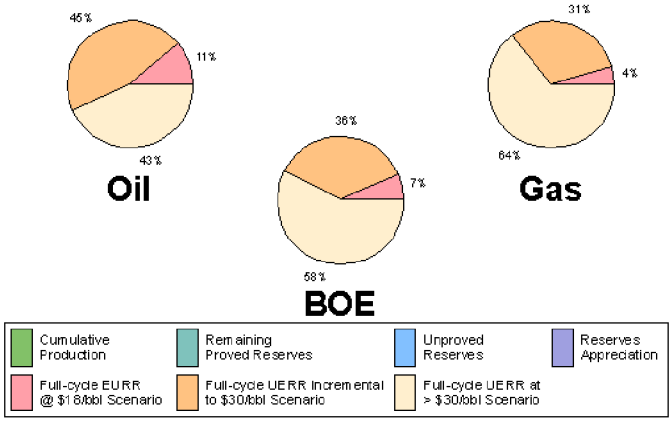

Figure 11. Atlantic Mesozoic Province 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

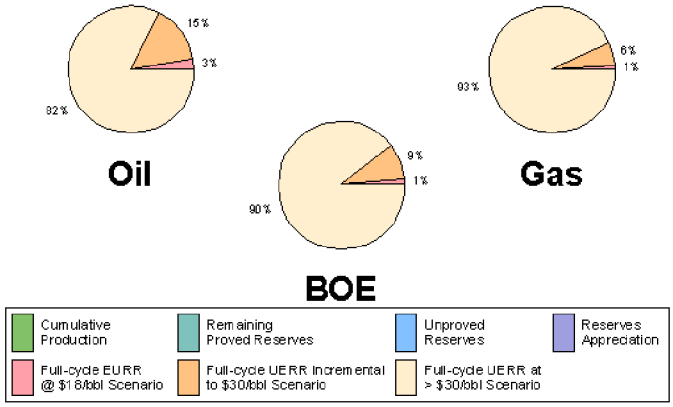

Figure 12. Atlantic Mesozoic Province 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

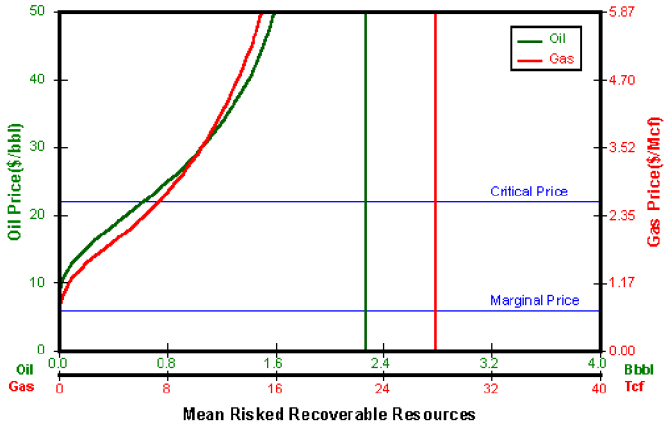

Figure 13. Total Atlantic Mesozoic Province Full-Cycle Price-Supply Curve.

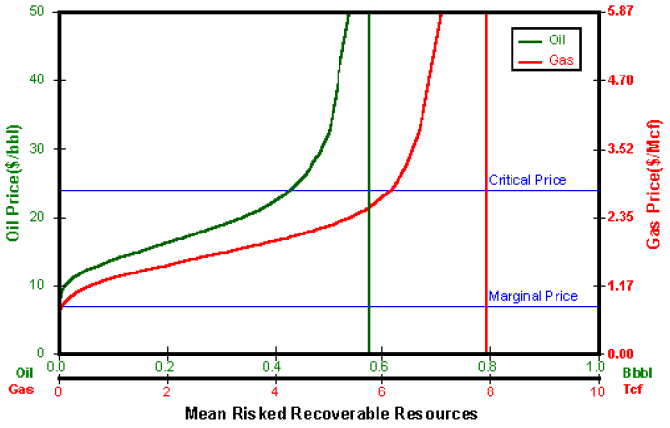

Figure 14. Atlantic Mesozoic Province 0-200m Water Depth Full-Cycle Price-Supply Curve.

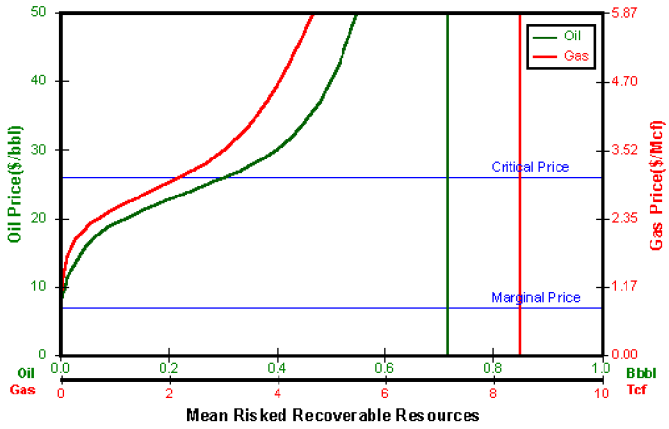

Figure 15. Atlantic Mesozoic Province 201-900m Water Depth Full-Cycle Price-Supply Curve.

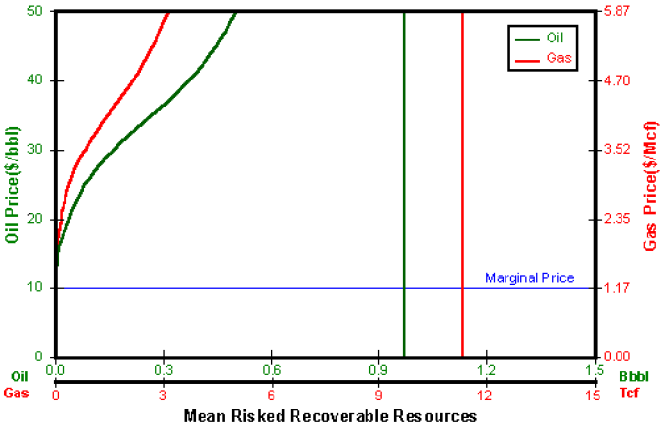

Figure 16. Atlantic Mesozoic Province 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

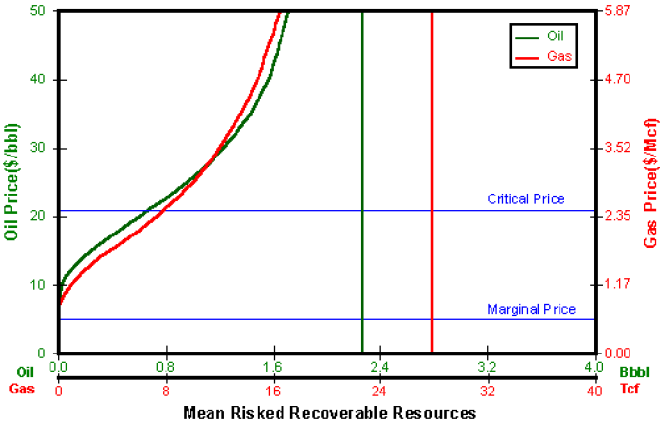

Figure 17. Total Atlantic Mesozoic Province Half-Cycle Price-Supply Curve.

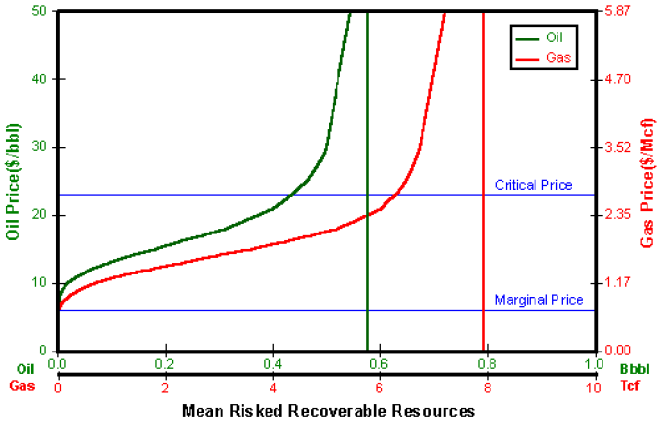

Figure 18. Atlantic Mesozoic Province 0-200m Water Depth Half-Cycle Price-Supply Curve.

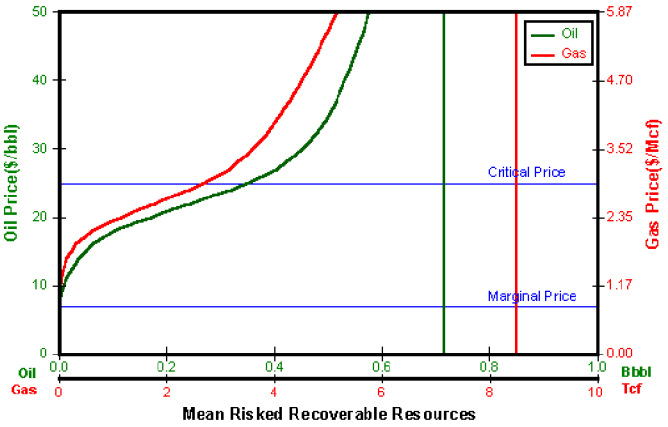

Figure 19. Atlantic Mesozoic Province 201-900m Water Depth Half-Cycle Price-Supply Curve.

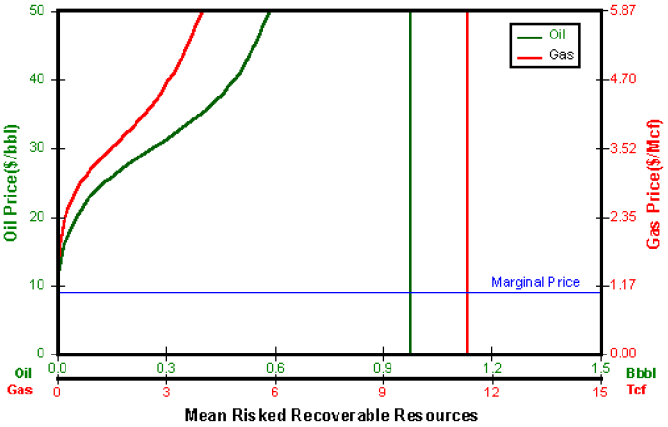

Figure 20. Atlantic Mesozoic Province 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

Gulf of Mexico Western Planning Area Economic Results

The Gulf of Mexico Western Planning Area includes submerged Federal lands offshore Texas and Louisiana, and extends to the U.S.-Mexico International Boundary in the west (figure 1). Water depths in the planning area range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

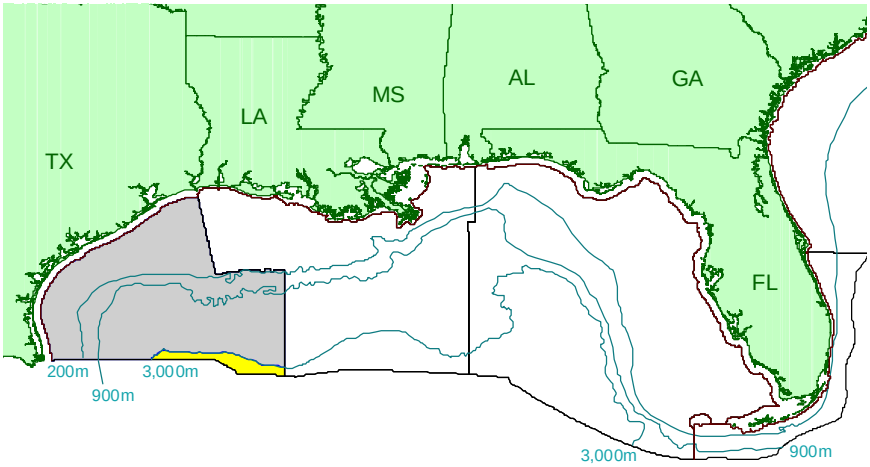

Figure 1. Gulf of Mexico Western Planning Area Map. The planning area is shaded in yellow, and the gray pattern indicates the extent of the assessed plays.

The mean total endowment for this planning area is predominantly gas, with 77 percent of the total resources occurring as gas (figure 2). There is a definite trend towards a less gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 88 percent gas, and the deeper water depth ranges consisting of 60 percent gas. The majority of the mean total endowment (61% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of less than 200m (figure 3 and figure 4).

The planning area is well developed in the 0-200m range with an extensive infrastructure already in place, less so in the 201-900m range, and very minimally in the 901-3,000m range. There has been production in the two shallower ranges, but as of the date of this study, only unproved reserves and reserves appreciation occurred in the 901-3,000m range (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Significant amounts of undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total planning area.

Assessment results indicate that the total planning area undiscovered economically recoverable resources have a range of 1.053 to 3.260 Bbo and 20.110 to 26.386 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean economically recoverable resources are estimated at 1.734 Bbo and 22.897 Tcfg. A

graphical representation of these results, incorporating every 5th- percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, 51 percent of the gas in the planning area remains to be discovered, while 70 percent of the oil remains to be discovered (figure 9). Moreover, 31 percent of the gas mean total endowment is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

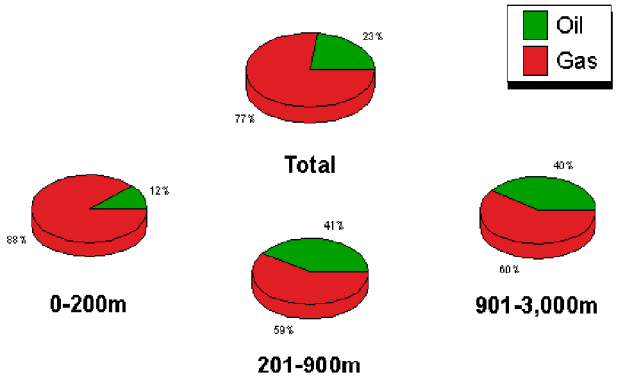

Figure 2. Gulf of Mexico Western Planning Area Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

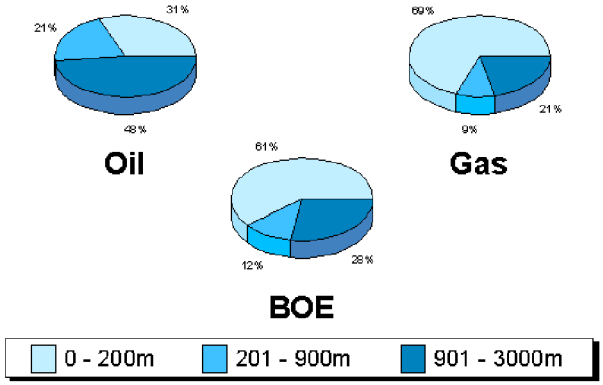

Figure 4. Gulf of Mexico Western Planning Area Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

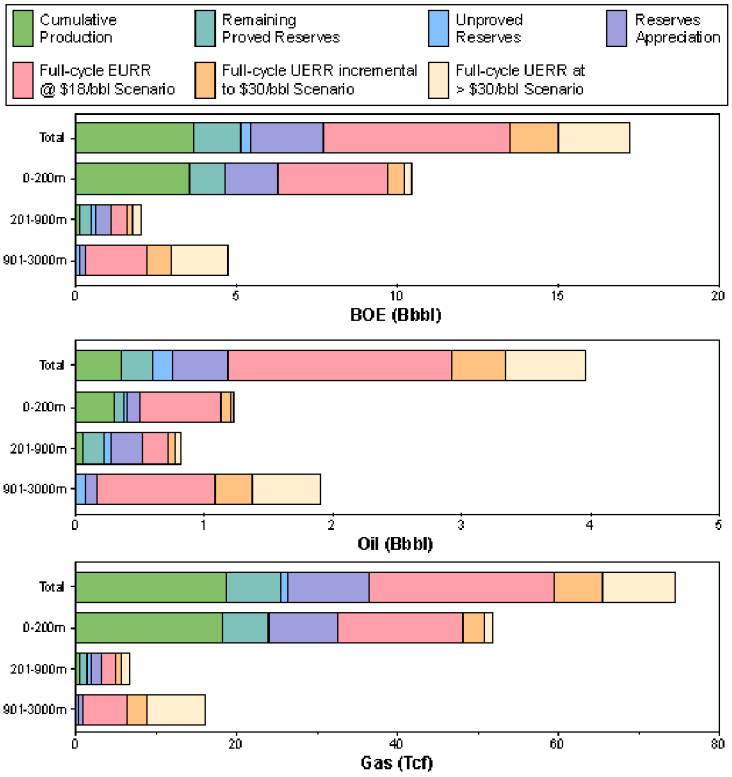

Figure 3. Gulf of Mexico Western Planning Area Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.596	25.449	5.125
Cumulative production	0.353	18.756	3.691
Remaining proved	0.243	6.693	1.434
Unproved	0.160	0.865	0.314
Appreciation (P & U)	0.430	10.233	2.251
Undiscovered Conventionally Recoverable Resources			
95th percentile	2.178	35.238	8.448
Mean	2.769	38.061	9.542
5th percentile	4.460	41.149	11.781
Total Endowment			
95th percentile	3.364	71.784	16.137
Mean	3.956	74.607	17.231
5th percentile	5.646	77.696	19.471

Table 1. Total Gulf of Mexico Western Planning Area Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.380	23.961	4.643
Cumulative production	0.299	18.232	3.543
Remaining proved	0.080	5.730	1.100
Unproved	0.016	0.031	0.021
Appreciation (P & U)	0.104	8.515	1.619
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.639	17.933	3.830
Mean	0.728	19.320	4.166
5th percentile	0.851	20.815	4.554
Total Endowment			
95th percentile	1.139	50.441	10.114
Mean	1.228	51.827	10.450
5th percentile	1.350	53.322	10.838

Table 2. Gulf of Mexico Western Planning Area 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.217	1.487	0.481
Cumulative production	0.054	0.524	0.147
Remaining proved	0.163	0.963	0.334
Unproved	0.063	0.437	0.141
Appreciation (P & U)	0.237	1.304	0.469
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.233	3.025	0.771
Mean	0.307	3.501	0.930
5th percentile	0.417	4.028	1.133
Total Endowment			
95th percentile	0.750	6.253	1.862
Mean	0.824	6.729	2.021
5th percentile	0.933	7.256	2.225

Table 3. Gulf of Mexico Western Planning Area 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.081	0.396	0.151
Appreciation (P & U)	0.089	0.414	0.163
Undiscovered Conventionally Recoverable Resources			
95th percentile	1.128	13.274	3.490
Mean	1.731	15.223	4.439
5th percentile	3.340	17.913	6.527
Total Endowment			
95th percentile	1.298	14.085	3.804
Mean	1.900	16.034	4.754
5th percentile	3.510	18.724	6.841

Table 4. Gulf of Mexico Western Planning Area 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		1.053	20.110	4.632
Mean		1.734	22.897	5.808
5th percentile		3.260	26.386	7.955
Half-Cycle	1.00			
95th percentile		1.262	22.012	5.179
Mean		1.900	24.920	6.334
5th percentile		3.418	28.234	8.442
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		1.543	26.106	6.188
Mean		2.156	28.891	7.297
5th percentile		3.825	32.189	9.553
Half-Cycle	1.00			
95th percentile		1.653	27.652	6.574
Mean		2.259	30.517	7.689
5th percentile		3.916	33.796	9.930

Table 5. Total Gulf of Mexico Western Planning Area Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.530	14.162	3.050
Mean		0.630	15.564	3.399
5th percentile		0.742	17.219	3.806
Half-Cycle	1.00			
95th percentile		0.551	14.866	3.196
Mean		0.650	16.258	3.542
5th percentile		0.764	17.837	3.938
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.620	16.839	3.616
Mean		0.703	18.269	3.954
5th percentile		0.826	19.727	4.336
Half-Cycle	1.00			
95th percentile		0.620	17.138	3.669
Mean		0.707	18.529	4.004
5th percentile		0.829	19.995	4.387

Table 6. Gulf of Mexico Western Planning Area 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.122	1.082	0.314
Mean		0.204	1.796	0.523
5th percentile		0.313	2.580	0.772
Half-Cycle	1.00			
95th percentile		0.146	1.276	0.373
Mean		0.222	2.048	0.586
5th percentile		0.352	2.692	0.831
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.175	1.829	0.500
Mean		0.253	2.502	0.699
5th percentile		0.400	2.922	0.920
Half-Cycle	1.00			
95th percentile		0.184	2.086	0.555
Mean		0.264	2.693	0.743
5th percentile		0.391	3.227	0.965

Table 7. Gulf of Mexico Western Planning Area 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.276	3.053	0.820
Mean		0.916	5.508	1.896
5th percentile		2.535	8.496	4.046
Half-Cycle	1.00			
95th percentile		0.396	4.434	1.185
Mean		1.052	6.677	2.240
5th percentile		2.686	9.578	4.390
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.590	5.915	1.643
Mean		1.198	8.126	2.644
5th percentile		2.817	10.992	4.773
Half-Cycle	1.00			
95th percentile		0.678	7.148	1.950
Mean		1.288	9.316	2.946
5th percentile		2.903	12.175	5.069

Table 8. Gulf of Mexico Western Planning Area 901-3,000m Water Depth Economic Assessment Results Table.

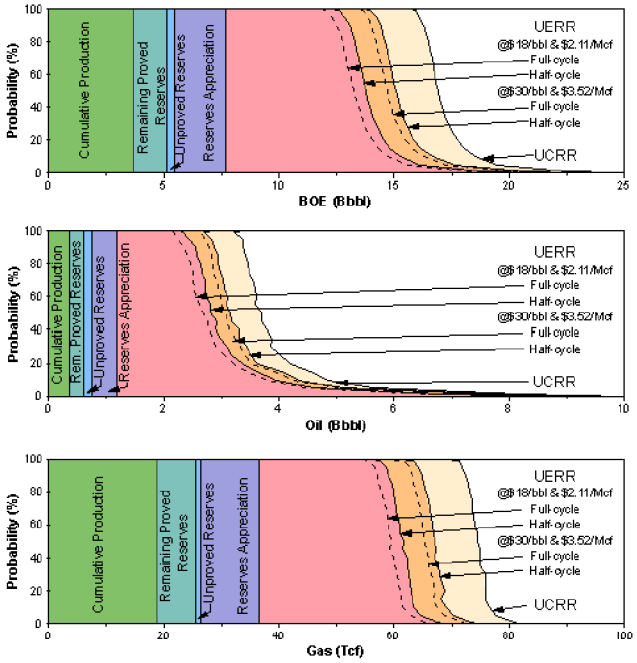

Figure 5. Gulf of Mexico Western Planning Area Total Endowment by Resource Category.

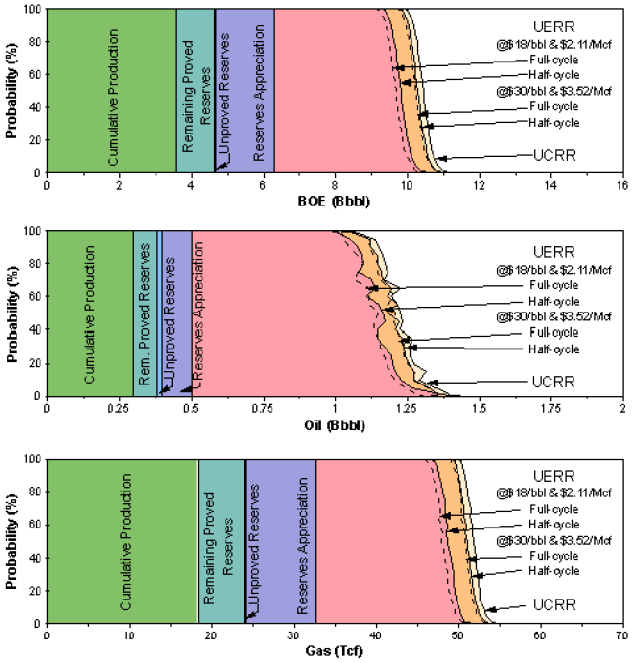

Figure 6. Gulf of Mexico Western Planning Area 0-200m Water Depth Total Endowment by Resource Category.

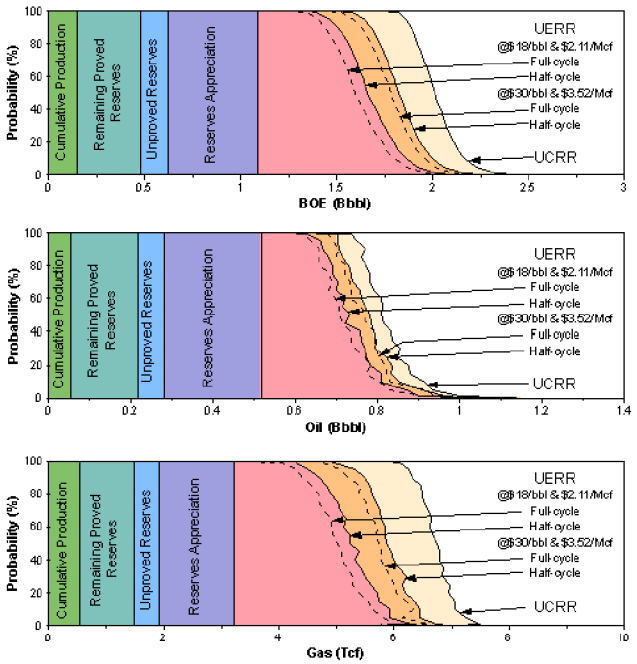

Figure 7. Gulf of Mexico Western Planning Area 201-900m Water Depth Total Endowment by Resource Category.

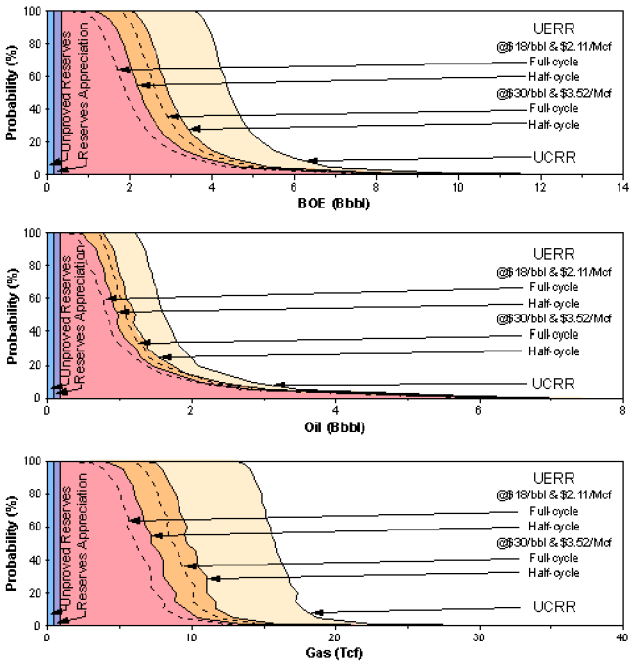

Figure 8. Gulf of Mexico Western Planning Area 901-3,000m Water Depth Total Endowment by Resource Category.

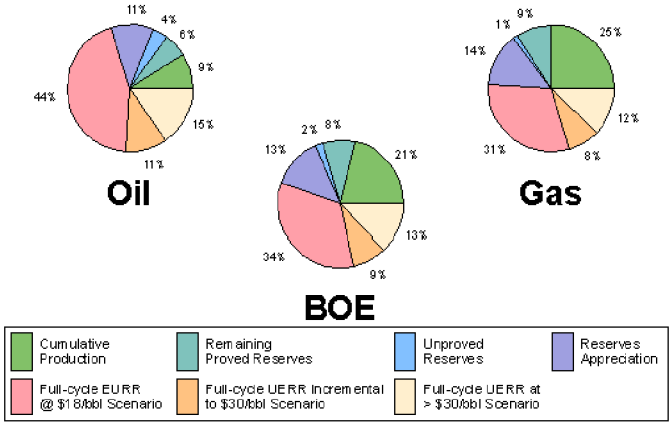

Figure 9. Total Gulf of Mexico Western Planning Area Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

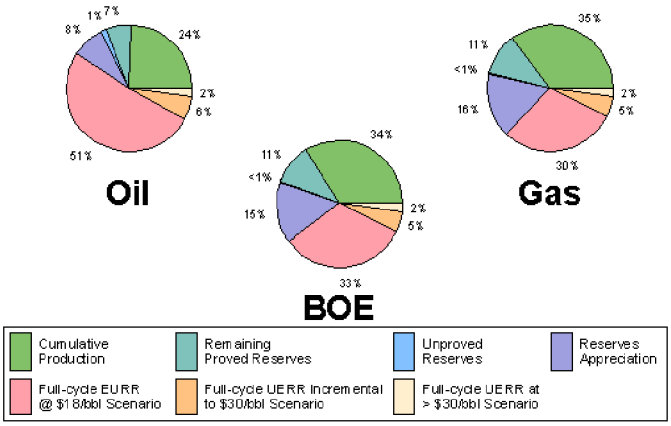

Figure 10. Gulf of Mexico Western Planning Area 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

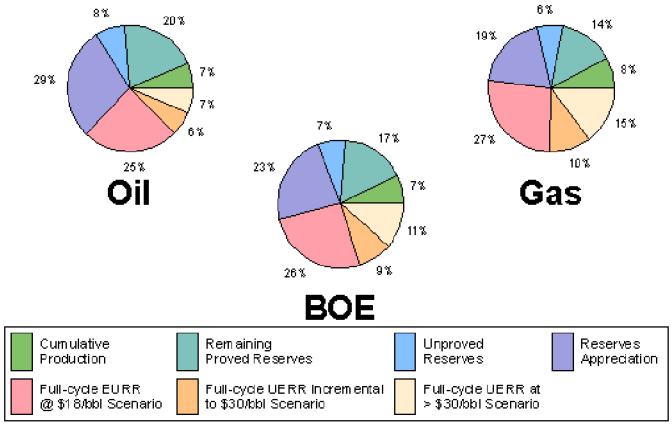

Figure 11. Gulf of Mexico Western Planning Area 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

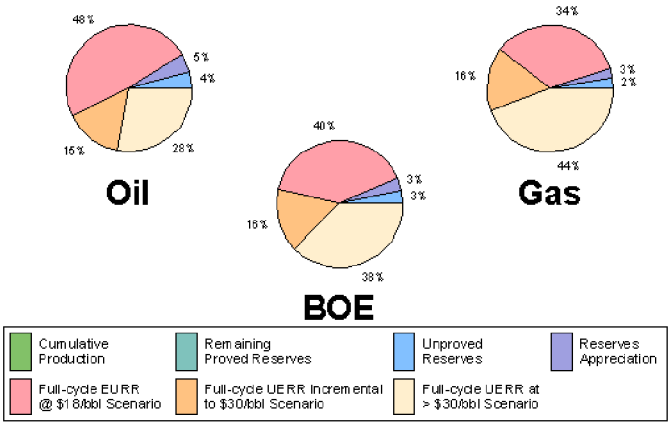

Figure 12. Gulf of Mexico Western Planning Area 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

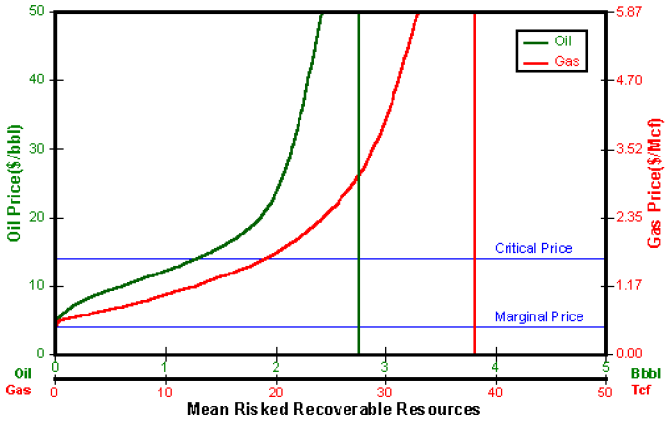

Figure 13. Total Gulf of Mexico Western Planning Area Full-Cycle Price-Supply Curve.

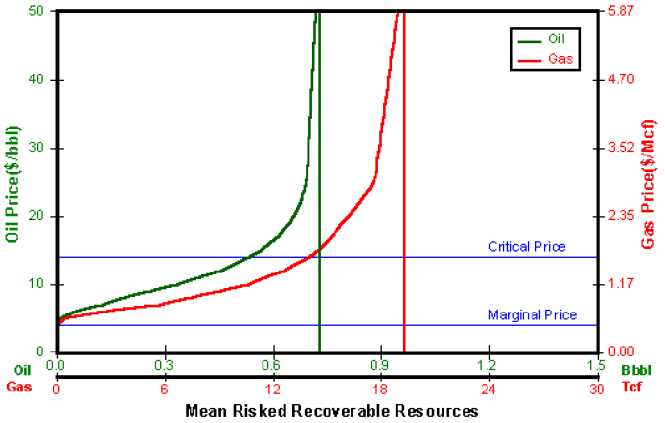

Figure 14. Gulf of Mexico Western Planning Area 0-200m Water Depth Full-Cycle Price-Supply Curve.

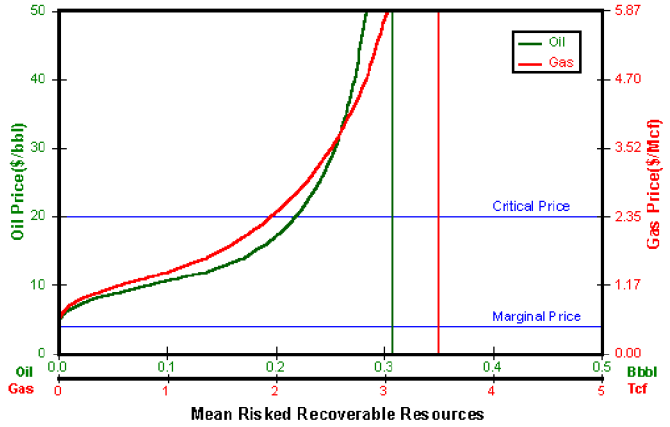

Figure 15. Gulf of Mexico Western Planning Area 201-900m Water Depth Full-Cycle Price-Supply Curve.

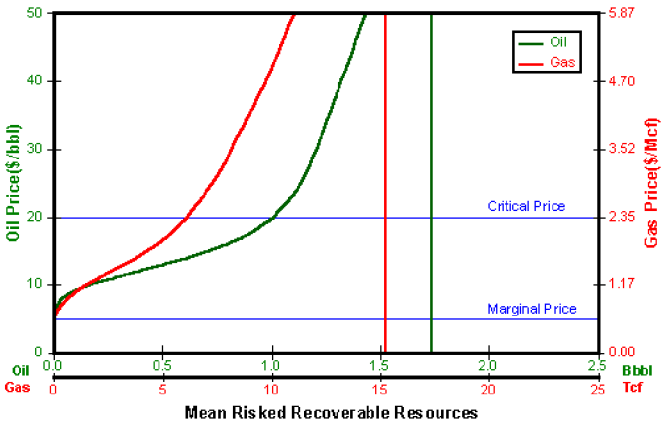

Figure 16. Gulf of Mexico Western Planning Area 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

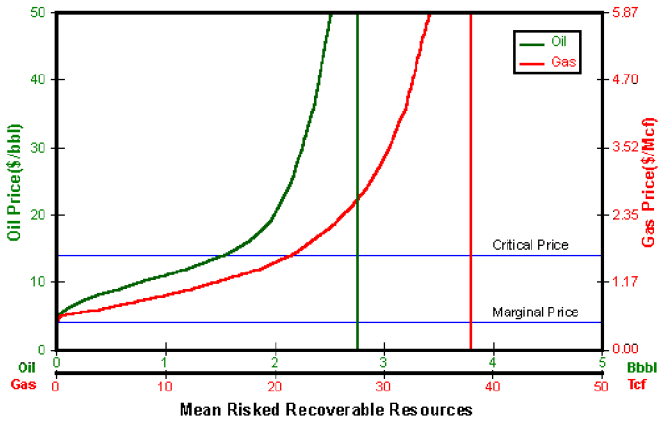

Figure 17. Total Gulf of Mexico Western Planning Area Half-Cycle Price-Supply Curve.

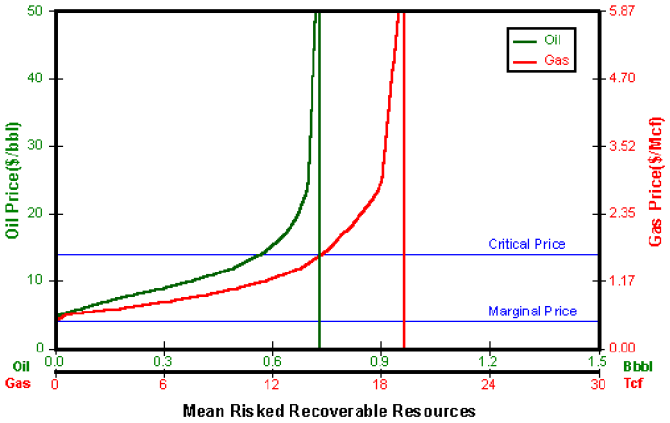

Figure 18. Gulf of Mexico Western Planning Area 0-200m Water Depth Half-Cycle Price-Supply Curve.

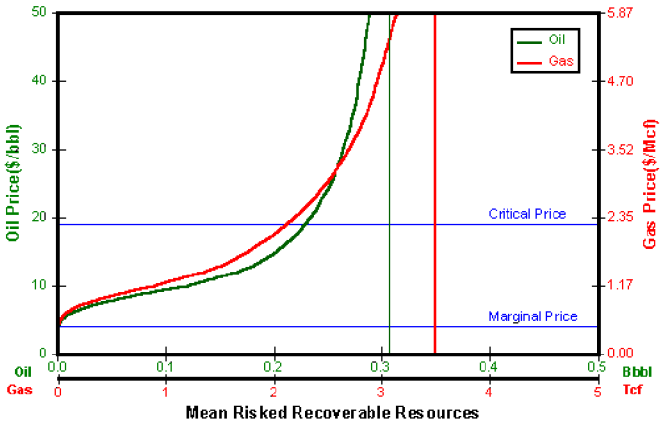

Figure 19. Gulf of Mexico Western Planning Area 201-900m Water Depth Half-Cycle Price-Supply Curve.

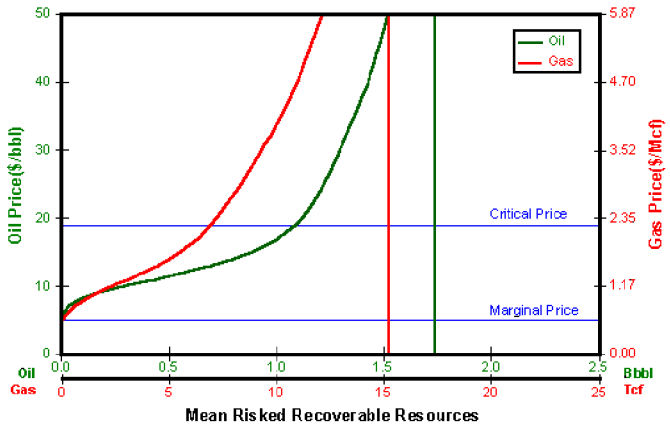

Figure 20. Gulf of Mexico Western Planning Area 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

Gulf of Mexico Central Planning Area Economic Results

The Gulf of Mexico Central Planning Area includes submerged Federal lands offshore Louisiana, Mississippi, and Alabama, and extends to the U.S. International Boundary in the south (figure 1). Water depths in the planning area range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

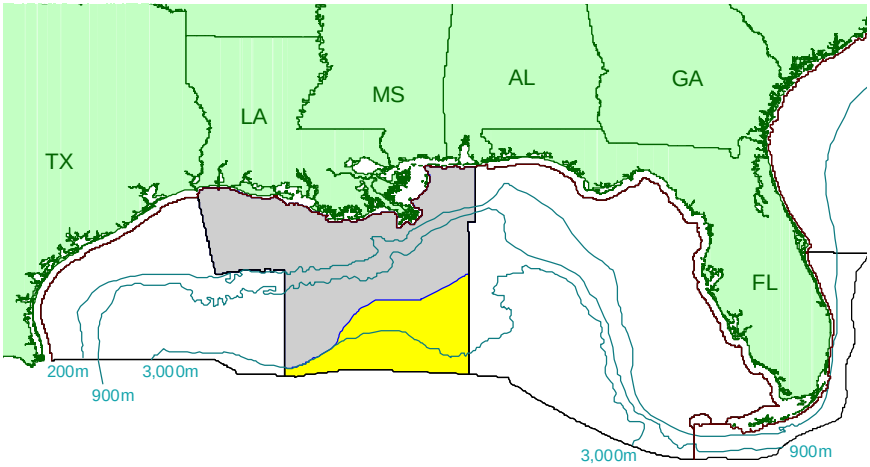

Figure 1. Gulf of Mexico Central Planning Area Map. The planning area is shaded in yellow, and the gray pattern indicates the extent of the assessed plays.

The mean total endowment for this planning area is predominantly gas, with 66 percent of the total resources occurring as gas (figure 2). There is a slight trend towards a less gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 68 percent gas, and the deepest water depth range consisting of 63 percent gas. The majority of the mean total endowment (78% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of less than 200m (figure 3 and figure 4).

The planning area is well developed in the 0-200m range with an extensive infrastructure already in place, less so in the 201-900m range, and minimally in the 901-3,000m range. There has been production in the two shallower ranges, but as of the date of this study, only proved and unproved reserves and reserves appreciation occurred in the 901-3,000m range (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m buttons). Significant amounts of undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total planning area.

Assessment results indicate that the total planning area undiscovered economically recoverable resources have a range of 1.857 to 2.428 Bbo and 27.572 to 32.718 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean

economically recoverable resources are estimated at 2.115 Bbo and 30.216 Tcfg. A graphical representation of these results, incorporating every 5th- percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, only 26 percent of the gas in the planning area remains to be discovered, and only 20 percent of the oil remains to be discovered (figure 9). Moreover, 16 percent of the gas mean total endowment is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

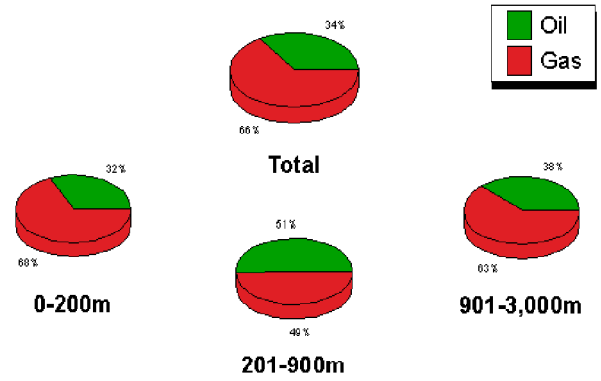

Figure 2. Gulf of Mexico Central Planning Area Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

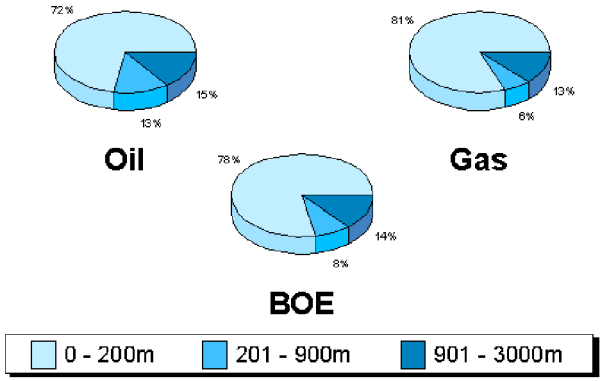

Figure 4. Gulf of Mexico Central Planning Area Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

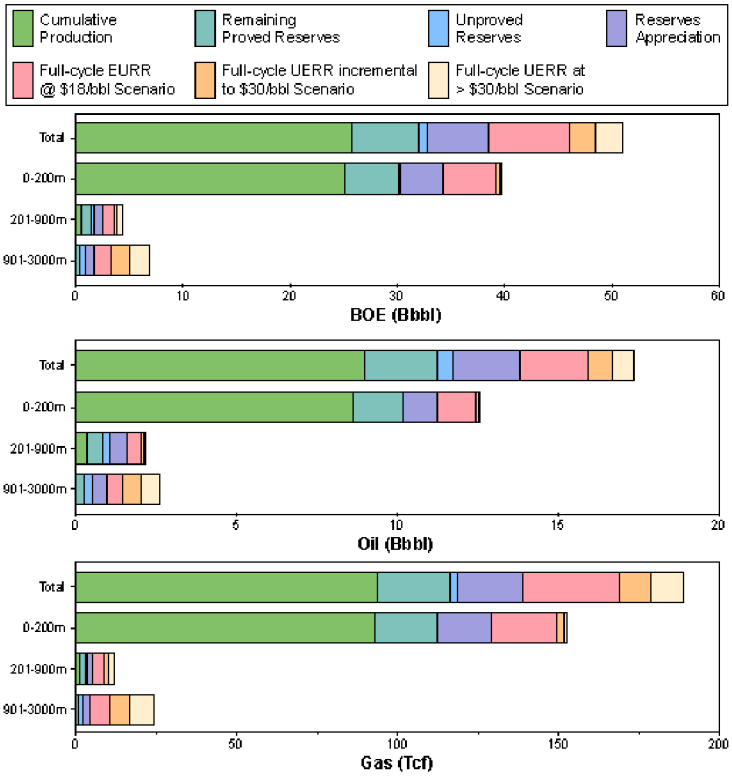

Figure 3. Gulf of Mexico Central Planning Area Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	11.257	116.442	31.976
Cumulative production	8.984	93.877	25.688
Remaining proved	2.273	22.565	6.288
Unproved	0.478	2.209	0.871
Appreciation (P & U)	2.077	20.264	5.683
Undiscovered Conventionally Recoverable Resources			
95th percentile	3.317	48.175	11.889
Mean	3.550	49.978	12.443
5th percentile	3.809	52.061	13.073
Total Endowment			
95th percentile	17.130	187.090	50.420
Mean	17.363	188.893	50.973
5th percentile	17.622	190.976	51.604

Table 1. Total Gulf of Mexico Central Planning Area Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	10.155	112.271	30.132
Cumulative production	8.638	92.712	25.135
Remaining proved	1.516	19.559	4.997
Unproved	0.017	0.278	0.066
Appreciation (P & U)	1.068	16.477	4.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	1.215	22.410	5.202
Mean	1.342	23.565	5.535
5th percentile	1.524	24.538	5.890
Total Endowment			
95th percentile	12.454	151.436	39.400
Mean	12.581	152.591	39.733
5th percentile	12.763	153.564	40.088

Table 2. Gulf of Mexico Central Planning Area 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.826	3.266	1.408
Cumulative production	0.346	1.165	0.553
Remaining proved	0.481	2.101	0.854
Unproved	0.218	0.436	0.295
Appreciation (P & U)	0.541	1.741	0.851
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.451	5.660	1.458
Mean	0.604	6.581	1.775
5th percentile	0.874	8.334	2.357
Total Endowment			
95th percentile	2.036	11.103	4.012
Mean	2.189	12.024	4.329
5th percentile	2.459	13.777	4.911

Table 3. Gulf of Mexico Central Planning Area 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.276	0.905	0.437
Cumulative production	0.000	0.000	0.000
Remaining proved	0.276	0.905	0.437
Unproved	0.244	1.494	0.510
Appreciation (P & U)	0.468	2.046	0.832
Undiscovered Conventionally Recoverable Resources			
95th percentile	1.528	18.766	4.868
Mean	1.605	19.840	5.135
5th percentile	1.678	21.021	5.418
Total Endowment			
95th percentile	2.516	23.211	6.646
Mean	2.593	24.286	6.914
5th percentile	2.665	25.467	7.197

Table 4. Gulf of Mexico Central Planning Area 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		1.857	27.572	6.763
Mean		2.115	30.216	7.492
5th percentile		2.428	32.718	8.250
Half-Cycle	1.00			
95th percentile		1.945	29.416	7.179
Mean		2.216	31.904	7.893
5th percentile		2.557	34.306	8.661
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		2.636	37.436	9.297
Mean		2.863	39.758	9.937
5th percentile		3.164	41.988	10.635
Half-Cycle	1.00			
95th percentile		2.695	38.400	9.527
Mean		2.925	40.673	10.162
5th percentile		3.224	42.914	10.860

Table 5. Total Gulf of Mexico Central Planning Area Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		1.095	19.453	4.557
Mean		1.212	20.713	4.898
5th percentile		1.406	21.695	5.267
Half-Cycle	1.00			
95th percentile		1.117	20.350	4.738
Mean		1.236	21.570	5.074
5th percentile		1.434	22.531	5.443
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		1.158	21.517	4.986
Mean		1.295	22.618	5.320
5th percentile		1.488	23.565	5.681
Half-Cycle	1.00			
95th percentile		1.168	21.705	5.030
Mean		1.302	22.808	5.361
5th percentile		1.487	23.789	5.720

Table 6. Gulf of Mexico Central Planning Area 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.281	2.214	0.675
Mean		0.431	3.382	1.032
5th percentile		0.692	5.200	1.617
Half-Cycle	1.00			
95th percentile		0.285	2.484	0.727
Mean		0.445	3.565	1.079
5th percentile		0.693	5.450	1.663
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.357	3.669	1.010
Mean		0.520	4.683	1.353
5th percentile		0.780	6.571	1.950
Half-Cycle	1.00			
95th percentile		0.362	3.830	1.044
Mean		0.529	4.846	1.391
5th percentile		0.800	6.654	1.984

Table 7. Gulf of Mexico Central Planning Area 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.352	4.186	1.097
Mean		0.477	6.190	1.578
5th percentile		0.601	8.195	2.060
Half-Cycle	1.00			
95th percentile		0.424	4.848	1.286
Mean		0.538	6.816	1.751
5th percentile		0.667	8.759	2.226
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.946	11.059	2.914
Mean		1.051	12.509	3.276
5th percentile		1.148	14.118	3.660
Half-Cycle	1.00			
95th percentile		1.006	11.587	3.068
Mean		1.094	13.078	3.421
5th percentile		1.186	14.725	3.806

Table 8. Gulf of Mexico Central Planning Area 901-3,000m Water Depth Economic Assessment Results Table.

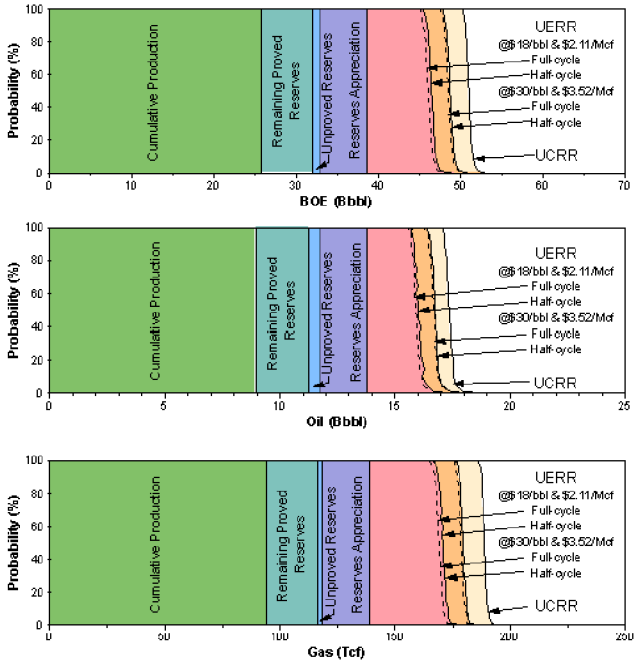

Figure 5. Gulf of Mexico Central Planning Area Total Endowment by Resource Category.

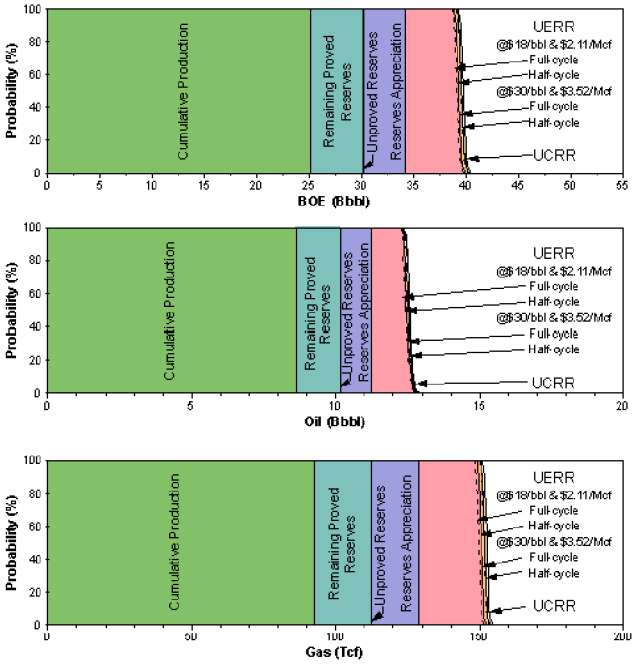

Figure 6. Gulf of Mexico Central Planning Area 0-200m Water Depth Total Endowment by Resource Category.

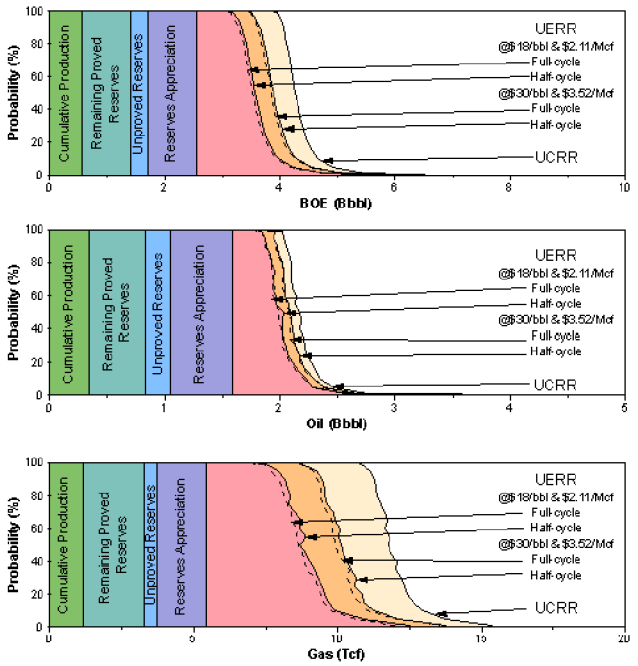

Figure 7. Gulf of Mexico Central Planning Area 201-900m Water Depth Total Endowment by Resource Category.

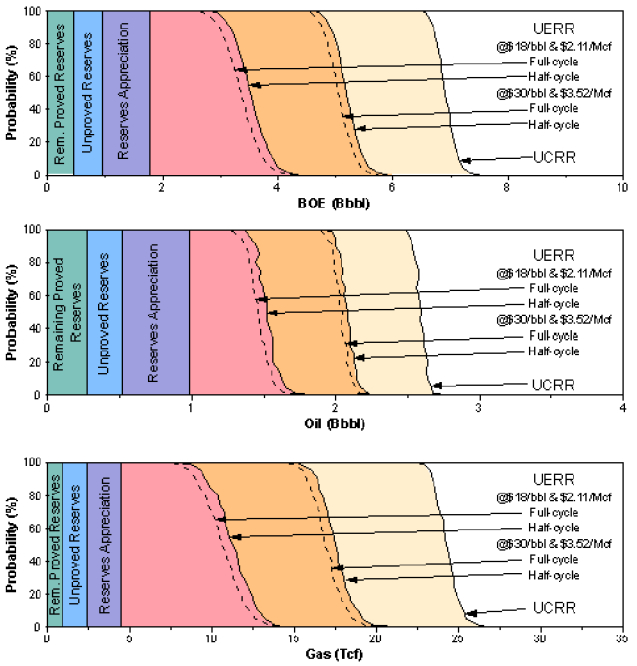

Figure 8. Gulf of Mexico Central Planning Area 901-3,000m Water Depth Total Endowment by Resource Category.

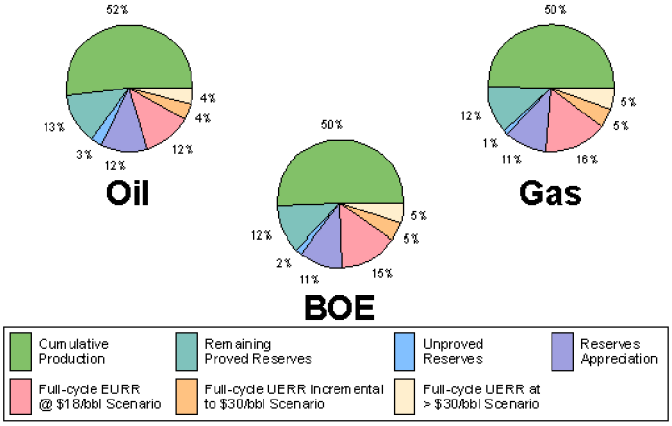

Figure 9. Total Gulf of Mexico Central Planning Area Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

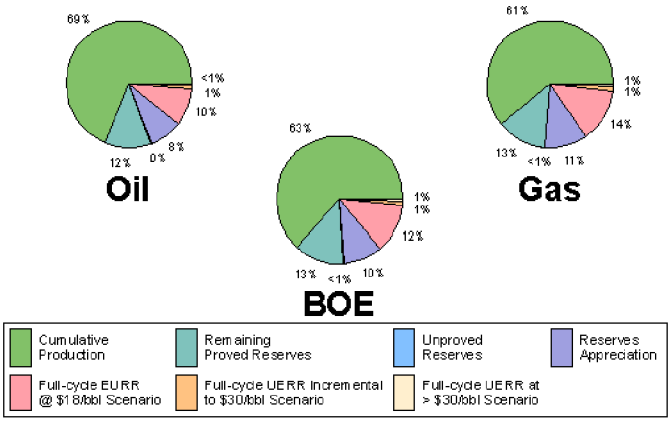

Figure 10. Gulf of Mexico Central Planning Area 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

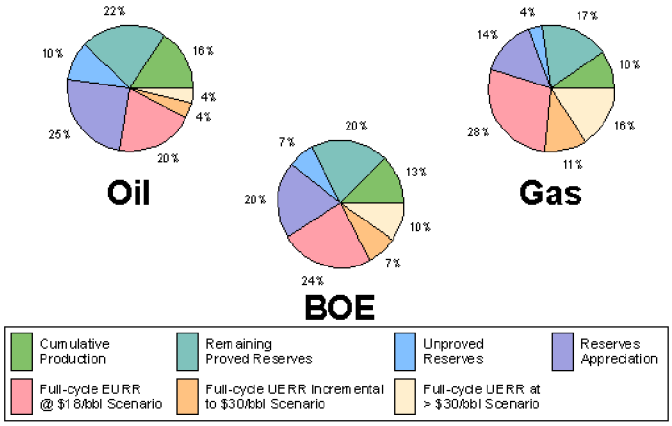

Figure 11. Gulf of Mexico Central Planning Area 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

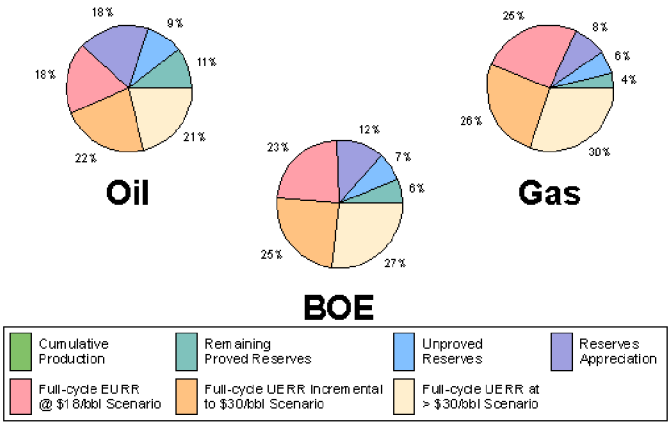

Figure 12. Gulf of Mexico Central Planning Area 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

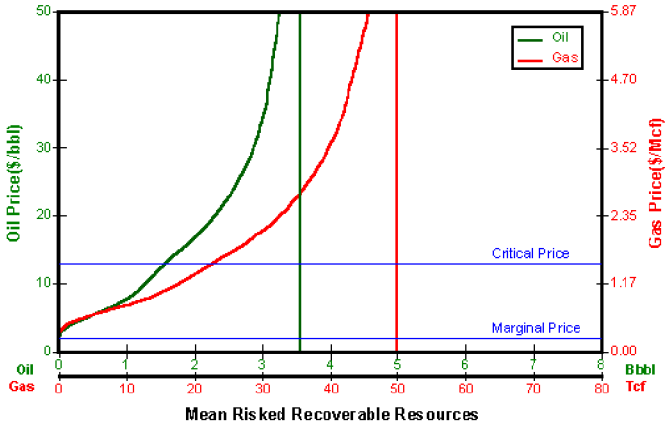

Figure 13. Total Gulf of Mexico Central Planning Area Full-Cycle Price-Supply Curve.

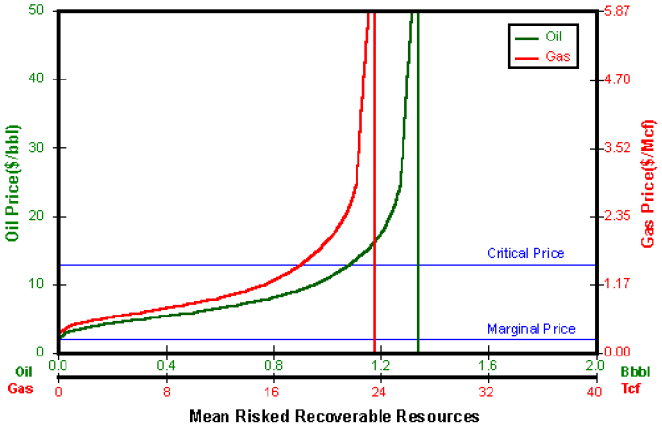

Figure 14. Gulf of Mexico Central Planning Area 0-200m Water Depth Full-Cycle Price-Supply Curve.

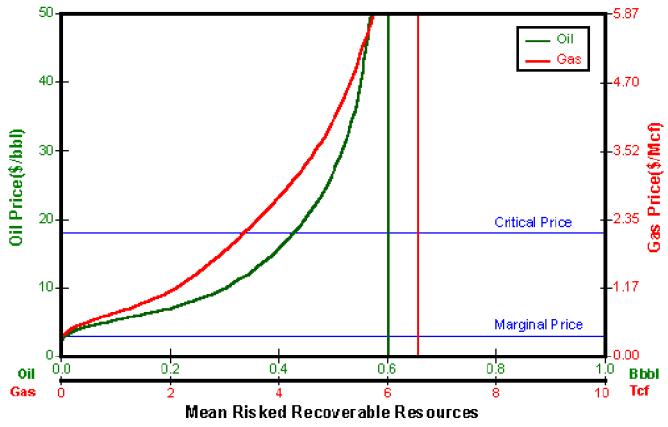

Figure 15. Gulf of Mexico Central Planning Area 201-900m Water Depth Full-Cycle Price-Supply Curve.

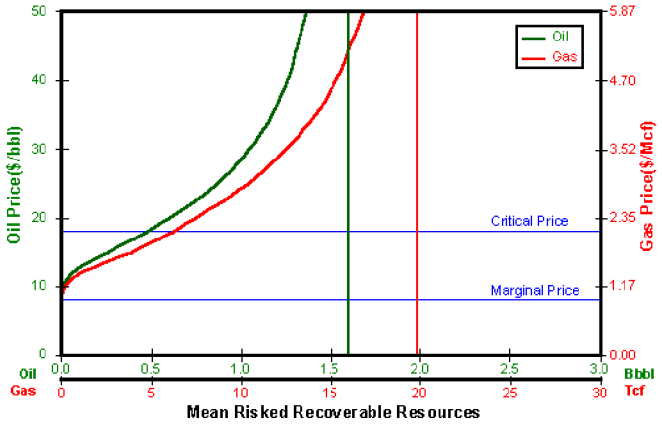

Figure 16. Gulf of Mexico Central Planning Area 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

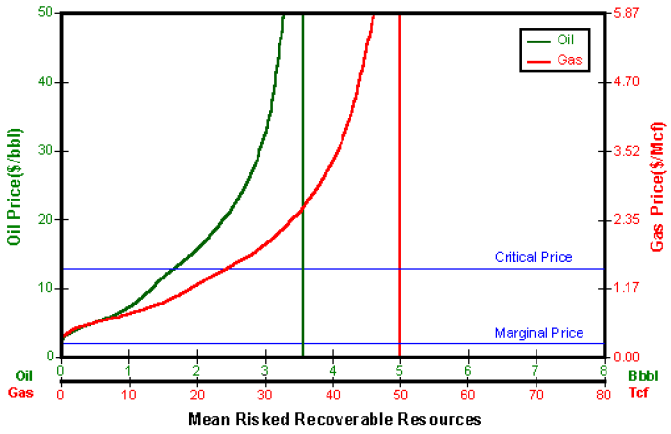

Figure 17. Total Gulf of Mexico Central Planning Area Half-Cycle Price-Supply Curve.

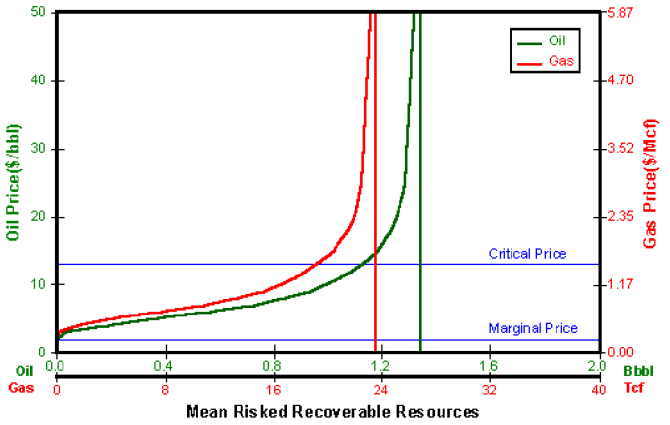

Figure 19. Gulf of Mexico Central Planning Area 0-200m Water Depth Half-Cycle Price-Supply Curve.

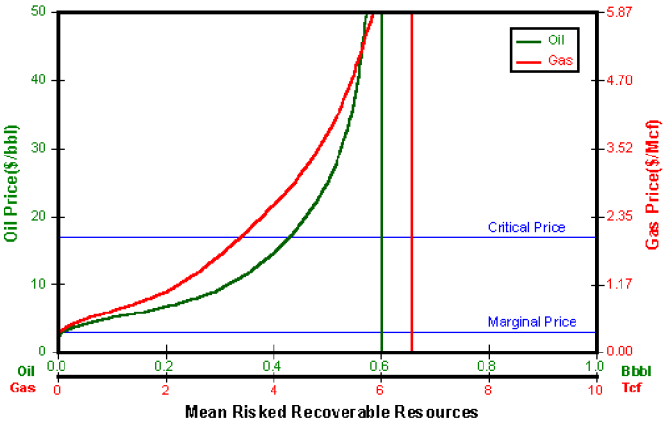

Figure 19. Gulf of Mexico Central Planning Area 201-900m Water Depth Half-Cycle Price-Supply Curve.

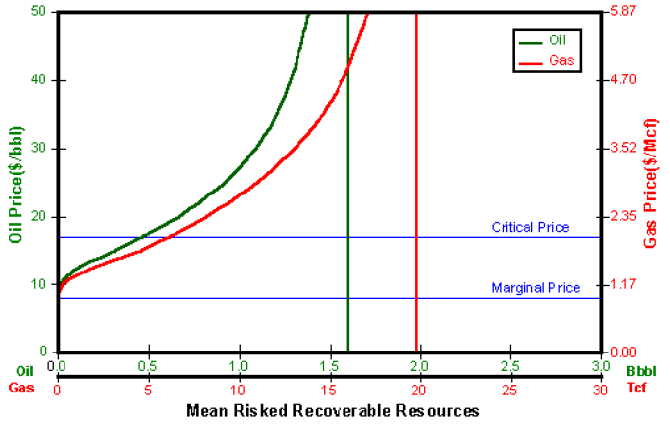

Figure 20. Gulf of Mexico Central Planning Area 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

Gulf of Mexico Eastern Planning Area Economic Results

The Gulf of Mexico Eastern Planning Area includes submerged Federal lands offshore Alabama and Florida, and extends to the U.S.-Cuba International Boundary in the south (figure 1). Water depths in the planning area range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

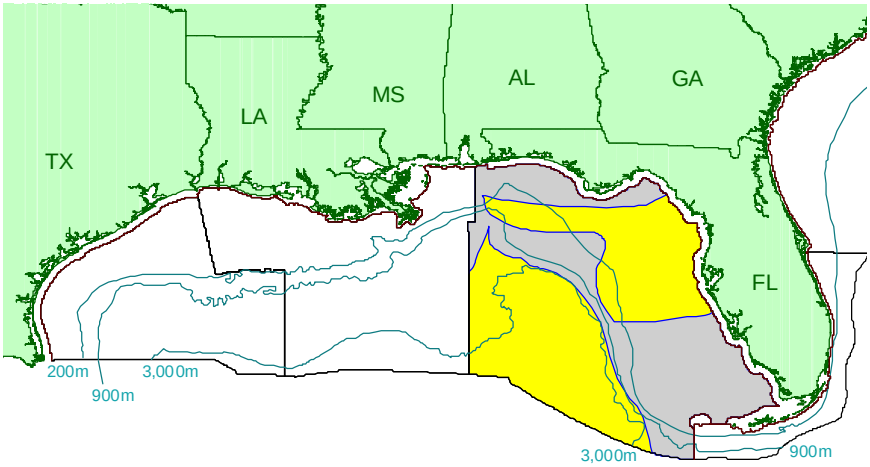

Figure 1. Gulf of Mexico Eastern Planning Area Map. The planning area is shaded in yellow, and the gray pattern indicates the extent of the assessed plays.

The mean total endowment for this planning area is a mix of oil and gas, with 45 percent of the total resources occurring as gas (figure 2). There is a slight trend towards a more gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 44 percent gas, and the deepest water depth range consisting of 54 percent gas. The majority of the mean total endowment (81% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of less than 200m (figure 3 and figure 4).

The planning area is not well developed in any of the water depth ranges, and there is little to no infrastructure in place. As of the date of this study, there has been no production or proved reserves in any of the ranges, but there are unproved reserves and reserves appreciation in the 0-200m and 901-3,000m ranges (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in table 5 (Economic Results Total), table 6 (0-200m), table 7 for (201-900m), and table 8 (901-3,000m buttons). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total planning area.

Assessment results indicate that the total planning area undiscovered economically recoverable resources have a range of 0.676 to 1.508 Bbo and 3.492 to 5.601 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean economically recoverable resources are estimated at 1.071 Bbo and 4.476 Tcfg. A

graphical representation of these results, incorporating every 5th- percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, 88 percent of the gas in the planning area remains to be discovered, while 99 percent of the oil remains to be discovered (figure 9). Moreover, 52 percent of the mean total endowment, on a BOE basis, is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

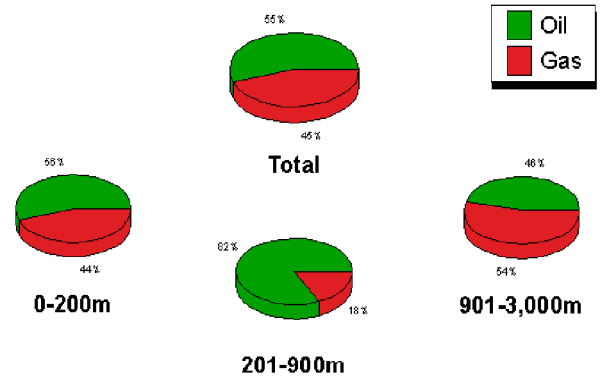

Figure 2. Gulf of Mexico Eastern Planning Area Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

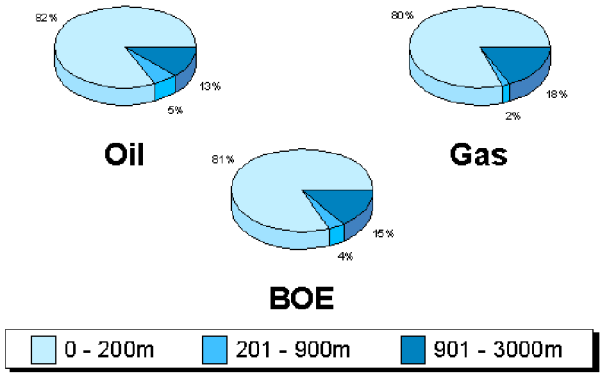

Figure 4. Gulf of Mexico Eastern Planning Area Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

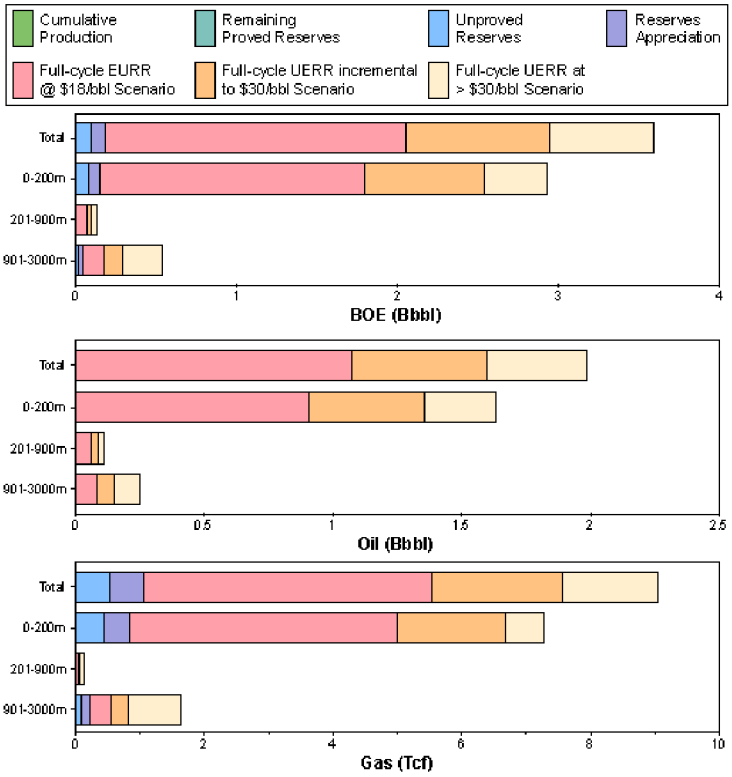

Figure 3. Gulf of Mexico Eastern Planning Area Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	<0.001	0.530	0.094
Appreciation (P & U)	<0.001	0.531	0.095
Undiscovered Conventionally Recoverable Resources			
95th percentile	1.575	7.466	2.903
Mean	1.985	7.981	3.406
5th percentile	2.451	8.722	4.003
Total Endowment			
95th percentile	1.575	8.527	3.092
Mean	1.986	9.042	3.594
5th percentile	2.452	9.782	4.192

Table 1. Total Gulf of Mexico Eastern Planning Area Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	<0.001	0.451	0.080
Appreciation (P & U)	<0.001	0.383	0.068
Undiscovered Conventionally Recoverable Resources			
95th percentile	1.269	6.117	2.357
Mean	1.630	6.439	2.776
5th percentile	2.086	6.725	3.283
Total Endowment			
95th percentile	1.269	6.951	2.506
Mean	1.630	7.273	2.925
5th percentile	2.086	7.559	3.431

Table 2. Gulf of Mexico Eastern Planning Area 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.064	0.092	0.080
Mean	0.109	0.138	0.133
5th percentile	0.180	0.229	0.220
Total Endowment			
95th percentile	0.064	0.092	0.080
Mean	0.109	0.138	0.133
5th percentile	0.180	0.229	0.220

Table 3. Gulf of Mexico Eastern Planning Area 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	<0.001	0.078	0.014
Appreciation (P & U)	<0.001	0.148	0.026
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.151	0.938	0.318
Mean	0.249	1.408	0.500
5th percentile	0.391	2.247	0.791
Total Endowment			
95th percentile	0.151	1.164	0.358
Mean	0.249	1.634	0.540
5th percentile	0.391	2.474	0.831

Table 4. Gulf of Mexico Eastern Planning Area 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.676	3.492	1.298
Mean		1.071	4.476	1.868
5th percentile		1.508	5.601	2.504
Half-Cycle	1.00			
95th percentile		0.763	4.337	1.535
Mean		1.170	5.220	2.099
5th percentile		1.640	6.283	2.758
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		1.196	5.691	2.208
Mean		1.597	6.509	2.756
5th percentile		2.072	7.346	3.379
Half-Cycle	1.00			
95th percentile		1.243	6.012	2.312
Mean		1.658	6.747	2.858
5th percentile		2.130	7.618	3.485

Table 5. Total Gulf of Mexico Eastern Planning Area Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	1.00			
95th percentile		0.599	3.272	1.181
Mean		0.909	4.177	1.652
5th percentile		1.358	4.764	2.206
Half-Cycle	1.00			
95th percentile		0.656	4.182	1.400
Mean		1.002	4.839	1.863
5th percentile		1.457	5.300	2.400
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.996	5.464	1.969
Mean		1.356	5.838	2.395
5th percentile		1.820	6.109	2.907
Half-Cycle	1.00			
95th percentile		1.041	5.617	2.040
Mean		1.403	5.968	2.465
5th percentile		1.870	6.272	2.986

Table 6. Gulf of Mexico Eastern Planning Area 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.88			
95th percentile		0.000	0.000	0.000
Mean		0.059	0.047	0.067
5th percentile		0.137	0.134	0.161
Half-Cycle	0.92			
95th percentile		0.000	0.000	0.000
Mean		0.064	0.053	0.073
5th percentile		0.139	0.145	0.164
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.034	0.013	0.036
Mean		0.086	0.070	0.098
5th percentile		0.160	0.154	0.187
Half-Cycle	1.00			
95th percentile		0.040	0.024	0.044
Mean		0.088	0.077	0.102
5th percentile		0.160	0.167	0.190

Table 7. Gulf of Mexico Eastern Planning Area 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.51			
95th percentile		0.000	0.000	0.000
Mean		0.080	0.322	0.138
5th percentile		0.232	1.502	0.499
Half-Cycle	0.61			
95th percentile		0.000	0.000	0.000
Mean		0.093	0.382	0.161
5th percentile		0.254	1.524	0.525
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.91			
95th percentile		0.000	0.000	0.000
Mean		0.147	0.594	0.253
5th percentile		0.301	1.667	0.598
Half-Cycle	0.95			
95th percentile		0.023	0.033	0.029
Mean		0.162	0.682	0.284
5th percentile		0.301	1.790	0.620

Table 8. Gulf of Mexico Eastern Planning Area 901-3,000m Water Depth Economic Assessment Results Table.

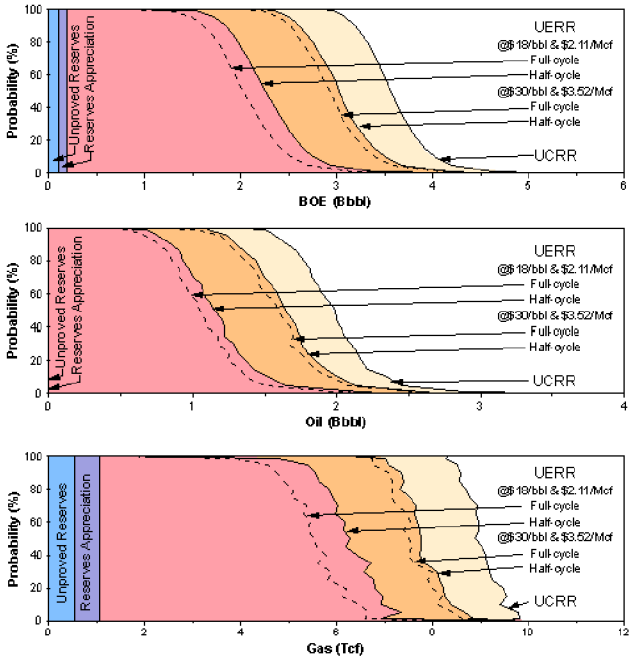

Figure 5. Gulf of Mexico Eastern Planning Area Total Endowment by Resource Category.

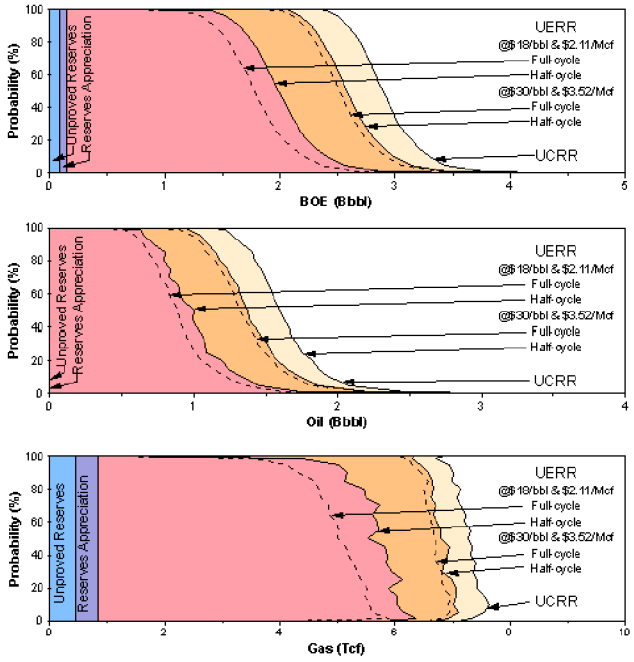

Figure 6. Gulf of Mexico Eastern Planning Area 0-200m Water Depth Total Endowment by Resource Category.

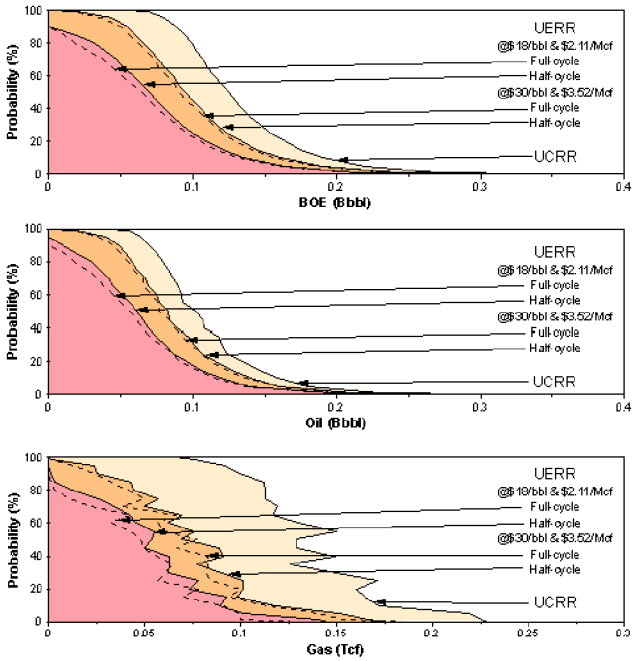

Figure 7. Gulf of Mexico Eastern Planning Area 201-900m Water Depth Total Endowment by Resource Category.

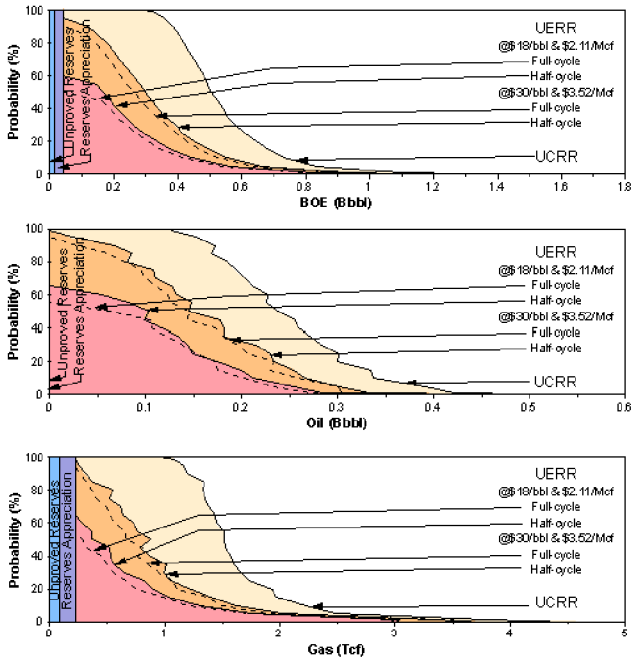

Figure 8. Gulf of Mexico Eastern Planning Area 901-3,000m Water Depth Total Endowment by Resource Category.

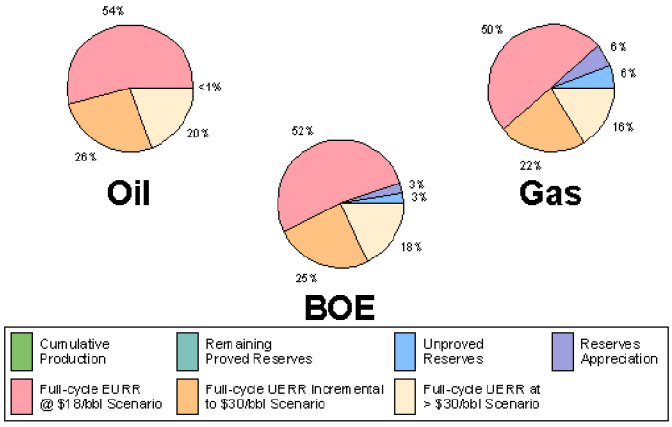

Figure 9. Total Gulf of Mexico Eastern Planning Area Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

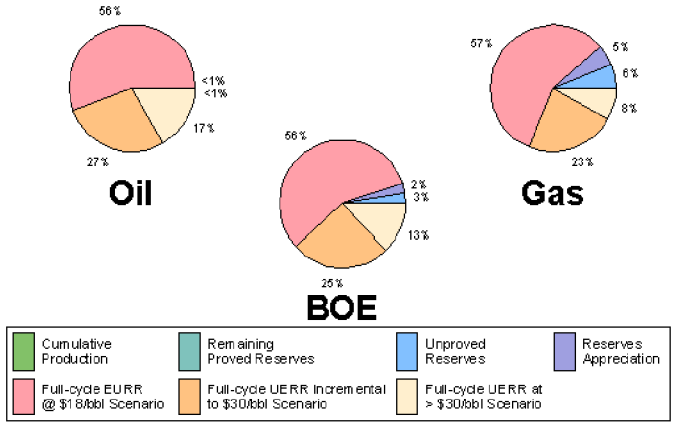

Figure 10. Gulf of Mexico Eastern Planning Area 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

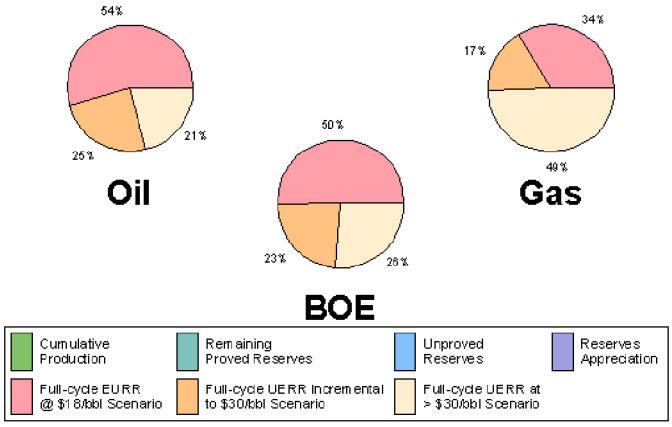

Figure 11. Gulf of Mexico Eastern Planning Area 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

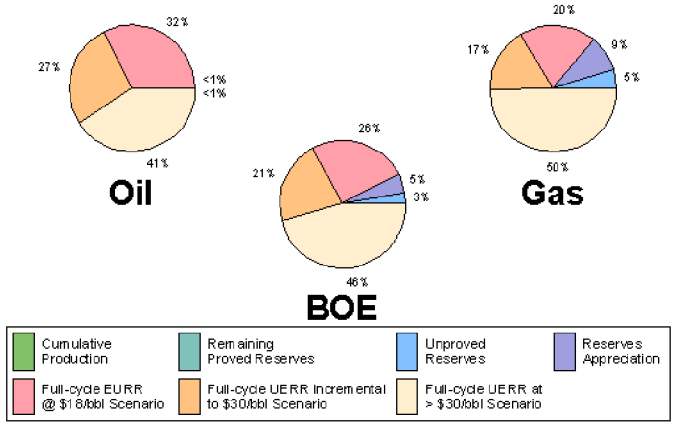

Figure 12. Gulf of Mexico Eastern Planning Area 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

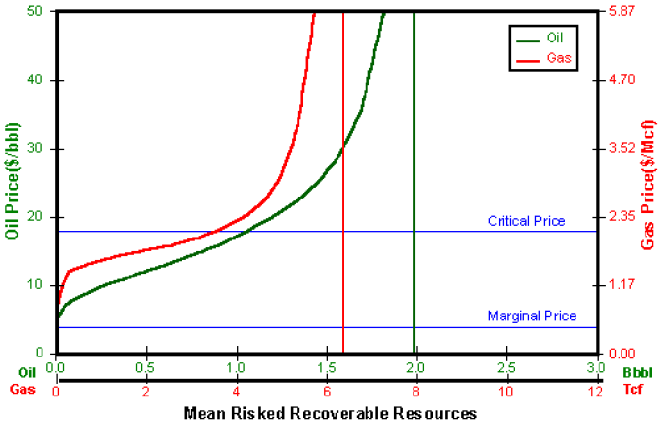

Figure 13. Total Gulf of Mexico Eastern Planning Area Full-Cycle Price-Supply Curve.

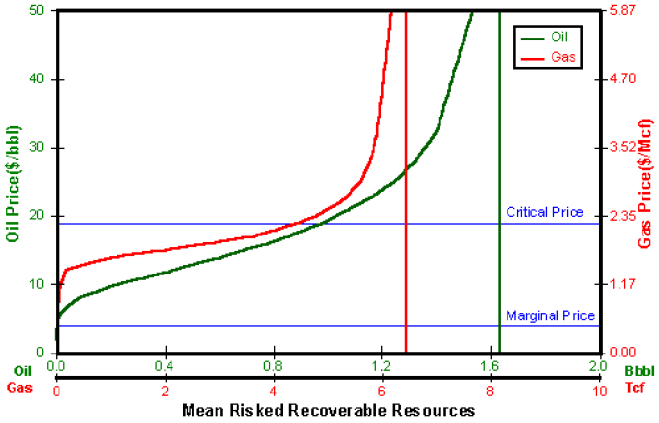

Figure 14. Gulf of Mexico Eastern Planning Area 0-200m Water Depth Full-Cycle Price-Supply Curve.

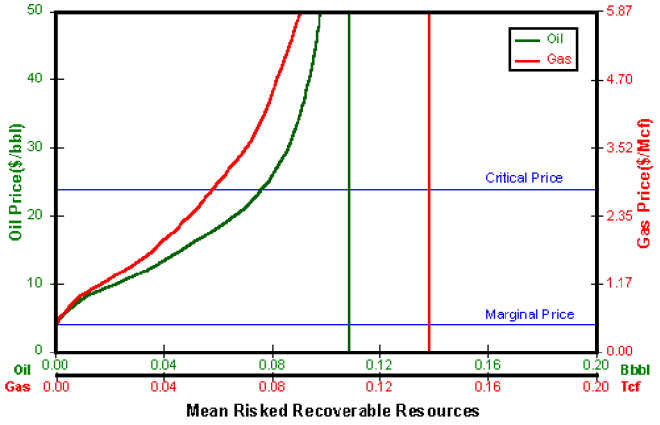

Figure 15. Gulf of Mexico Eastern Planning Area 201-900m Water Depth Full-Cycle Price-Supply Curve.

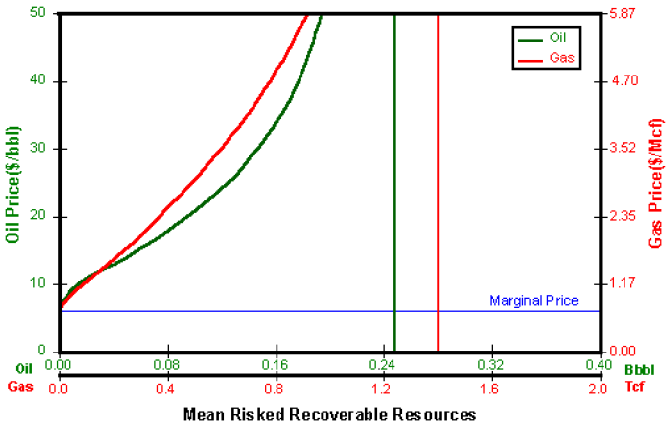

Figure 16. Gulf of Mexico Eastern Planning Area 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

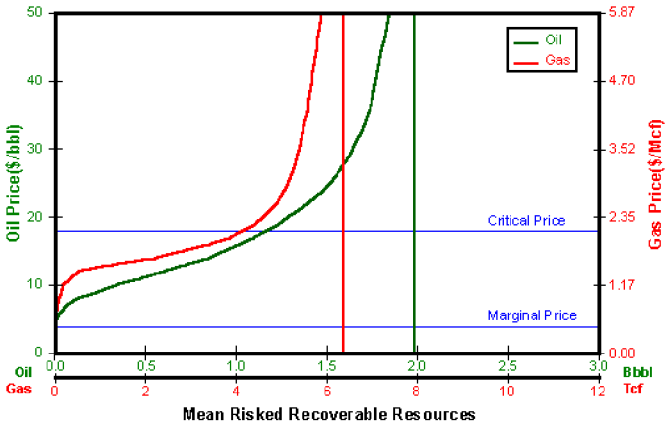

Figure 17. Total Gulf of Mexico Eastern Planning Area Half-Cycle Price-Supply Curve.

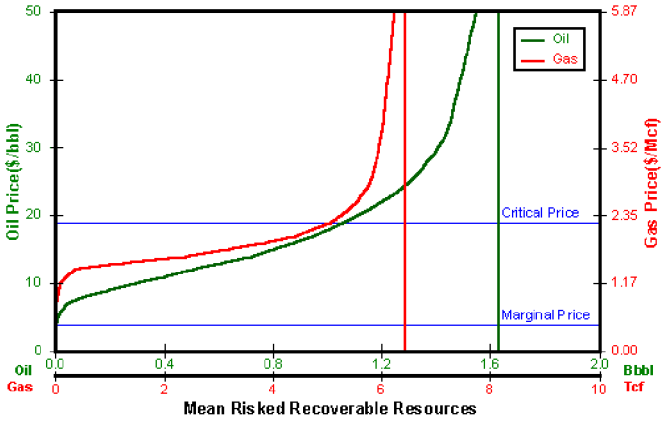

Figure 18. Gulf of Mexico Eastern Planning Area 0-200m Water Depth Half-Cycle Price-Supply Curve.

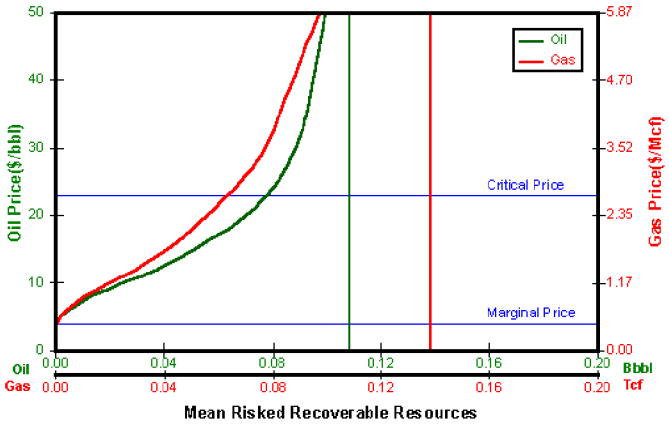

Figure 19. Gulf of Mexico Eastern Planning Area 201-900m Water Depth Half-Cycle Price-Supply Curve.

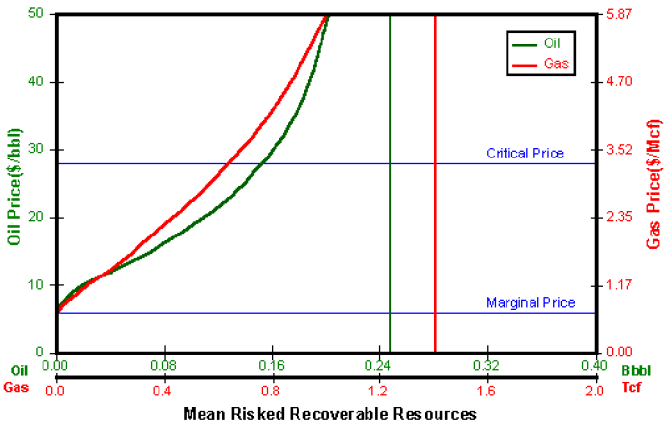

Figure 20. Gulf of Mexico Eastern Planning Area 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

Florida Straits Planning Area Economic Results

The Florida Straits Planning Area includes submerged Federal lands offshore Florida, and extends to the U.S.-Cuba International Boundary in the south and the U.S.-Bahama International Boundary in the East (figure 1). Water depths in the planning area range from very shallow to more than 900m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

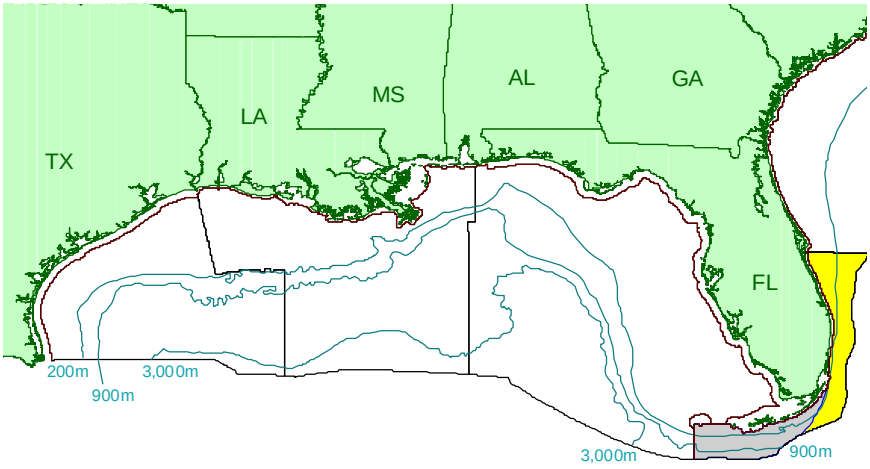

Figure 1. Florida Straits Planning Area Map. The planning area is shaded in yellow, and the gray pattern indicates the extent of the assessed plays.

The mean total endowment for this planning area is predominantly oil, with 91 percent of the total resources occurring as oil (figure 2). There is a trend towards a more gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 1 percent gas, and the deepest water depth range consisting of 23 percent gas. The majority of the mean total endowment (63% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of less than 900m (figure 3 and figure 4).

The planning area is not developed in any of the water depth ranges, and there is no infrastructure in place. As of the date of this study, there has been no production or reserves in any of the ranges (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total planning area.

Assessment results indicate that the total planning area undiscovered economically recoverable resources are minimal, with a range of 0.000 to 0.022 Bbo and 0.000 to 0.009 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean economically recoverable resources are estimated at 0.008 Bbo and 0.003 Tcfg. A graphical representation of these results, incorporating every 5th- percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure

7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, all of the oil and gas in the planning area remains to be discovered, and only 15 percent of the gas and 26 percent of the oil are projected to be economically recoverable at the $18/bbl scenario (figure 9). Moreover, 26 percent of the mean total endowment, on a BOE basis, is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

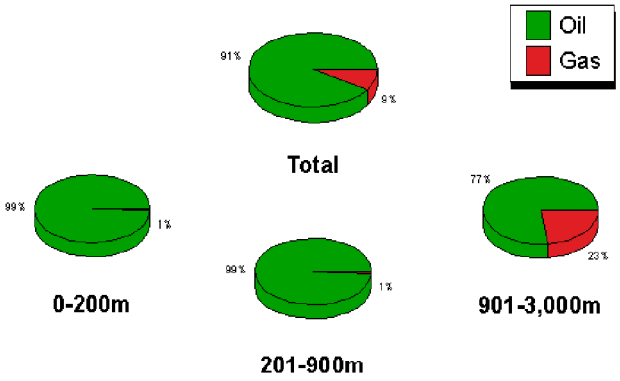

Figure 2. Florida Straits Planning Area Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

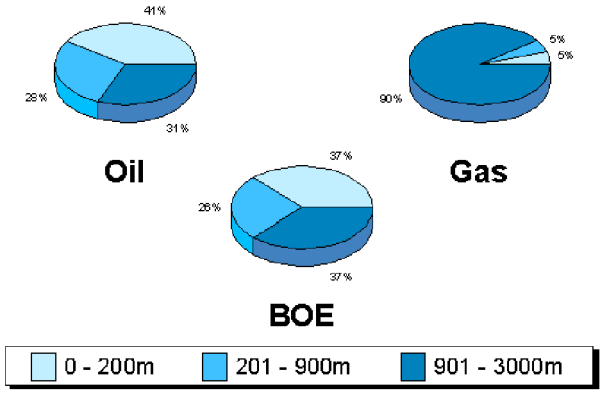

Figure 4. Florida Straits Planning Area Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

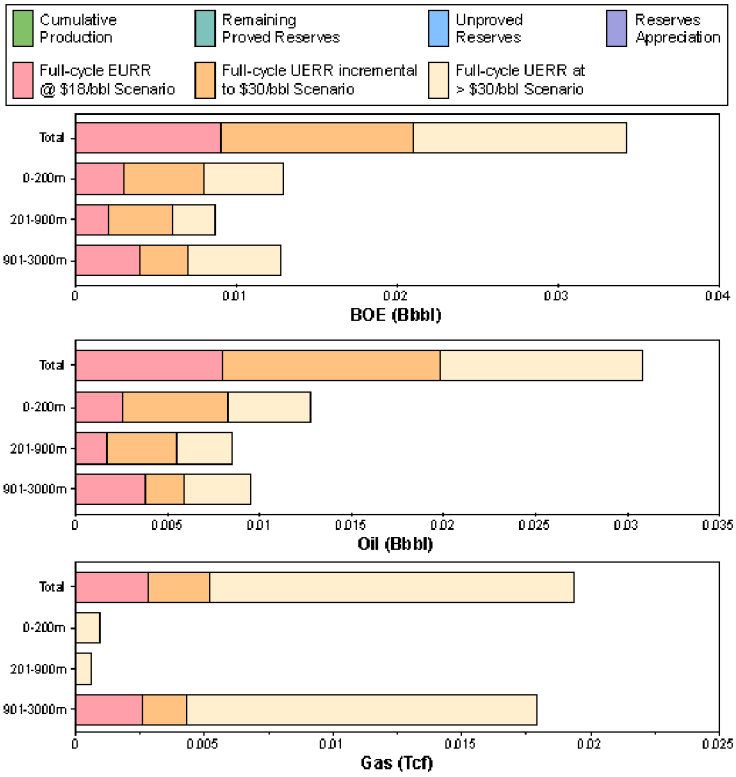

Figure 3. Florida Straits Planning Area Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.022	0.014	0.025
Mean	0.031	0.019	0.034
5th percentile	0.044	0.025	0.048
Total Endowment			
95th percentile	0.022	0.014	0.025
Mean	0.031	0.019	0.034
5th percentile	0.044	0.025	0.048

Table 1. Florida Straits Planning Area Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.009	0.001	0.009
Mean	0.013	0.001	0.013
5th percentile	0.019	0.001	0.019
Total Endowment			
95th percentile	0.009	0.001	0.009
Mean	0.013	0.001	0.013
5th percentile	0.019	0.001	0.019

Table 2. Florida Straits Planning Area 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.006	<0.001	0.006
Mean	0.009	0.001	0.009
5th percentile	0.013	0.001	0.013
Total Endowment			
95th percentile	0.006	<0.001	0.006
Mean	0.009	0.001	0.009
5th percentile	0.013	0.001	0.013

Table 3. Florida Straits Planning Area 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.004	0.011	0.006
Mean	0.010	0.018	0.013
5th percentile	0.019	0.026	0.023
Total Endowment			
95th percentile	0.004	0.011	0.006
Mean	0.010	0.018	0.013
5th percentile	0.019	0.026	0.023

Table 4. Florida Straits Planning Area 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.67			
95th percentile		0.000	0.000	0.000
Mean		0.008	0.003	0.009
5th percentile		0.022	0.009	0.024
Half-Cycle	0.75			
95th percentile		0.000	0.000	0.000
Mean		0.009	0.003	0.010
5th percentile		0.024	0.010	0.025
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.009	0.001	0.010
Mean		0.020	0.005	0.021
5th percentile		0.034	0.010	0.036
Half-Cycle	1.00			
95th percentile		0.010	0.002	0.010
Mean		0.021	0.006	0.022
5th percentile		0.034	0.011	0.036

Table 5. Florida Straits Planning Area Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.45			
95th percentile		0.000	0.000	0.000
Mean		0.003	<0.001	0.003
5th percentile		0.009	<0.001	0.009
Half-Cycle	0.51			
95th percentile		0.000	0.000	0.000
Mean		0.003	<0.001	0.003
5th percentile		0.010	<0.001	0.010
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.004	<0.001	0.004
Mean		0.008	<0.001	0.008
5th percentile		0.014	0.001	0.015
Half-Cycle	1.00			
95th percentile		0.004	<0.001	0.004
Mean		0.009	<0.001	0.009
5th percentile		0.015	0.001	0.015

Table 6. Florida Straits Planning Area 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.45			
95th percentile		0.000	0.000	0.000
Mean		0.002	<0.001	0.002
5th percentile		0.006	<0.001	0.006
Half-Cycle	0.51			
95th percentile		0.000	0.000	0.000
Mean		0.002	<0.001	0.002
5th percentile		0.007	<0.001	0.007
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.002	<0.001	0.002
Mean		0.006	<0.001	0.006
5th percentile		0.010	<0.001	0.010
Half-Cycle	1.00			
95th percentile		0.003	<0.001	0.003
Mean		0.006	<0.001	0.006
5th percentile		0.010	<0.001	0.010

Table 7. Florida Straits Planning Area 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.39			
95th percentile		0.000	0.000	0.000
Mean		0.004	0.003	0.004
5th percentile		0.015	0.011	0.017
Half-Cycle	0.47			
95th percentile		0.000	0.000	0.000
Mean		0.004	0.003	0.005
5th percentile		0.015	0.011	0.017
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.74			
95th percentile		0.000	0.000	0.000
Mean		0.006	0.004	0.007
5th percentile		0.016	0.011	0.018
Half-Cycle	0.80			
95th percentile		0.000	0.000	0.000
Mean		0.006	0.005	0.007
5th percentile		0.016	0.013	0.018

Table 8. Florida Straits Planning Area 901-3,000m Water Depth Economic Assessment Results Table.

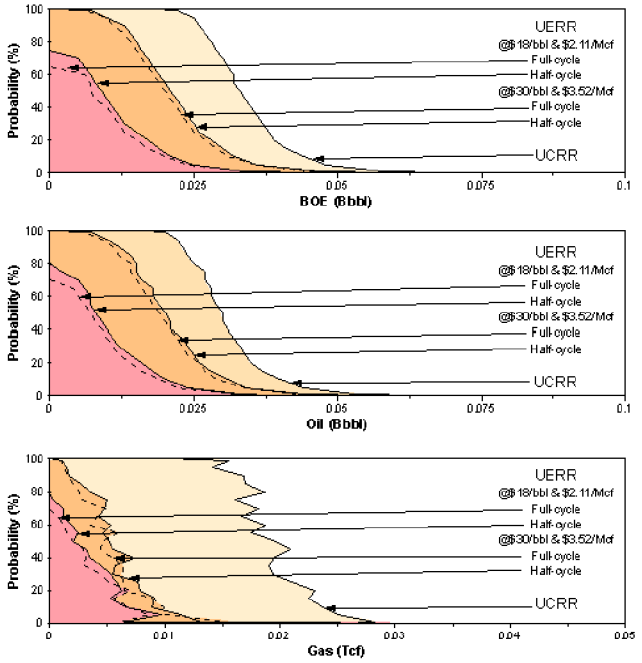

Figure 5. Florida Straits Planning Area Total Endowment by Resource Category.

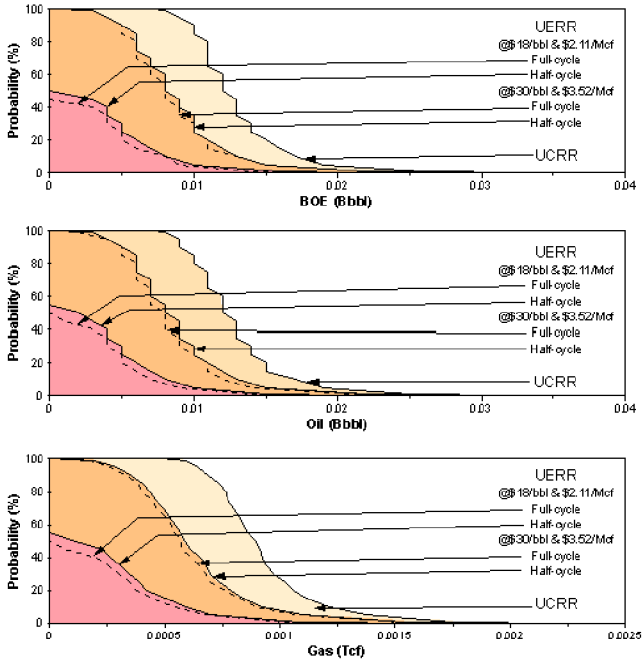

Figure 6. Florida Straits Planning Area 0-200m Water Depth Total Endowment by Resource Category.

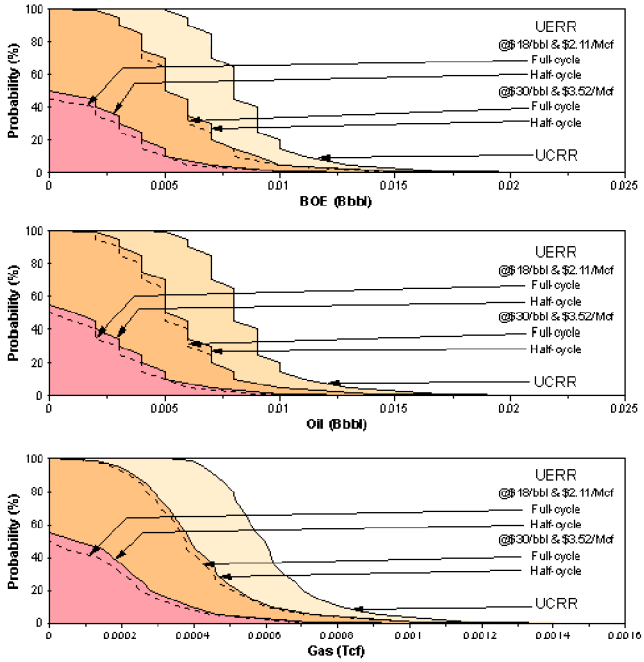

Figure 7. Florida Straits Planning Area 201-900m Water Depth Total Endowment by Resource Category.

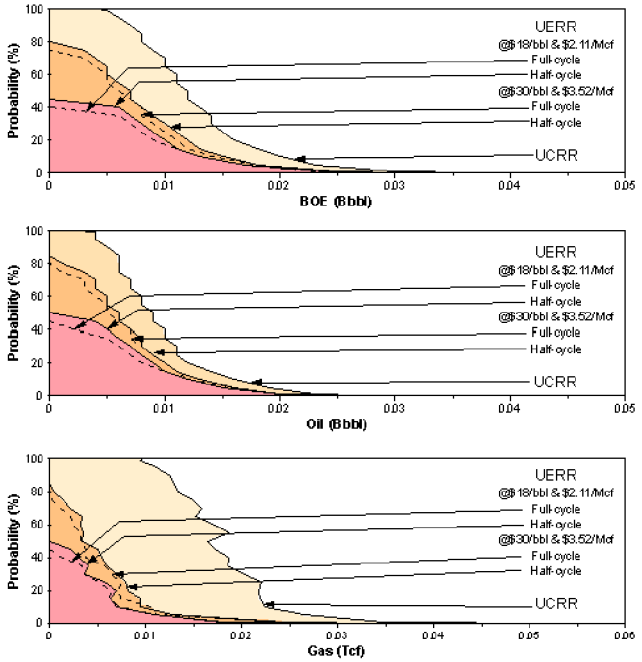

Figure 8. Florida Straits Planning Area 901-3,000m Water Depth Total Endowment by Resource Category.

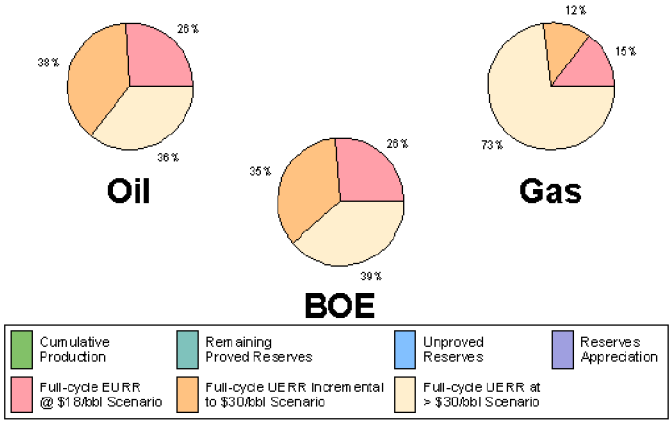

Figure 9. Florida Straits Planning Area Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

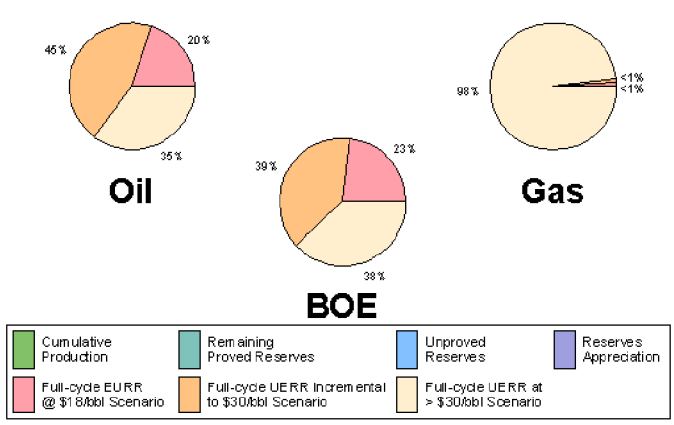

Figure 10. Florida Straits Planning Area 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

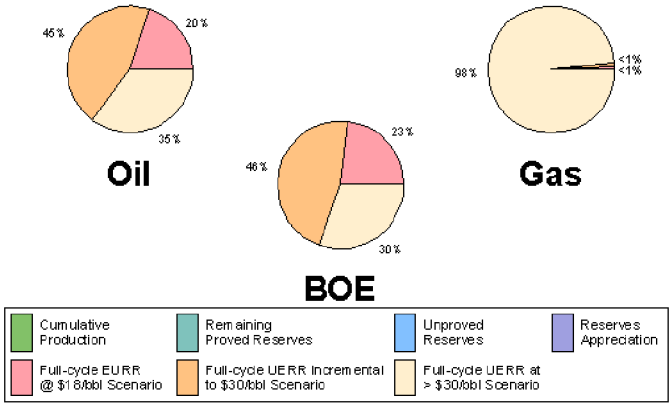

Figure 11. Florida Straits Planning Area 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

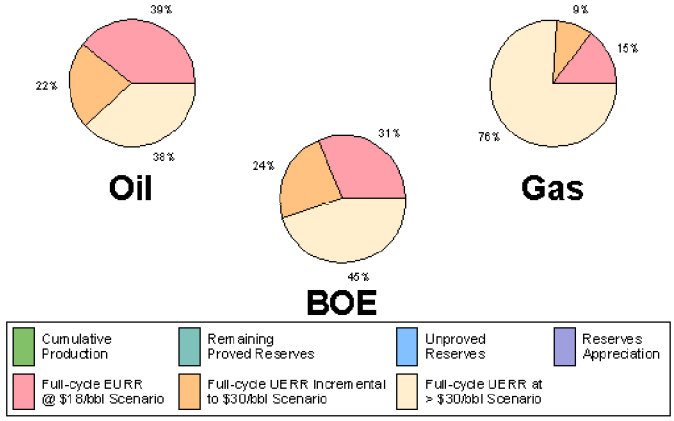

Figure 12. Florida Straits Planning Area 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

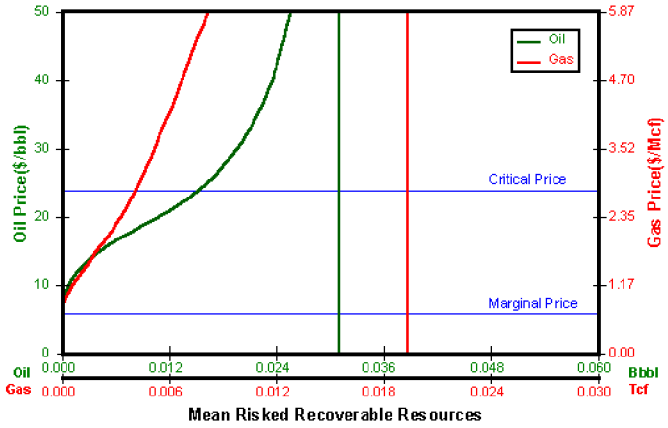

Figure 13. Florida Straits Planning Area Full-Cycle Price-Supply Curve.

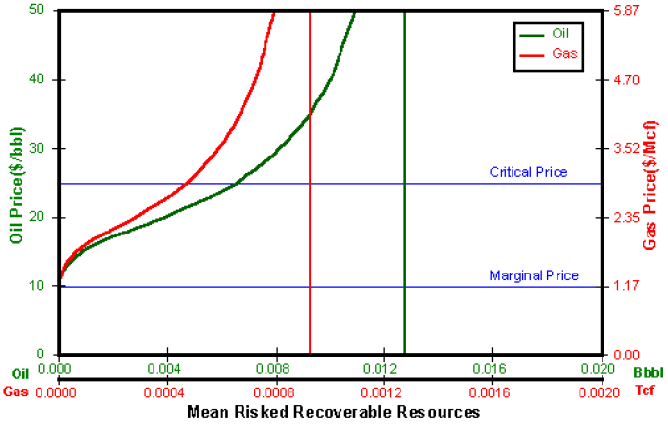

Figure 14. Florida Straits Planning Area 0-200m Water Depth Full-Cycle Price-Supply Curve.

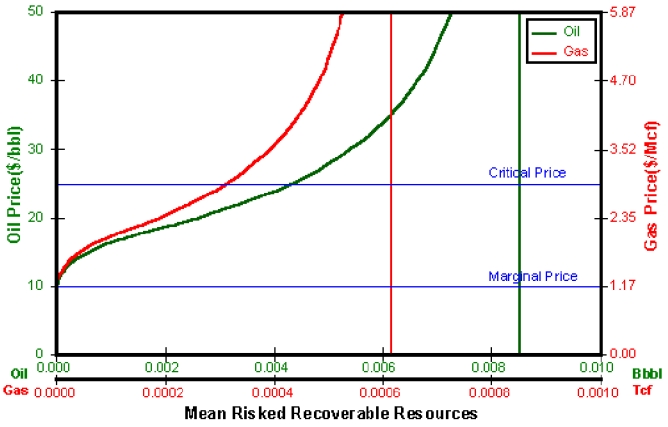

Figure 15. Florida Straits Planning Area 201-900m Water Depth Full-Cycle Price-Supply Curve.

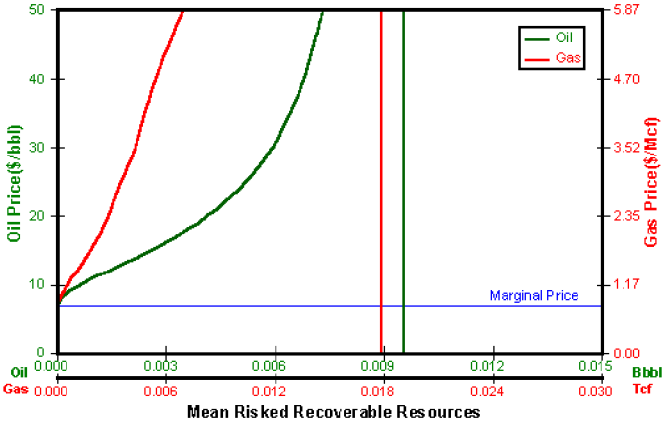

Figure 16. Florida Straits Planning Area 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

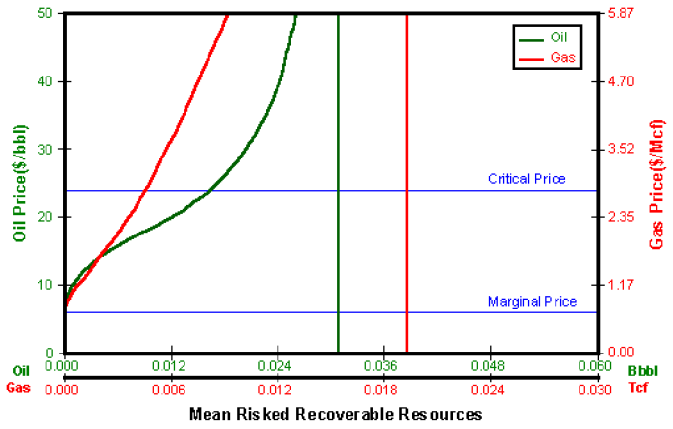

Figure 17. Florida Straits Planning Area Half-Cycle Price-Supply Curve.

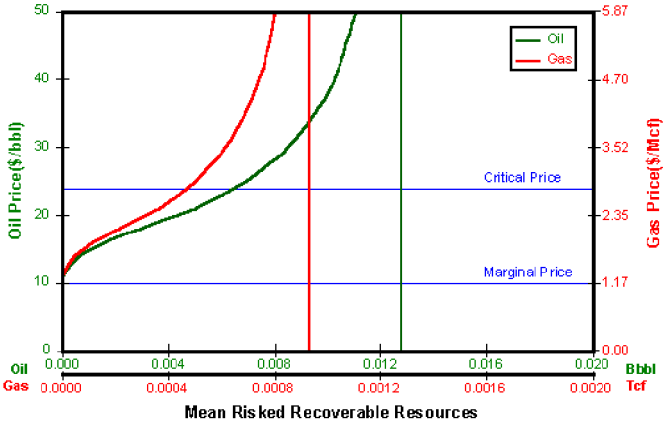

Figure 18. Florida Straits Planning Area 0-200m Water Depth Half-Cycle Price-Supply Curve.

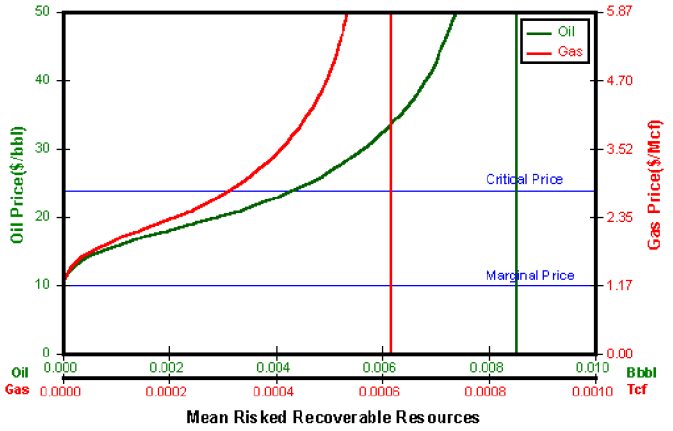

Figure 19. Florida Straits Planning Area 201-900m Water Depth Half-Cycle Price-Supply Curve.

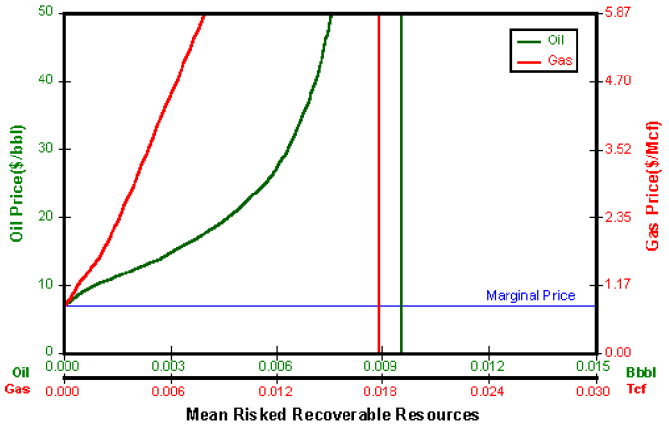

Figure 20. Florida Straits Planning Area 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

North Atlantic Planning Area Economic Results

The North Atlantic Planning Area includes submerged Federal lands offshore Maine, New Hampshire, and Massachusetts, and extends to the U.S.-Canada International Boundary in the north (figure 1). Water depths in the planning area range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

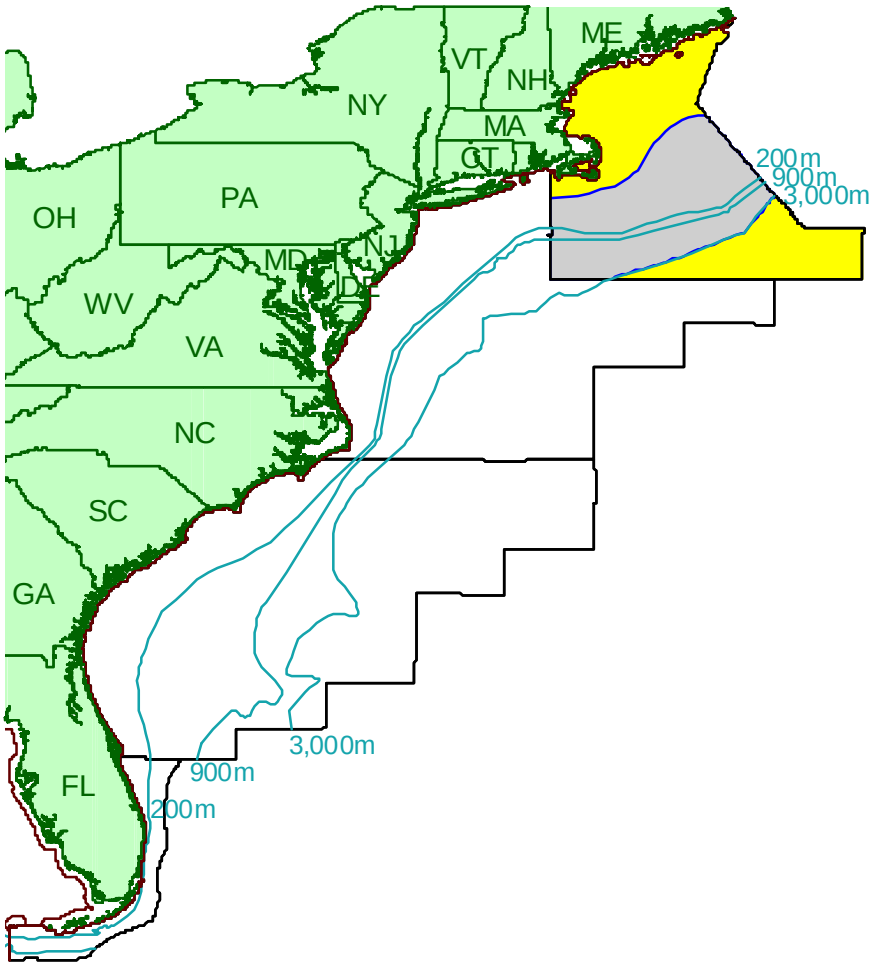

Figure 1. North Atlantic Planning Area Map. The planning area is shaded in yellow, and the gray pattern indicates the extent of the assessed plays.

The mean total endowment for this planning area is predominantly gas, with 69 percent of the total resources occurring as gas (figure 2). There is a very slight trend towards a less gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 71 percent gas, the 201-900m range consisting of 70 percent gas, and the deepest water depth range consisting of 68 percent gas. The largest concentration of the mean total endowment (42% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of more than 900m (figure 3 and figure 4). Each of the other two water depth ranges have 29 percent of the BOE mean total endowment.

The planning area is not developed in any of the water depth ranges, and there is no infrastructure in place. As of the date of this study, there has been no production or reserves in any of the ranges (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and

the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total planning area.

Assessment results indicate that the total planning area undiscovered economically recoverable resources are limited, with a range of 0.000 to 0.219 Bbo and 0.000 to 3.871 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean economically recoverable resources are estimated at 0.113 Bbo and 1.707 Tcfg. A graphical representation of these results, incorporating every 5th- percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, all of the oil and gas in the planning area remains to be discovered, and only 19 percent of the gas and 16 percent of the oil are projected to be economically recoverable at the $18/bbl scenario (figure 9). Therefore, 18 percent of the mean total endowment, on a BOE basis, is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

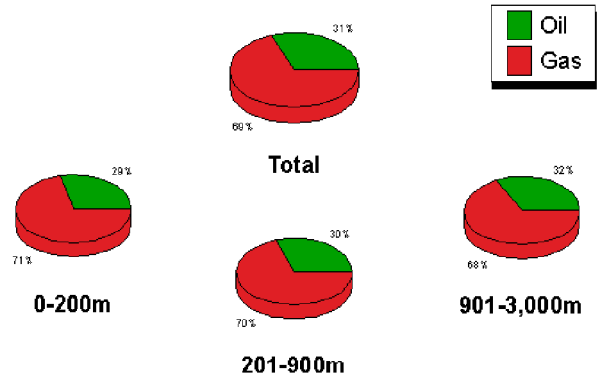

Figure 2. North Atlantic Planning Area Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

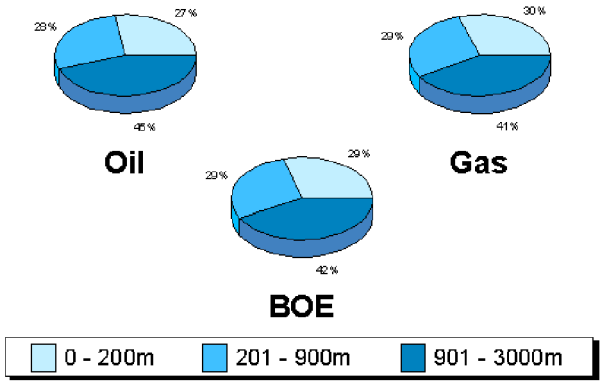

Figure 4. North Atlantic Planning Area Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

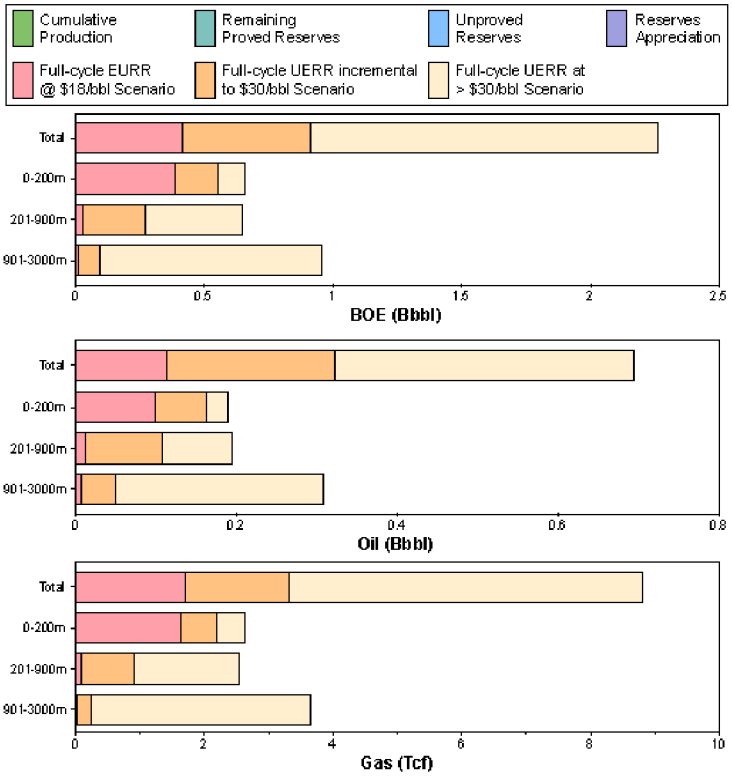

Figure 3. North Atlantic Planning Area Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.596	7.523	1.935
Mean	0.693	8.812	2.261
5th percentile	0.806	10.910	2.747
Total Endowment			
95th percentile	0.596	7.523	1.935
Mean	0.693	8.812	2.261
5th percentile	0.806	10.910	2.747

Table 1. Total North Atlantic Planning Area Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.138	1.581	0.419
Mean	0.190	2.641	0.660
5th percentile	0.221	4.804	1.075
Total Endowment			
95th percentile	0.138	1.581	0.419
Mean	0.190	2.641	0.660
5th percentile	0.221	4.804	1.075

Table 2. North Atlantic Planning Area 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.149	2.093	0.522
Mean	0.194	2.549	0.647
5th percentile	0.257	3.053	0.801
Total Endowment			
95th percentile	0.149	2.093	0.522
Mean	0.194	2.549	0.647
5th percentile	0.257	3.053	0.801

Table 3. North Atlantic Planning Area 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.238	3.153	0.799
Mean	0.309	3.651	0.958
5th percentile	0.407	4.364	1.184
Total Endowment			
95th percentile	0.238	3.153	0.799
Mean	0.309	3.651	0.958
5th percentile	0.407	4.364	1.184

Table 4. North Atlantic Planning Area 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.91			
95th percentile		0.000	0.000	0.000
Mean		0.113	1.707	0.417
5th percentile		0.219	3.871	0.908
Half-Cycle	0.95			
95th percentile		0.024	0.250	0.069
Mean		0.139	1.937	0.484
5th percentile		0.274	4.171	1.017
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.202	1.884	0.538
Mean		0.322	3.328	0.914
5th percentile		0.440	5.555	1.428
Half-Cycle	1.00			
95th percentile		0.237	2.182	0.626
Mean		0.373	3.767	1.043
5th percentile		0.519	6.031	1.592

Table 5. Total North Atlantic Planning Area Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.91			
95th percentile		0.000	0.000	0.000
Mean		0.099	1.626	0.388
5th percentile		0.157	3.942	0.859
Half-Cycle	0.95			
95th percentile		0.024	0.230	0.065
Mean		0.112	1.784	0.430
5th percentile		0.164	4.061	0.886
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.112	1.123	0.312
Mean		0.164	2.200	0.555
5th percentile		0.194	4.350	0.968
Half-Cycle	1.00			
95th percentile		0.115	1.195	0.328
Mean		0.167	2.263	0.570
5th percentile		0.191	4.444	0.982

Table 6. North Atlantic Planning Area 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.10			
95th percentile		0.000	0.000	0.000
Mean		0.012	0.092	0.028
5th percentile		0.120	0.873	0.276
Half-Cycle	0.16			
95th percentile		0.000	0.000	0.000
Mean		0.020	0.155	0.047
5th percentile		0.144	1.075	0.335
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.90			
95th percentile		0.000	0.000	0.000
Mean		0.107	0.905	0.268
5th percentile		0.186	1.519	0.457
Half-Cycle	0.96			
95th percentile		0.054	0.390	0.124
Mean		0.122	1.079	0.314
5th percentile		0.193	1.658	0.489

Table 7. North Atlantic Planning Area 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.05			
95th percentile		0.000	0.000	0.000
Mean		0.007	0.026	0.011
5th percentile		0.037	0.165	0.066
Half-Cycle	0.08			
95th percentile		0.000	0.000	0.000
Mean		0.010	0.040	0.017
5th percentile		0.082	0.334	0.142
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.42			
95th percentile		0.000	0.000	0.000
Mean		0.050	0.238	0.092
5th percentile		0.196	1.063	0.385
Half-Cycle	0.63			
95th percentile		0.000	0.000	0.000
Mean		0.083	0.467	0.166
5th percentile		0.223	1.402	0.472

Table 8. North Atlantic Planning Area 901-3,000m Water Depth Economic Assessment Results Table.

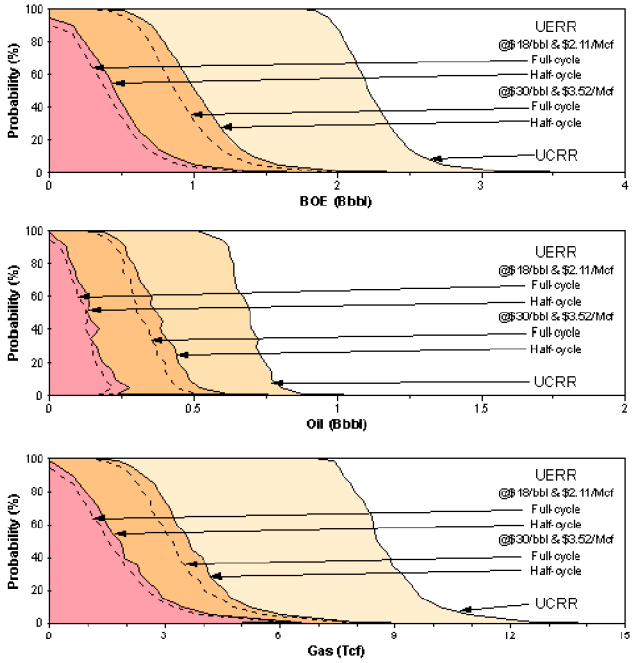

Figure 5. North Atlantic Planning Area Total Endowment by Resource Category.

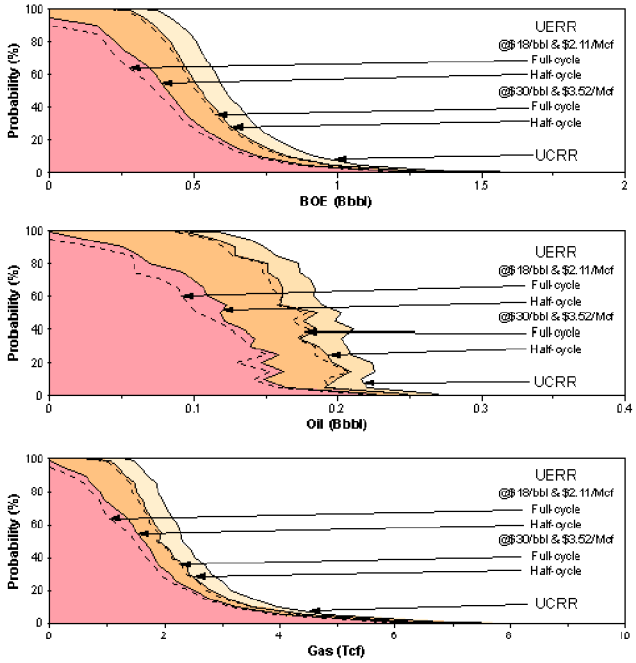

Figure 6. North Atlantic Planning Area 0-200m Water Depth Total Endowment by Resource Category.

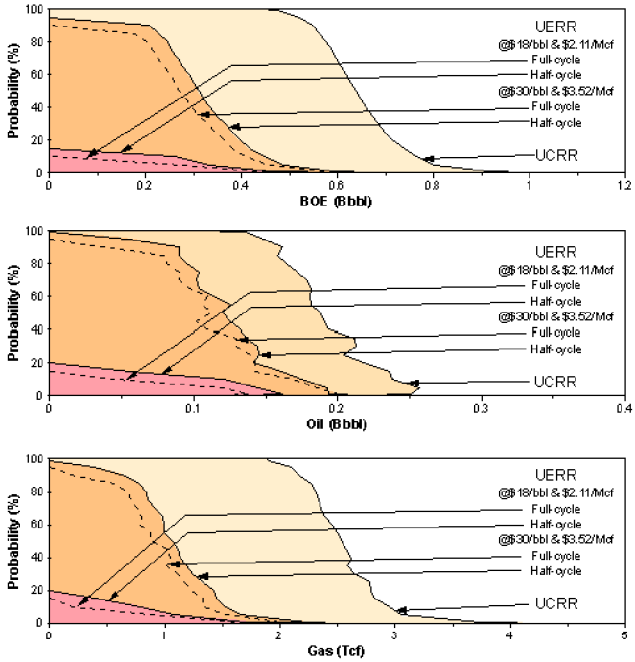

Figure 7. North Atlantic Planning Area 201-900m Water Depth Total Endowment by Resource Category.

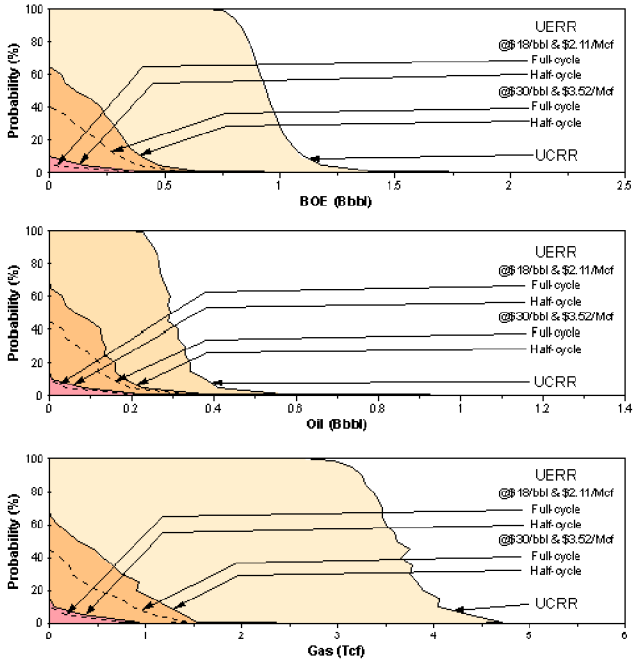

Figure 8. North Atlantic Planning Area 901-3,000m Water Depth Total Endowment by Resource Category.

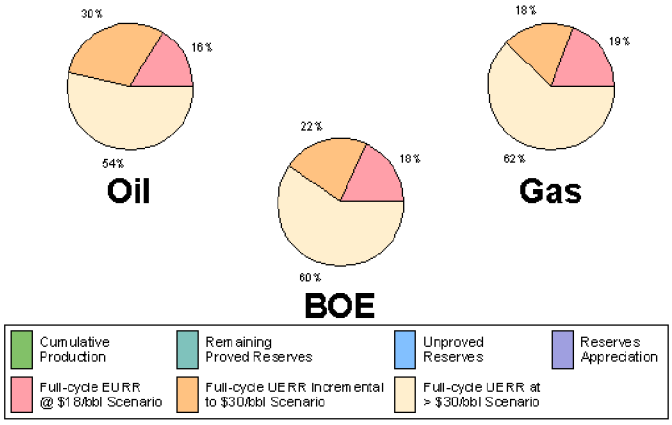

Figure 9. Total North Atlantic Planning Area Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

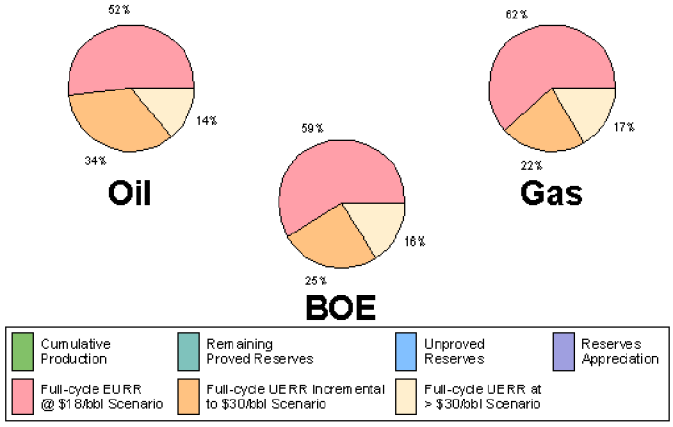

Figure 10. North Atlantic Planning Area 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

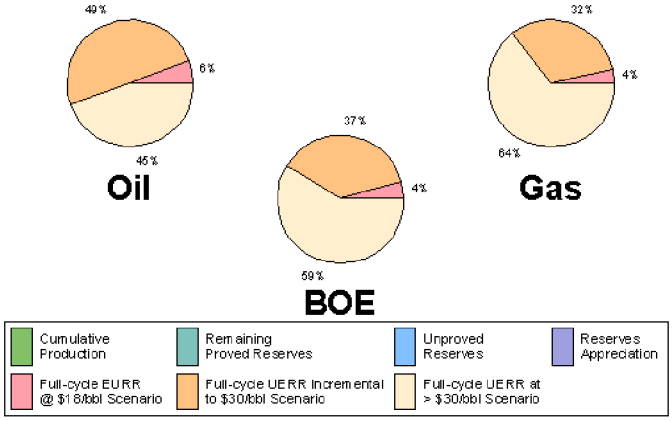

Figure 11. North Atlantic Planning Area 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

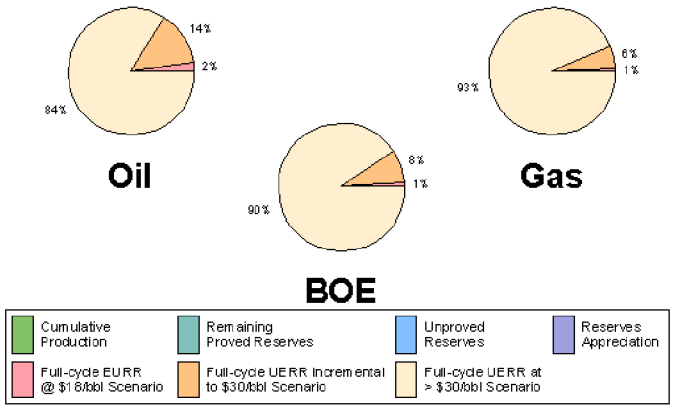

Figure 12. North Atlantic Planning Area 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

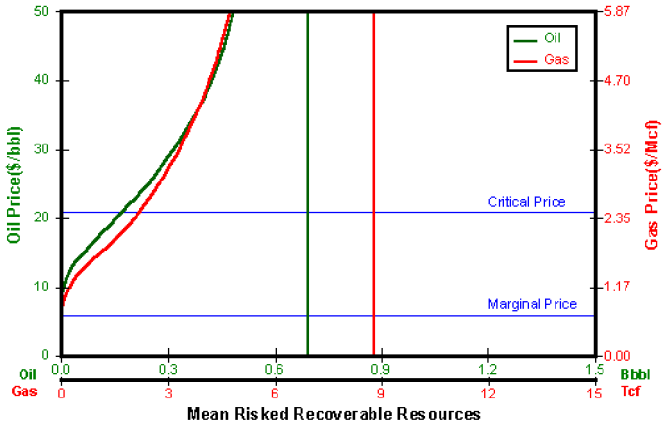

Figure 13. Total North Atlantic Planning Area Full-Cycle Price-Supply Curve.

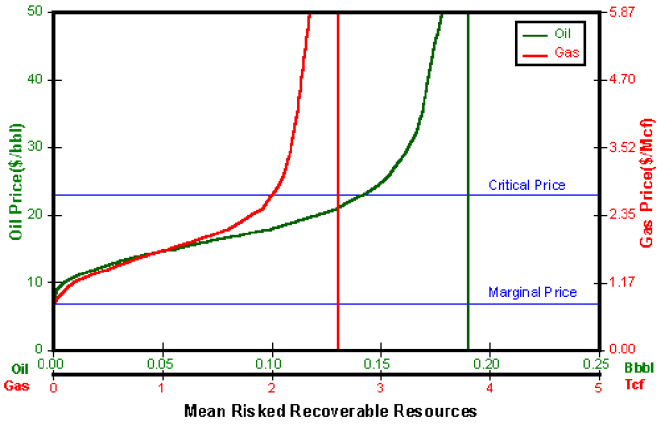

Figure 14. North Atlantic Planning Area 0-200m Water Depth Full-Cycle Price-Supply Curve.

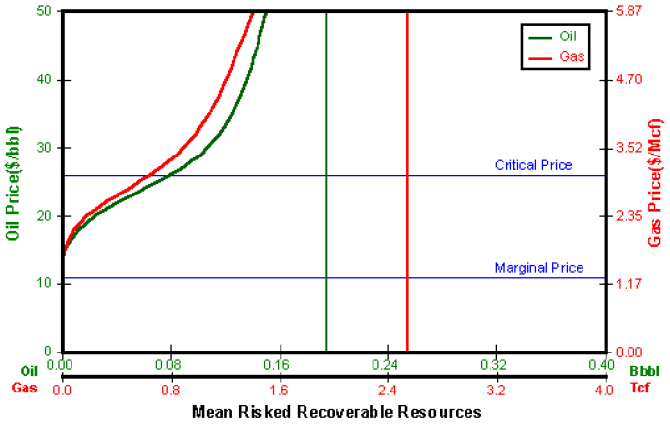

Figure 15. North Atlantic Planning Area 201-900m Water Depth Full-Cycle Price-Supply Curve.

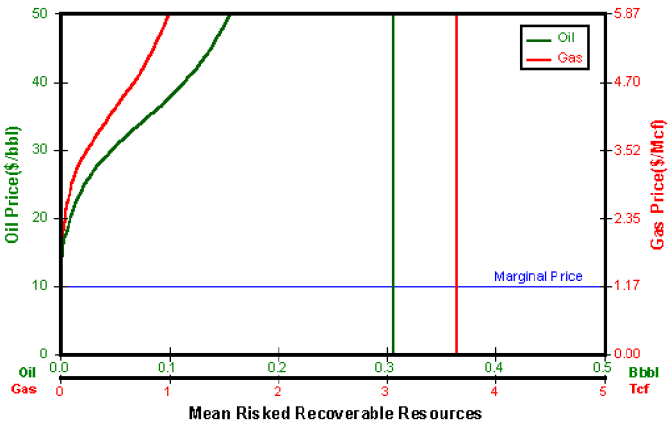

Figure 16. North Atlantic Planning Area 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

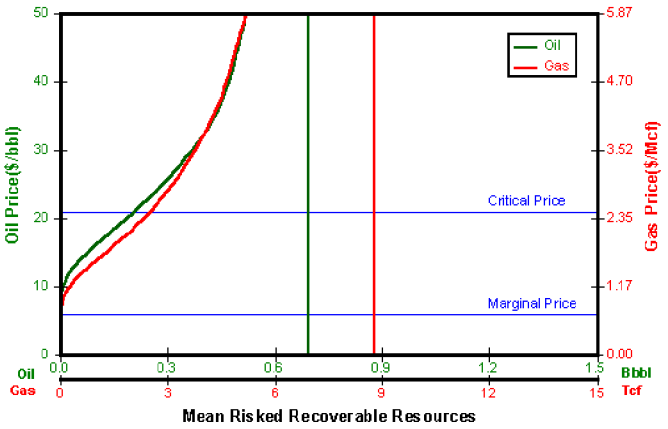

Figure 17. Total North Atlantic Planning Area Half-Cycle Price-Supply Curve.

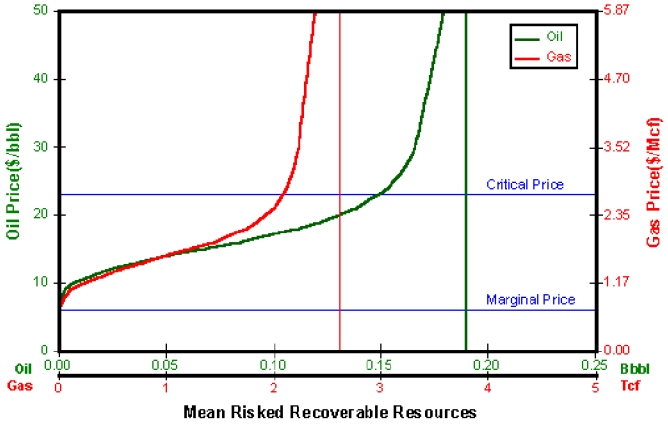

Figure 18. North Atlantic Planning Area 0-200m Water Depth Half-Cycle Price-Supply Curve.

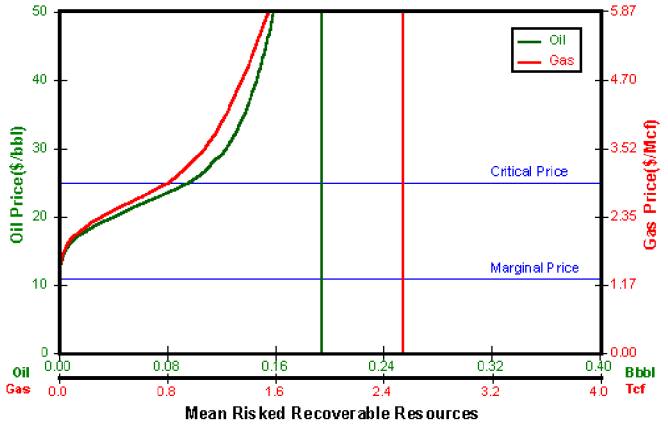

Figure 19. North Atlantic Planning Area 201-900m Water Depth Half-Cycle Price-Supply Curve.

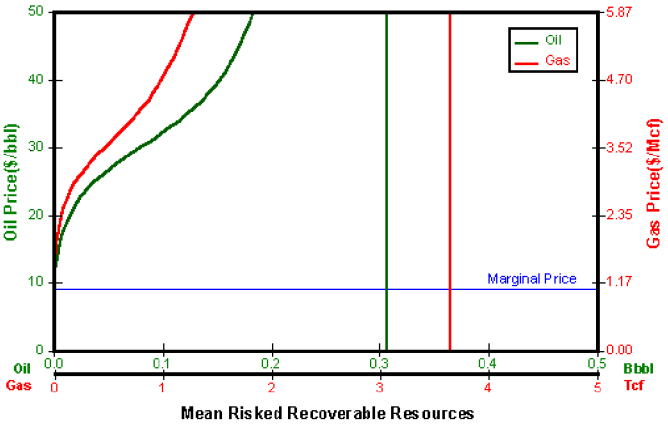

Figure 20. North Atlantic Planning Area 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

Mid-Atlantic Planning Area Economic Results

The Mid-Atlantic Planning Area includes submerged Federal lands offshore Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina (figure 1). Water depths in the planning area range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

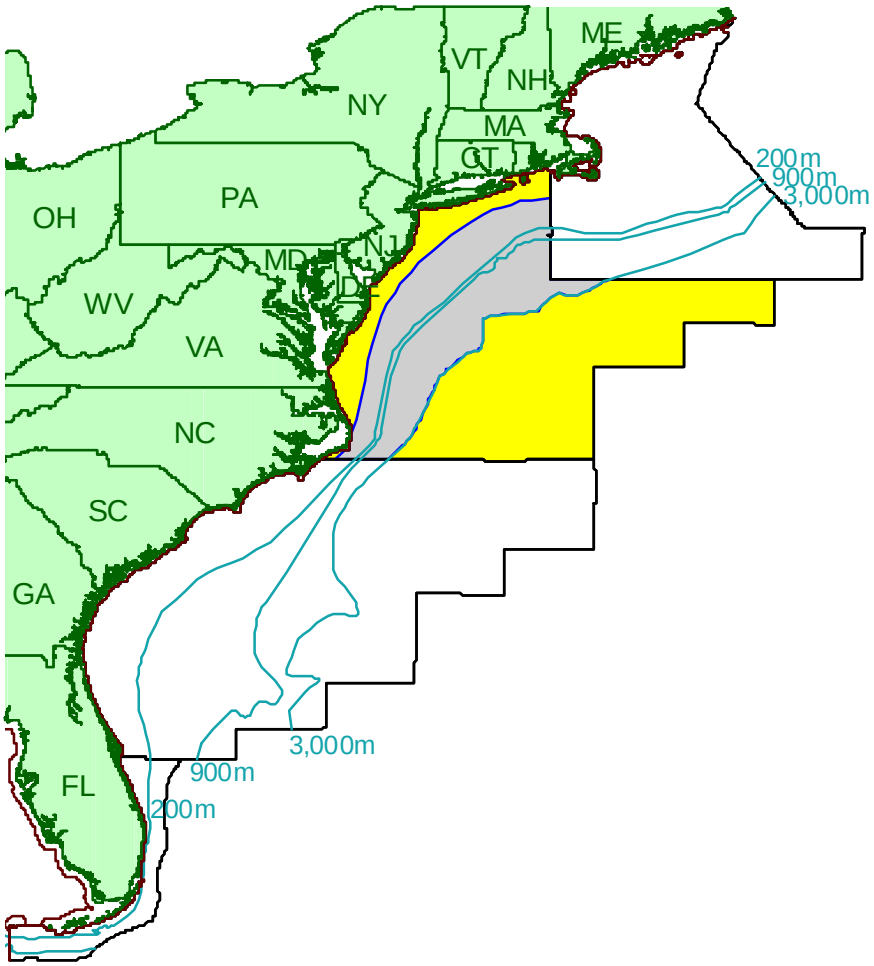

Figure 1. Mid-Atlantic Planning Area Map. The planning area is shaded in yellow, and the gray pattern indicates the extent of the assessed plays.

The mean total endowment for this planning area is predominantly gas, with 68 percent of the total resources occurring as gas (figure 2). There is a slight trend towards a less gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 71 percent gas, the 201-900m range consisting of 69 percent gas, and the deepest water depth range consisting of 66 percent gas. The largest concentration of the mean total endowment (44% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of more than 900m (figure 3 and figure 4). Each of the other two water depth ranges have 27 to 29 percent of the BOE mean total endowment.

The planning area is not developed in any of the water depth ranges, and there is no infrastructure in place. As of the date of this study, there has been no production or reserves in any of the ranges (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and

the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total planning area.

Assessment results indicate that the total planning area undiscovered economically recoverable resources are limited (although they are larger than those in the North Atlantic Planning Area), with a range of 0.016 to 0.263 Bbo and 0.081 to 4.143 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean economically recoverable resources are estimated at 0.132 Bbo and 1.795 Tcfg. A graphical representation of these results, incorporating every 5th- percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, all of the oil and gas in the planning area remains to be discovered, and only 19 percent of the gas and 17 percent of the oil are projected to be economically recoverable at the $18/bbl scenario (figure 9). Therefore, 18 percent of the mean total endowment, on a BOE basis, is remaining to be discovered and is projected to be economically recoverable at the $18/bbl scenario.

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

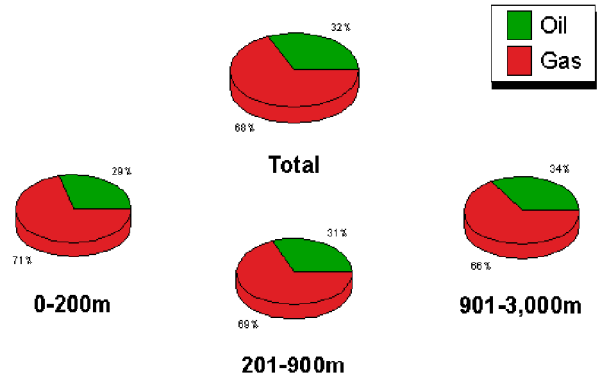

Figure 2. Mid-Atlantic Planning Area Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

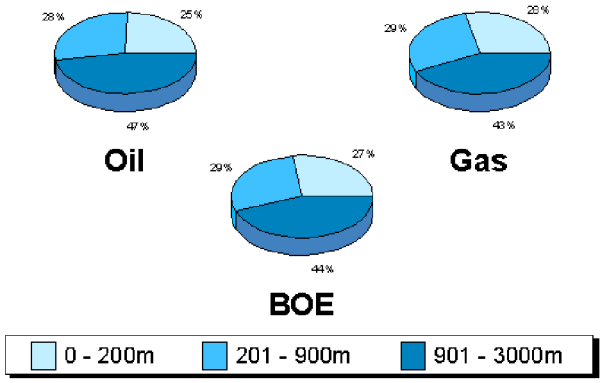

Figure 4. Mid-Atlantic Planning Area Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

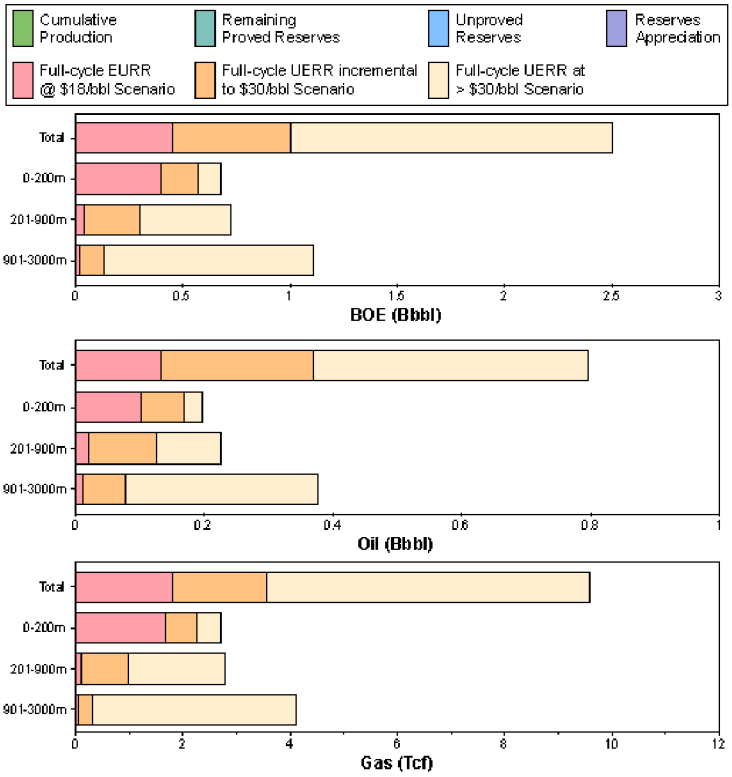

Figure 3. Mid-Atlantic Planning Area Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.666	8.144	2.116
Mean	0.796	9.588	2.502
5th percentile	1.004	11.624	3.072
Total Endowment			
95th percentile	0.666	8.144	2.116
Mean	0.796	9.588	2.502
5th percentile	1.004	11.624	3.072

Table 1. Total Mid-Atlantic Planning Area Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.142	1.629	0.432
Mean	0.196	2.721	0.680
5th percentile	0.227	4.949	1.108
Total Endowment			
95th percentile	0.142	1.629	0.432
Mean	0.196	2.721	0.680
5th percentile	0.227	4.949	1.108

Table 2. Mid-Atlantic Planning Area 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.168	2.316	0.580
Mean	0.226	2.783	0.722
5th percentile	0.293	3.415	0.901
Total Endowment			
95th percentile	0.168	2.316	0.580
Mean	0.226	2.783	0.722
5th percentile	0.293	3.415	0.901

Table 3. Mid-Atlantic Planning Area 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.271	3.482	0.891
Mean	0.376	4.110	1.107
5th percentile	0.588	5.011	1.479
Total Endowment			
95th percentile	0.271	3.482	0.891
Mean	0.376	4.110	1.107
5th percentile	0.588	5.011	1.479

Table 4. Mid-Atlantic Planning Area 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.94			
95th percentile		0.016	0.081	0.031
Mean		0.132	1.795	0.451
5th percentile		0.263	4.143	1.000
Half-Cycle	0.97			
95th percentile		0.045	0.456	0.126
Mean		0.160	2.068	0.528
5th percentile		0.349	4.166	1.090
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.207	1.971	0.557
Mean		0.369	3.566	1.003
5th percentile		0.580	5.796	1.611
Half-Cycle	1.00			
95th percentile		0.256	2.426	0.688
Mean		0.424	4.066	1.148
5th percentile		0.655	6.269	1.770

Table 5. Total Mid-Atlantic Planning Area Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.91			
95th percentile		0.000	0.000	0.000
Mean		0.102	1.675	0.400
5th percentile		0.162	4.061	0.885
Half-Cycle	0.95			
95th percentile		0.024	0.237	0.067
Mean		0.116	1.838	0.443
5th percentile		0.169	4.184	0.913
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.116	1.157	0.322
Mean		0.169	2.267	0.572
5th percentile		0.199	4.482	0.997
Half-Cycle	1.00			
95th percentile		0.119	1.231	0.338
Mean		0.173	2.332	0.587
5th percentile		0.197	4.579	1.011

Table 6. Mid-Atlantic Planning Area 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.21			
95th percentile		0.000	0.000	0.000
Mean		0.021	0.103	0.039
5th percentile		0.140	0.824	0.286
Half-Cycle	0.29			
95th percentile		0.000	0.000	0.000
Mean		0.032	0.190	0.066
5th percentile		0.152	1.231	0.371
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.94			
95th percentile		0.006	0.022	0.010
Mean		0.126	0.978	0.300
5th percentile		0.217	1.663	0.513
Half-Cycle	0.98			
95th percentile		0.077	0.454	0.157
Mean		0.144	1.173	0.352
5th percentile		0.227	1.853	0.557

Table 7. Mid-Atlantic Planning Area 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.04			
95th percentile		0.000	0.000	0.000
Mean		0.011	0.044	0.019
5th percentile		0.036	0.199	0.071
Half-Cycle	0.07			
95th percentile		0.000	0.000	0.000
Mean		0.021	0.073	0.034
5th percentile		0.157	0.638	0.271
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.40			
95th percentile		0.000	0.000	0.000
Mean		0.077	0.313	0.132
5th percentile		0.309	1.298	0.540
Half-Cycle	0.61			
95th percentile		0.000	0.000	0.000
Mean		0.114	0.561	0.214
5th percentile		0.340	1.713	0.645

Table 8. Mid-Atlantic Planning Area 901-3,000m Water Depth Economic Assessment Results Table.

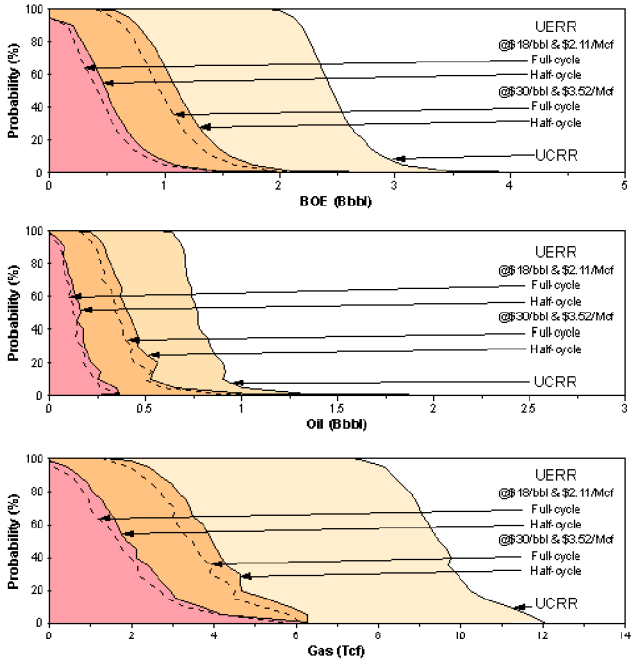

Figure 5. Mid-Atlantic Planning Area Total Endowment by Resource Category.

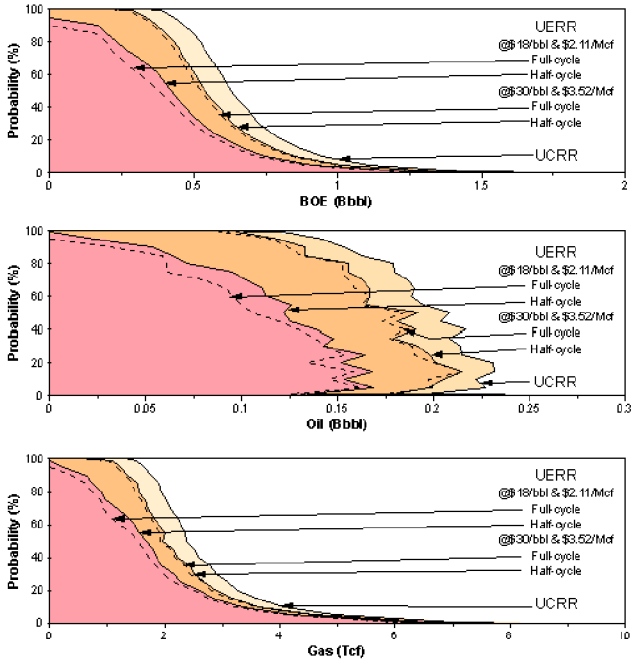

Figure 6. Mid-Atlantic Planning Area 0-200m Water Depth Total Endowment by Resource Category.

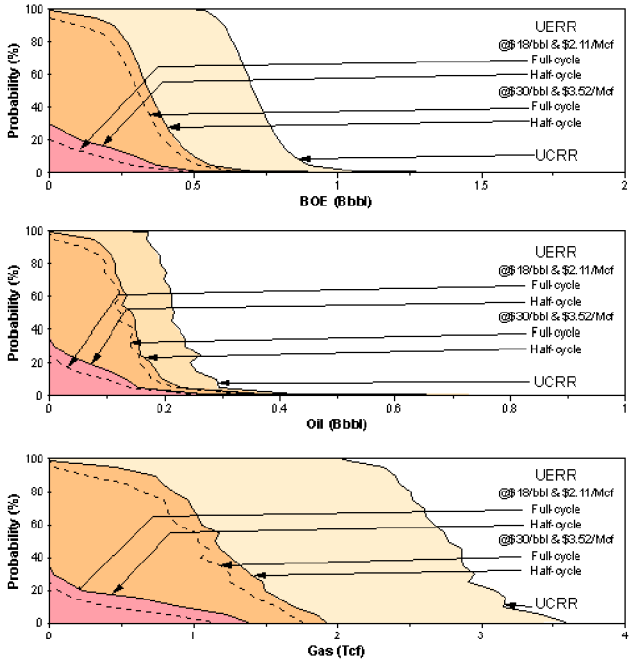

Figure 7. Mid-Atlantic Planning Area 201-900m Water Depth Total Endowment by Resource Category.

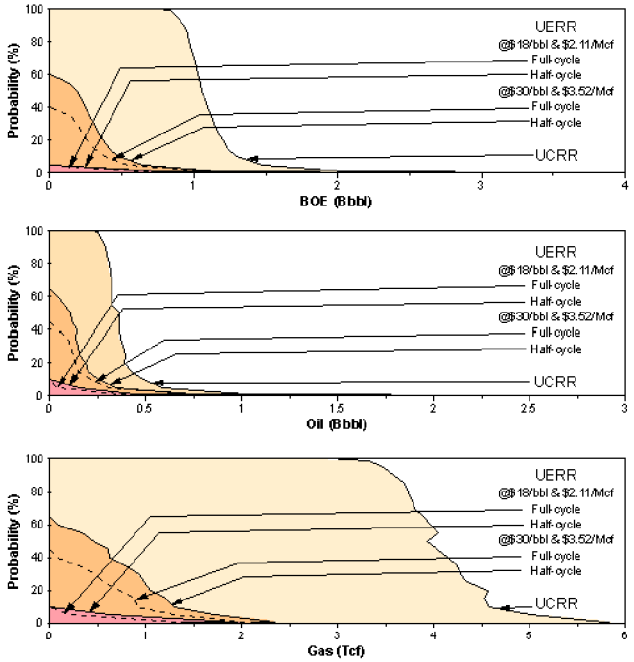

Figure 8. Mid-Atlantic Planning Area 901-3,000m Water Depth Total Endowment by Resource Category.

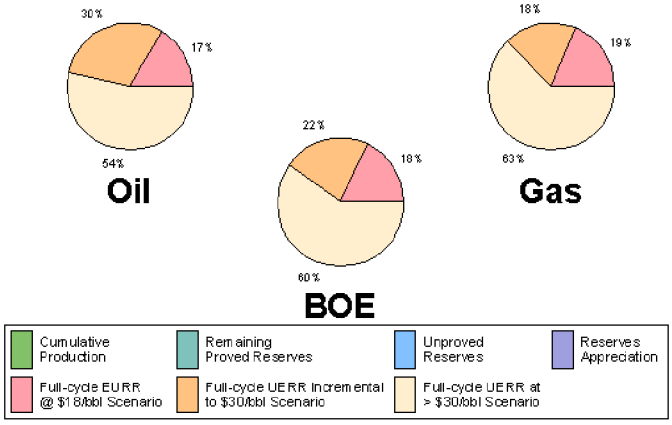

Figure 9. Total Mid-Atlantic Planning Area Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

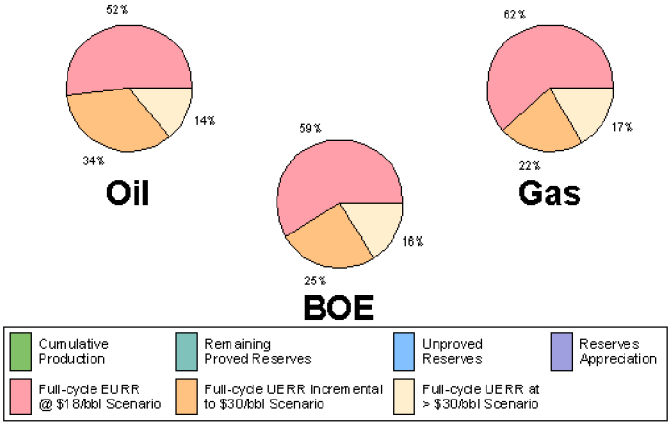

Figure 10. Mid-Atlantic Planning Area 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

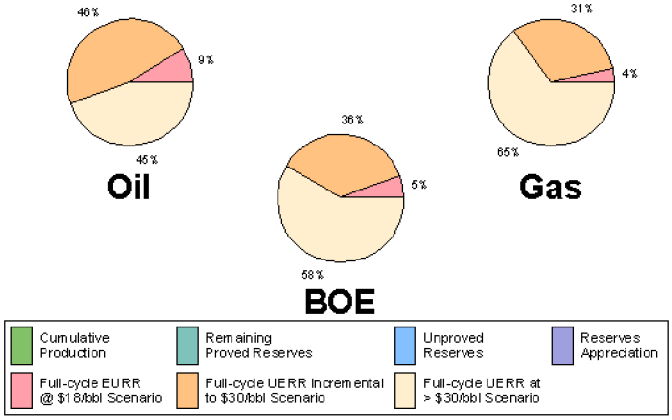

Figure 11. Mid-Atlantic Planning Area 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

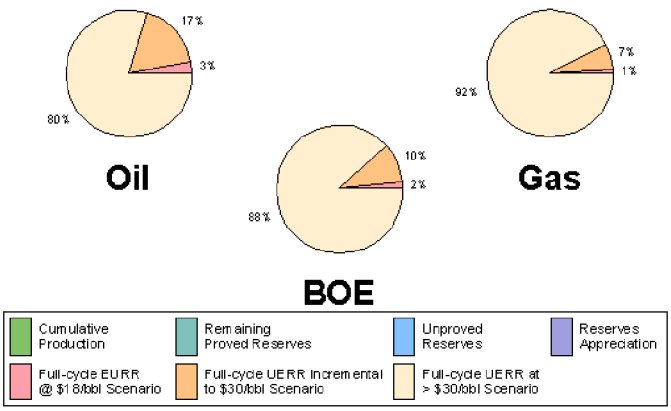

Figure 12. Mid-Atlantic Planning Area 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

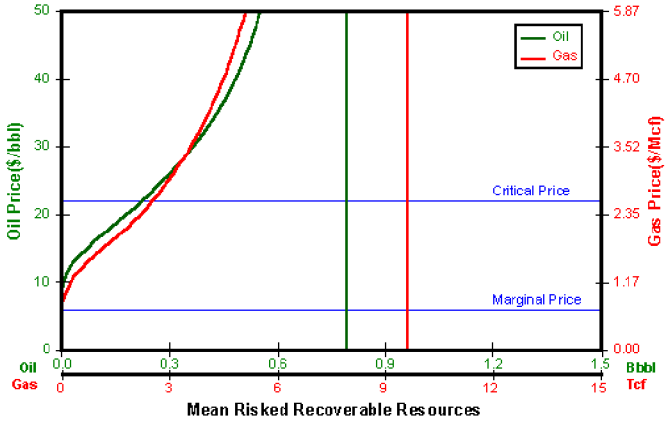

Figure 13. Total Mid-Atlantic Planning Area Full-Cycle Price-Supply Curve.

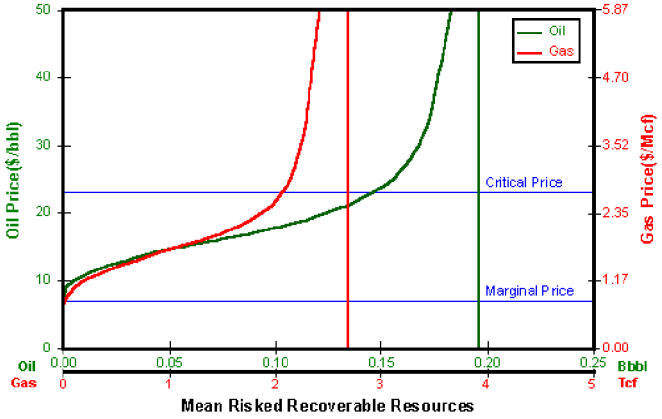

Figure 14. Mid-Atlantic Planning Area 0-200m Water Depth Full-Cycle Price-Supply Curve.

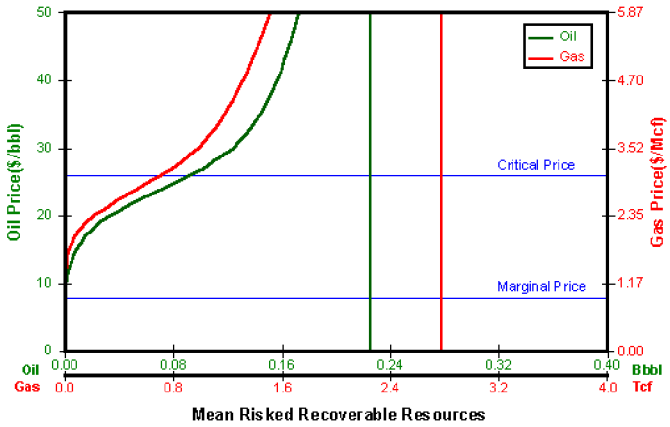

Figure 15. Mid-Atlantic Planning Area 201-900m Water Depth Full-Cycle Price-Supply Curve.

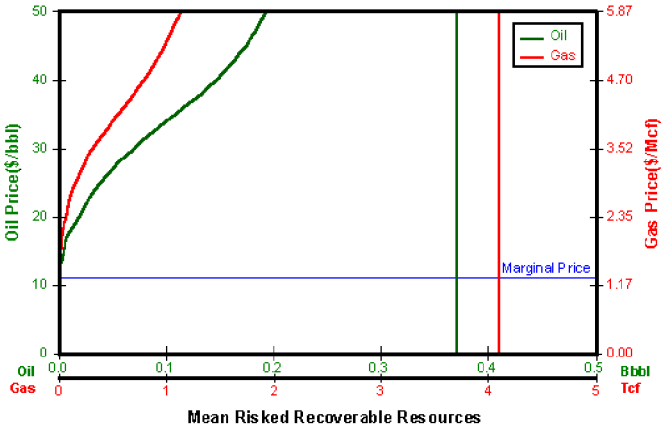

Figure 16. Mid-Atlantic Planning Area 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

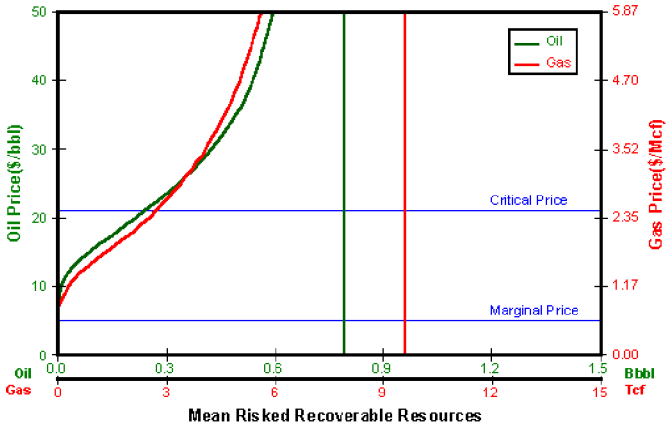

Figure 17. Total Mid-Atlantic Planning Area Half-Cycle Price-Supply Curve.

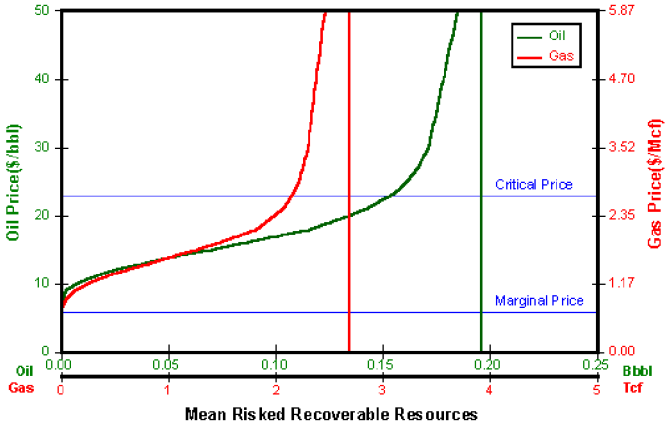

Figure 18. Mid-Atlantic Planning Area 0-200m Water Depth Half-Cycle Price-Supply Curve.

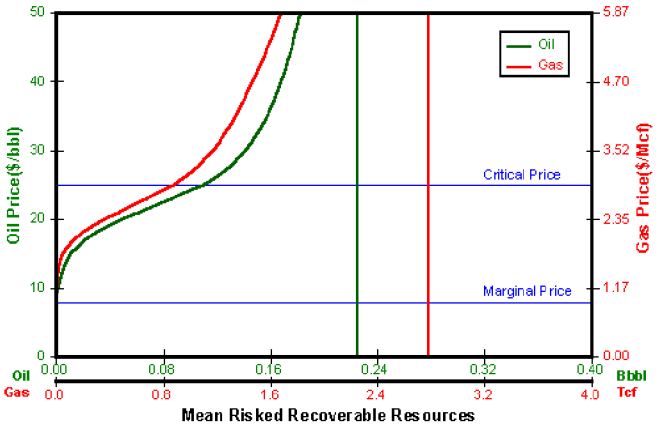

Figure 19. Mid-Atlantic Planning Area 201-900m Water Depth Half-Cycle Price-Supply Curve.

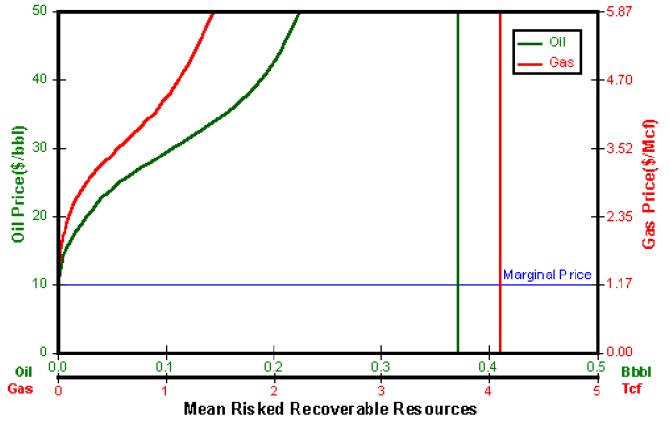

Figure 20. Mid-Atlantic Planning Area 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

South Atlantic Planning Area Economic Results

The South Atlantic Planning Area includes submerged Federal lands offshore North Carolina, South Carolina, Georgia, and Florida (figure 1). Water depths in the planning area range from very shallow to more than 3,000m. Because water depth and distance from shore have a significant effect on engineering and cost factors, the undiscovered economically recoverable resources (UERR) were evaluated for three water depth ranges, 0-200m, 201-900m, and 901-3,000m (no resources were evaluated in water depths greater than 3,000m).

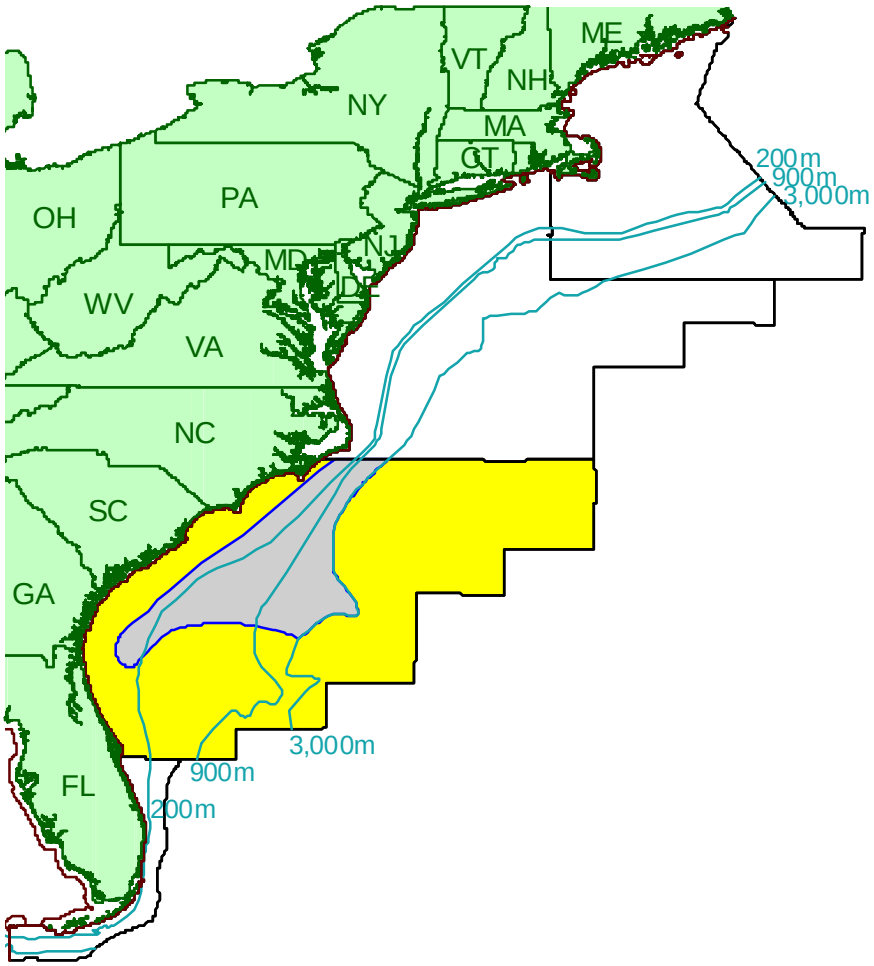

Figure 1. South Atlantic Planning Area Map. The planning area is shaded in yellow, and the gray pattern indicates the extent of the assessed plays.

The mean total endowment for this planning area is predominantly gas, with 68 percent of the total resources occurring as gas (figure 2). There is a slight trend towards a less gas-prone bias in the deeper water depths, with the 0-200m water depth range consisting of 71 percent gas, the 201-900m range consisting of 65 percent gas, and the deepest water depth range consisting of 68 percent gas. The largest concentration of the mean total endowment (38% on a barrels-of-oil-equivalent [BOE] basis) occurs in water depths of more than 900m (figure 3 and figure 4). Each of the other two water depth ranges have 27 to 35 percent of the BOE mean total endowment.

The planning area is not developed in any of the water depth ranges, and there is no infrastructure in place. As of the date of this study, there has been no production or reserves in any of the ranges (table 1 for Assessment Results Total, table 2 for 0-200m, table 3 for 201-900m, and table 4 for 901-3,000m). Undiscovered conventionally recoverable resources (UCRR) have been assessed for all three water depth ranges, and

the full- and half-cycle UERR for both the $18/bbl and $30/bbl scenarios are shown in table 5 (Economic Results Total), table 6 (0-200m), table 7 (201-900m), and table 8 (901-3,000m). These tables present the mean, 5th-, and 95th-percentile results for oil, gas, and BOE for each of the three water depth ranges and for the total planning area.

Assessment results indicate that the total planning area undiscovered economically recoverable resources are limited (although they are larger than those in either the North or Mid-Atlantic Planning Areas), with a range of 0.021 to 0.323 Bbo and 0.124 to 4.364 Tcfg at the 95th and 5th percentiles, respectively, for the full-cycle $18/bbl scenario. The mean economically recoverable resources are estimated at 0.152 Bbo and 1.826 Tcfg. A graphical representation of these results, incorporating every 5th- percentile result for UCRR and UERR, is presented in figure 5 (Results Graph Total), figure 6 (0-200m), figure 7 (201-900m), and figure 8 (901-3,000m). These graphs also present the half-cycle $18/bbl, and the full- and half-cycle $30/bbl scenario results. Because the economic model imports field sizes in BOE from the geologic model and then calculates the oil and gas content, the BOE results graph is typically a smooth curve. As expected, the accompanying oil and gas values exhibit more scatter because the gas/oil ratio can vary greatly from one field to another.

The mean total endowment for oil, gas, and BOE by the reserve and resource classification is shown in figure 9 (Mean Endowment Total), figure 10 (0-200m), figure 11 (201-900m), and figure 12 (901-3,000m). The pie charts presented can be used to determine what percentage of oil, gas, or BOE is a result of reserves or of undiscovered resources. For example, all of the oil and gas in the planning area remains to be discovered, and only 19 percent of the oil, gas, and BOE are projected to be economically recoverable at the $18/bbl scenario (figure 9).

Because estimates of undiscovered economically recoverable resources are sensitive to price and technology assumptions, they are presented here as price-supply curves. These curves describe a functional relationship between economically recoverable resources and product price and present the estimates of mean undiscovered economically recoverable oil and gas at any starting oil price up to $50/bbl. An extensive discussion of price-supply curves, and the methodology used to generate them, can be found in the ***General Text, Methodology, UERR (Economically Recoverable), Detailed Discussion*** section. It should be noted that entire resource distributions are generated at each price level, but all of the price-supply curves presented in this report are the mean curves. The full-cycle price-supply curves are shown in figure 13 (Full-Cycle P-S Curve Total), figure 14 (0-200m), figure 15 (201-900m), and figure 16 (901-3,000m). The half-cycle price-supply curves are shown in figure 17 (Half-Cycle P-S Curve Total), figure 18 (0-200m), figure 19 (201-900m), and figure 20 (901-3,000m).

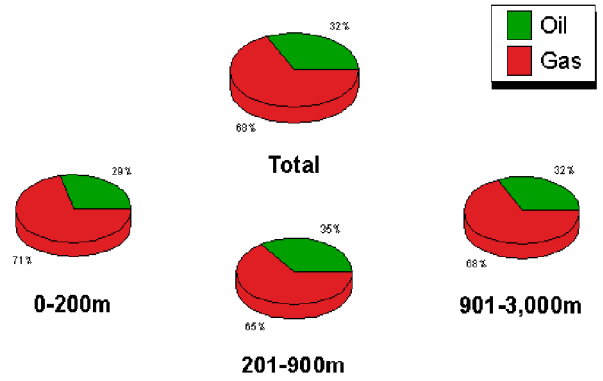

Figure 2. South Atlantic Planning Area Percent Oil or Gas by Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

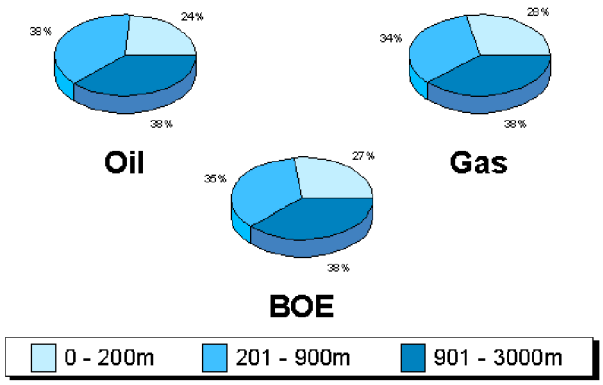

Figure 4. South Atlantic Planning Area Mean Total Endowment by Resource Type and Water Depth. The sum of the percentage values may not equal 100 percent due to independent rounding.

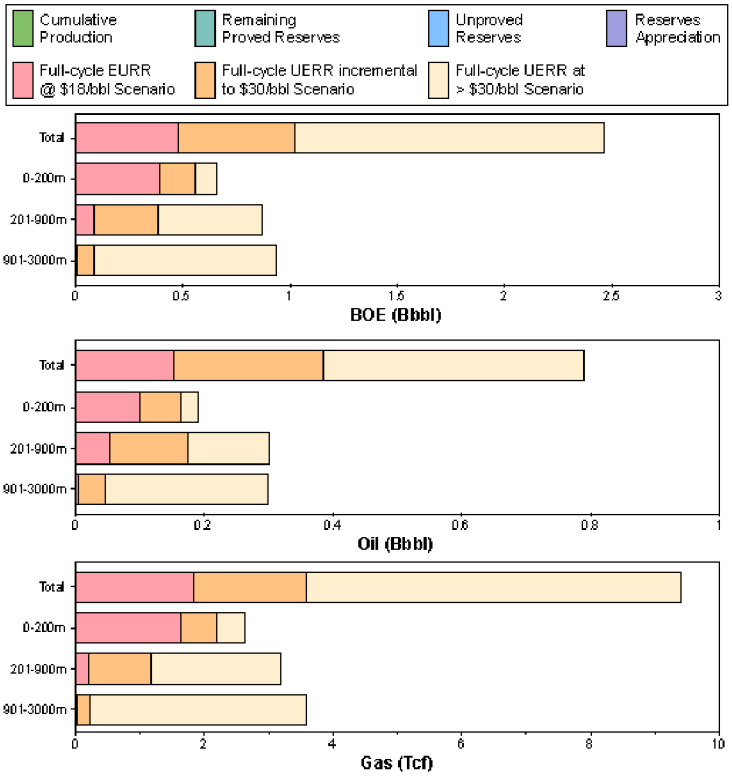

Figure 3. South Atlantic Planning Area Mean Total Endowment by Water Depth Category.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.676	7.822	2.068
Mean	0.789	9.396	2.461
5th percentile	1.029	11.643	3.101
Total Endowment			
95th percentile	0.676	7.822	2.068
Mean	0.789	9.396	2.461
5th percentile	1.029	11.643	3.101

Table 1. Total South Atlantic Planning Area Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.138	1.581	0.419
Mean	0.190	2.641	0.660
5th percentile	0.221	4.804	1.075
Total Endowment			
95th percentile	0.138	1.581	0.419
Mean	0.190	2.641	0.660
5th percentile	0.221	4.804	1.075

Table 2. South Atlantic Planning Area 0-200m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.198	2.532	0.649
Mean	0.302	3.184	0.868
5th percentile	0.521	4.164	1.262
Total Endowment			
95th percentile	0.198	2.532	0.649
Mean	0.302	3.184	0.868
5th percentile	0.521	4.164	1.262

Table 3. South Atlantic Planning Area 201-900m Water Depth Assessment Results Table.

Marginal Probability = 1.00	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Reserves			
Original proved	0.000	0.000	0.000
Cumulative production	0.000	0.000	0.000
Remaining proved	0.000	0.000	0.000
Unproved	0.000	0.000	0.000
Appreciation (P & U)	0.000	0.000	0.000
Undiscovered Conventionally Recoverable Resources			
95th percentile	0.235	3.101	0.786
Mean	0.299	3.592	0.938
5th percentile	0.390	4.249	1.146
Total Endowment			
95th percentile	0.235	3.101	0.786
Mean	0.299	3.592	0.938
5th percentile	0.390	4.249	1.146

Table 4. South Atlantic Planning Area 901-3,000m Water Depth Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.94			
95th percentile		0.021	0.124	0.043
Mean		0.152	1.826	0.477
5th percentile		0.323	4.364	1.099
Half-Cycle	0.97			
95th percentile		0.048	0.506	0.138
Mean		0.183	2.086	0.554
5th percentile		0.413	4.542	1.221
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.210	1.997	0.565
Mean		0.384	3.578	1.020
5th percentile		0.620	5.971	1.683
Half-Cycle	1.00			
95th percentile		0.268	2.437	0.702
Mean		0.440	4.078	1.165
5th percentile		0.675	6.425	1.818

Table 5. Total South Atlantic Planning Area Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.91			
95th percentile		0.000	0.000	0.000
Mean		0.099	1.626	0.388
5th percentile		0.157	3.942	0.859
Half-Cycle	0.95			
95th percentile		0.024	0.230	0.065
Mean		0.112	1.784	0.430
5th percentile		0.164	4.061	0.886
$30.00/bbl and $3.52/Mcf				
Full-Cycle	1.00			
95th percentile		0.112	1.123	0.312
Mean		0.164	2.200	0.555
5th percentile		0.194	4.350	0.968
Half-Cycle	1.00			
95th percentile		0.115	1.195	0.328
Mean		0.167	2.263	0.570
5th percentile		0.191	4.444	0.982

Table 6. South Atlantic Planning Area 0-200m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.22			
95th percentile		0.000	0.000	0.000
Mean		0.052	0.203	0.088
5th percentile		0.280	1.199	0.494
Half-Cycle	0.31			
95th percentile		0.000	0.000	0.000
Mean		0.066	0.303	0.120
5th percentile		0.302	1.463	0.562
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.95			
95th percentile		0.035	0.143	0.061
Mean		0.176	1.161	0.382
5th percentile		0.425	2.143	0.806
Half-Cycle	0.98			
95th percentile		0.081	0.593	0.187
Mean		0.196	1.367	0.440
5th percentile		0.447	2.344	0.864

Table 7. South Atlantic Planning Area 201-900m Water Depth Economic Assessment Results Table.

Undiscovered Economically Recoverable Resources	Marginal Probability	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
$18.00/bbl and $2.11/Mcf				
Full-Cycle	0.05			
95th percentile		0.000	0.000	0.000
Mean		0.005	0.021	0.009
5th percentile		0.029	0.135	0.053
Half-Cycle	0.08			
95th percentile		0.000	0.000	0.000
Mean		0.008	0.033	0.014
5th percentile		0.066	0.272	0.115
$30.00/bbl and $3.52/Mcf				
Full-Cycle	0.42			
95th percentile		0.000	0.000	0.000
Mean		0.045	0.223	0.085
5th percentile		0.191	1.000	0.369
Half-Cycle	0.63			
95th percentile		0.000	0.000	0.000
Mean		0.078	0.448	0.158
5th percentile		0.209	1.343	0.448

Table 8. South Atlantic Planning Area 901-3,000m Water Depth Economic Assessment Results Table.

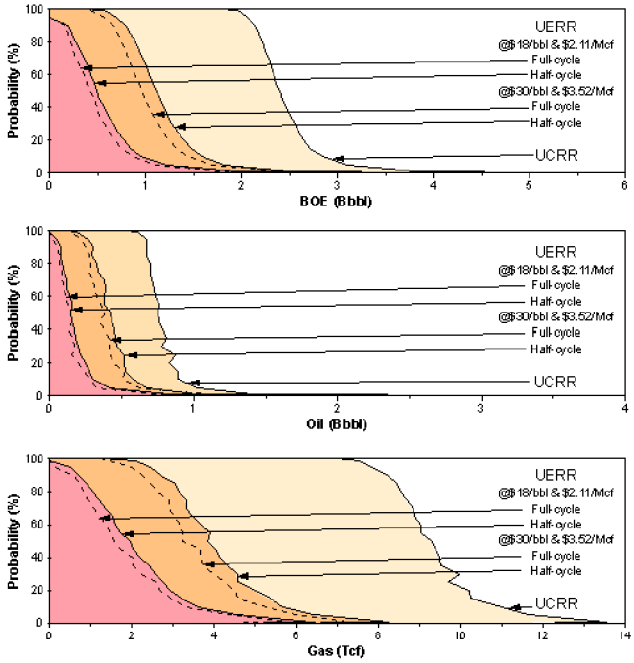

Figure 5. South Atlantic Planning Area Total Endowment by Resource Category.

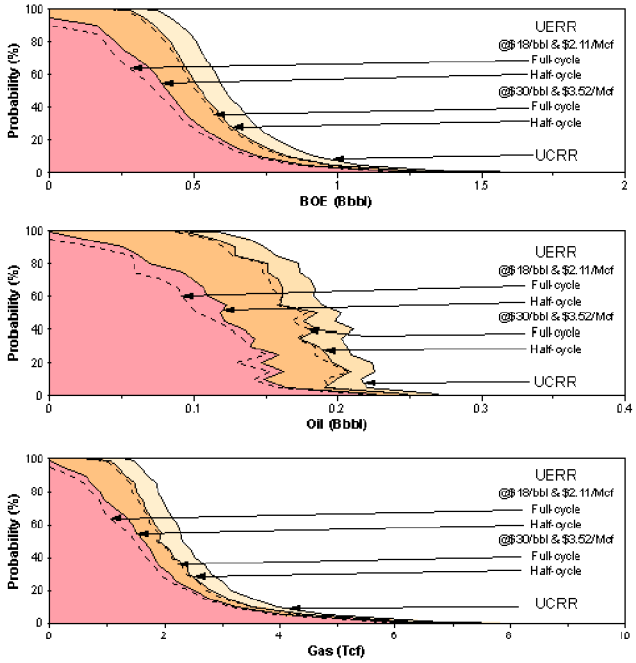

Figure 6. South Atlantic Planning Area 0-200m Water Depth Total Endowment by Resource Category.

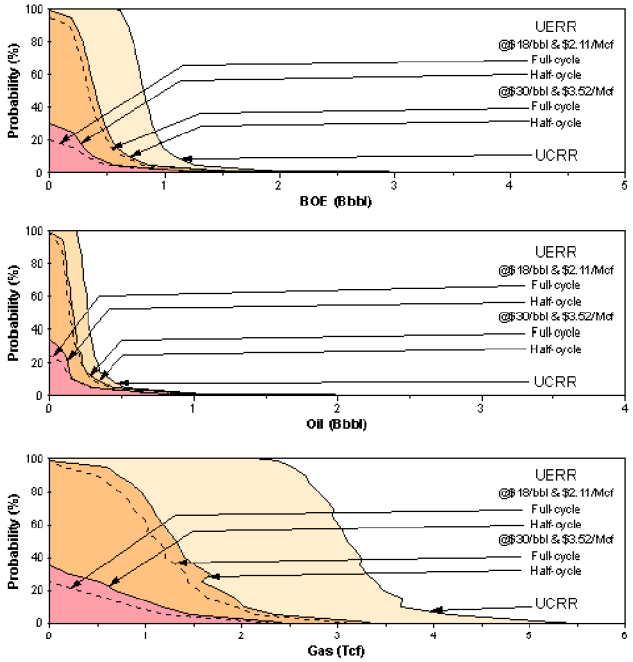

Figure 7. South Atlantic Planning Area 201-900m Water Depth Total Endowment by Resource Category.

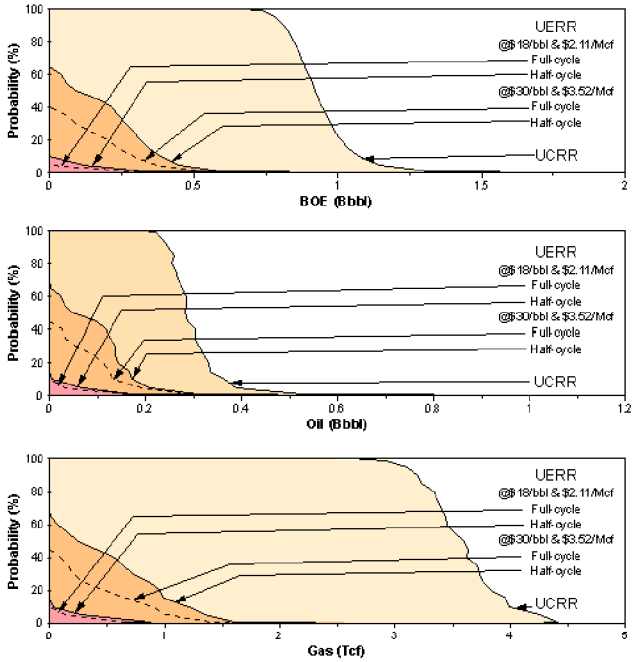

Figure 8. South Atlantic Planning Area 901-3,000m Water Depth Total Endowment by Resource Category.

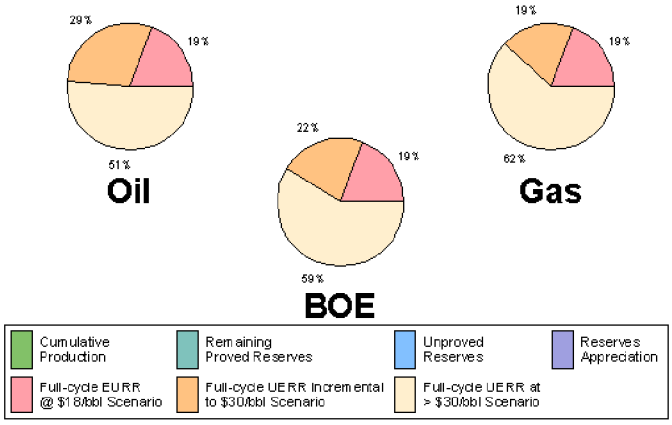

Figure 9. Total South Atlantic Planning Area Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

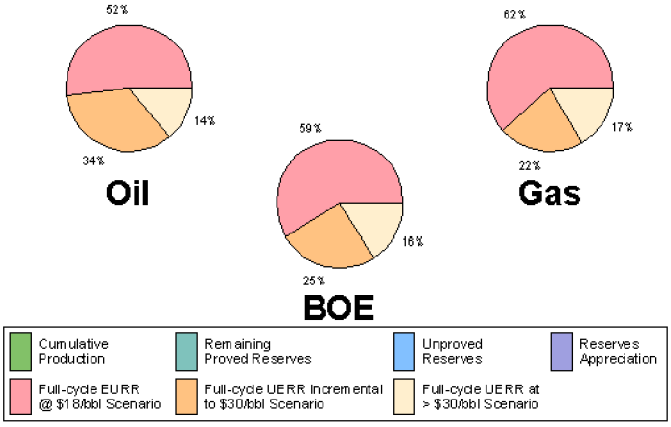

Figure 10. South Atlantic Planning Area 0-200m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

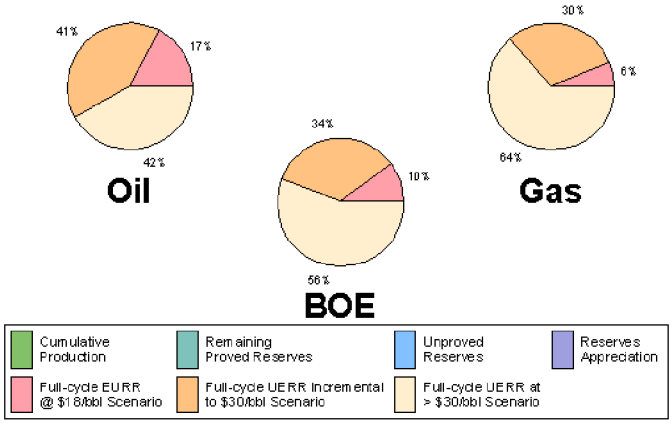

Figure 11. South Atlantic Planning Area 201-900m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

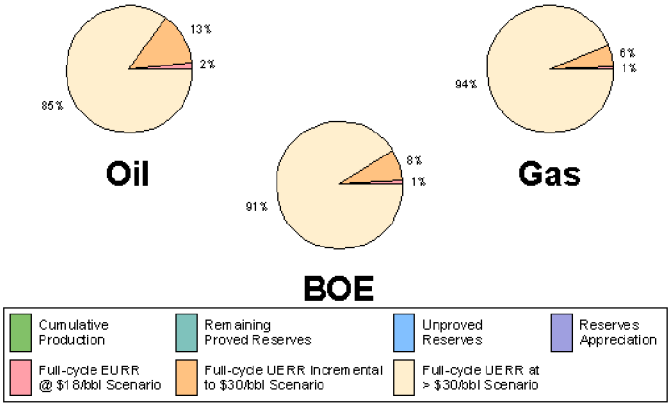

Figure 12. South Atlantic Planning Area 901-3,000m Water Depth Mean Total Endowment by Resource Type. The sum of the percentage values may not equal 100 percent due to independent rounding.

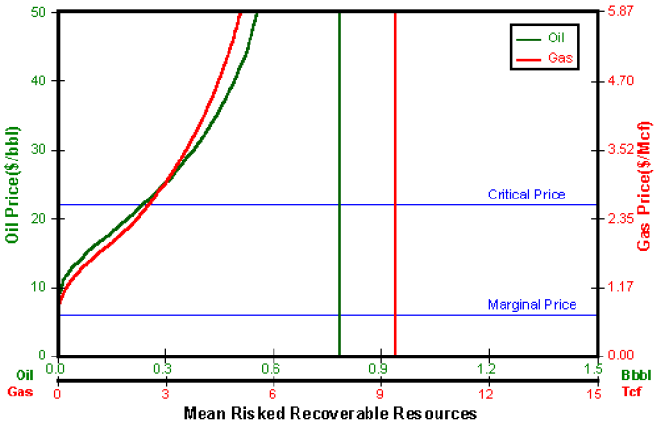

Figure 13. Total South Atlantic Planning Area Full-Cycle Price-Supply Curve.

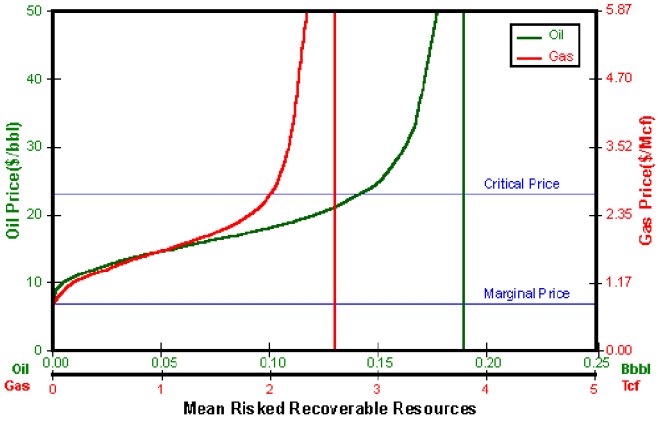

Figure 14. South Atlantic Planning Area 0-200m Water Depth Full-Cycle Price-Supply Curve.

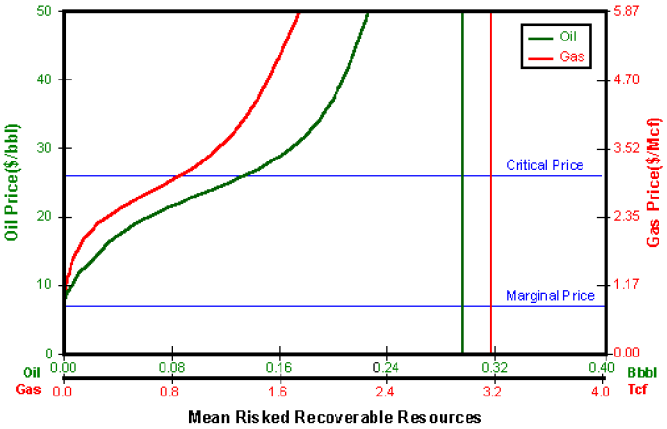

Figure 15. South Atlantic Planning Area 201-900m Water Depth Full-Cycle Price-Supply Curve.

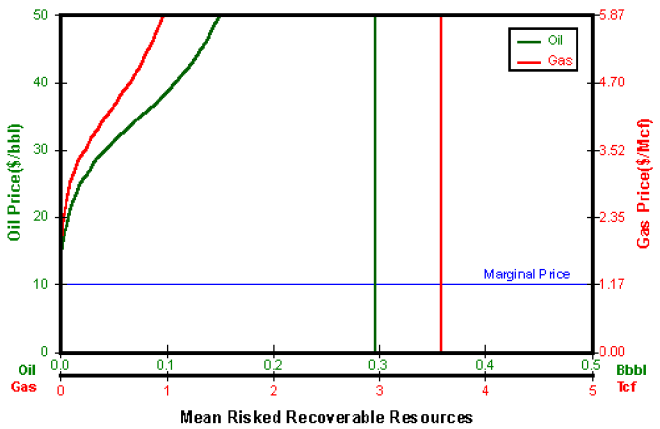

Figure 16. South Atlantic Planning Area 901-3,000m Water Depth Full-Cycle Price-Supply Curve.

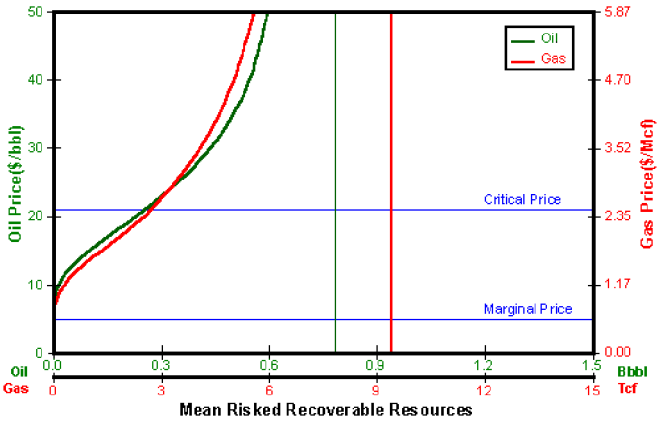

Figure 17. Total South Atlantic Planning Area Half-Cycle Price-Supply Curve.

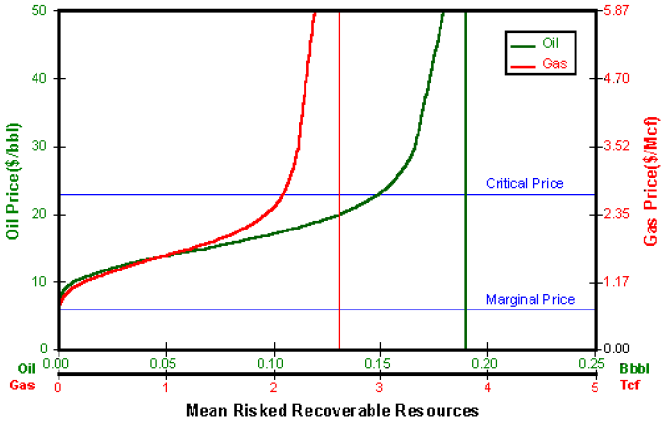

Figure 18. South Atlantic Planning Area 0-200m Water Depth Half-Cycle Price-Supply Curve.

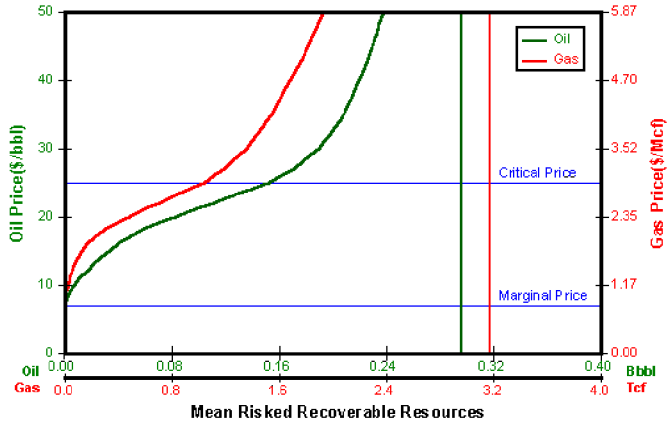

Figure 19. South Atlantic Planning Area 201-900m Water Depth Half-Cycle Price-Supply Curve.

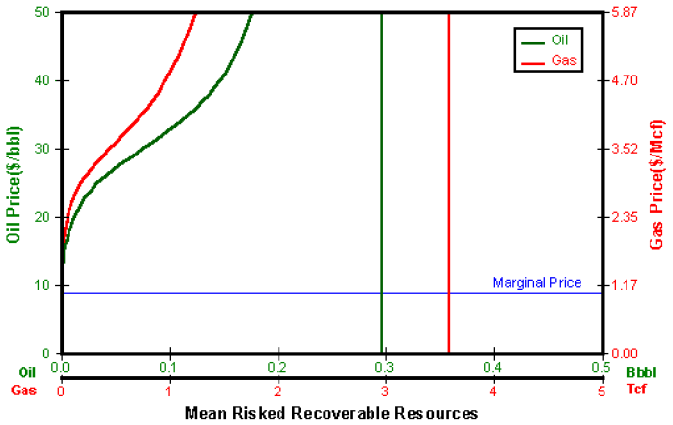

Figure 20. South Atlantic Planning Area 901-3,000m Water Depth Half-Cycle Price-Supply Curve.

HOW TO CONTACT US

If you have a question or comment about this report, contact us at the following e-mail address (please put *Attention: National Assessment* in the subject):

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New Orleans, LA 70123-2394
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The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places;
and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Royalty Management Program** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.

Minerals Management Service
Gulf of Mexico OCS Region

Managing America's offshore energy resources

Protecting America's coastal and marine environments