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Implications of the BP Macondo Catastrophe on Deepwater Exploration and Production Prospectivity in the U.S. Gulf of Mexico Region: A Perspective[1]

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CES-RN-2010-1
Keywords: deepwater, BP, Macondo, prospectivity, IOCs

GOM Deepwater Background

Worldwide expansion in deepwater operations is a predictable response to the growth in global oil demand as the finite nature of petroleum resources onshore and in the shallow waters becomes more apparent to international oil and gas operators. This is particularly true for the Gulf of Mexico (GOM) Region, which was once perceived by petroleum industry analysts as unattractive for big exploration and production (E&P) investment. However, the GOM Region has re-emerged as the key focal point of oil and gas activity in the U.S. This turnaround has been attributed to technical advancements in offshore drilling and production technology. Technologies, such as 3-D seismic and 4-D time-lapse systems, horizontal and directional drilling, and subsurface completion, have allowed areas once considered too deep to be successfully explored and developed. Other factors underlying the turnaround in the attractiveness of the GOM Region to E&P investors include the changing structure of the OCS oil and gas industry, government regulatory programs and fiscal incentives, and favorable market conditions of high oil and gas prices (Iledare, 2009).

Leasing activity in the Gulf deepwater increased significantly in the early 1990s. Incentives to explore and develop petroleum resources, especially natural gas, in the more difficult areas of the Gulf of Mexico contributed to leasing activity and E&P operations in the region. The exodus of international oil companies from the region in the late 1980s to early 1990s was reversed after the Deepwater Royalty Relief Act of 1995. Without the increase in GOM deepwater oil and gas production, the overall decline in U.S. oil production over the past five years would have more than doubled (Baud et al., 2000). In fact, deepwater percentage of total GOM oil production was less than 4% in 1989, but over 80% in 2009. The prospect of increasing

[1] This is an excerpt from SPE Paper 125085, "A comparative study of worldwide deepwater petroleum exploration and development efforts and outcomes" presented at the SPE ATCE Meeting, New Orleans, LA. October 2009.

petroleum reserves and supply in the U.S. continues to hinge on making new, sizable, and profitable discoveries in the Gulf of Mexico Region, especially in the deep offshore areas (Iledare and Kaiser, 2007).

Implications of the BP Macondo Incident

The BP Macondo blowout will not only have long-term effects on the environment, it may have a long-lasting impact on the U.S. deepwater efforts, outcomes, and the competitive advantage of the region for deepwater investment flow if care is not taken. Nearly every top-twenty international oil and gas company considers deepwater operations an essential component of its strategic business development (IEA, 2008). International oil companies (IOCs) dominate deepwater operations worldwide, accounting for 82 percent of operational and prospective wells in the Gulf of Guinea and 52 percent in the Gulf of Mexico. Local oil companies (independents) also have a significant operational presence in deepwater operations in the Gulf of Mexico, so any unrealistic policy changes due to the Macondo accident will impact them as well. Tables 1 and 2 suggest that stiffer rules, increased regulations, and additional costs resulting from the BP Macondo catastrophe may squeeze U.S. independents out of the GOM and force IOCs to move deepwater rigs and investments from the GOM to the Gulf of Guinea, where they already have a dominant presence. Increased costs may force the independents to reduce future E&P budgets and terminate contractual agreements because of moratorium and subsequent regulatory uncertainty in the GOM operating environment.

In addition, if additional permit requirements are imposed as a result of the BP Macondo catastrophe, the time lag between discovery and production will elongate, diminishing the competitive advantage in the GOM Region. North America, because of its technical advancement, infrastructure development, and experience, currently lags only 68 months from deepwater discovery to first production compared to 116 months in Europe and 80 months worldwide (Iledare, 2009). Less than pragmatic legislation resulting from the Macondo blowout can easily truncate this advantage. Moreover, the profitability of deepwater projects under a royalty and tax system governing E&P operations in the Gulf of Mexico Region depends to a large extent on minimizing capital and operating expenditures, keeping in perspective safety and environmental standards. The larger the time lags from leasing to production the higher the capital expenditures and, *ceteris paribus*, the smaller the economic returns on deepwater investments. This is in contrast to the governing structure in other regions where deepwater operations are conducted under contractual arrangements and capital expenditures are recovered through cost oil depending on cost recovery specification (Kaiser and Pulsipher, 2004).

Table 2 puts the competitive advantage of the GOM deepwater in broader perspective. The table shows that of the 568 fields discovered between 1983 and 2007, 311 were discovered in North America. Although North America accounts for 55 percent of worldwide field discoveries, it accounts for only about 23 percent of discovered reserves because IOCs tend to discover larger fields in other regions (Figures 1 & 2). The IOCs discovered 49 percent of reserves worldwide, on average; 81 percent of reserves in Africa and 60 percent of reserves in North America. It would not be difficult for the IOCs to move their investments elsewhere if regulations make the search for oil in the Gulf deepwater costlier than it is in the Gulf of Guinea where the estimated finding and development costs for deep and ultra deep prospects are significantly lower than in the Gulf of Mexico deepwater (ISL, 2008).

Finally, the growth in deepwater operations worldwide is an indication of industry's willingness to search for and develop oil and gas resources wherever access to the resources is granted with fewer restrictions (Figures 1&2). As the government and the oil and gas industry respond to the Macondo catastrophe with guidelines and principles to ensure such a preventable accident does not recur, government must recognize that there will be unintended consequences to any increased regulation and stiffer rules. The cost of doing business in the Gulf of Mexico will increase. The competitive advantage of deepwater operations in the GOM that are gained by stability of the operating environment, technical advancement, and experienced operators may be offset by these higher costs and increased time between discovery and production.

Conclusion

The stability of the GOM operating environment, technical advancement, and experienced operators make the region the custodian of deepwater technical knowledge and information and these factors also reduce the U.S. oil import vulnerability. It would be foolhardy to allow the heedlessness of one operator in the GOM to obliterate a relatively progressive E&P business in the Gulf Coast of the United States just as the Santa Barbara blowout significantly diminished E&P operating environment in the Pacific Region several decades ago. The government must avoid regulations and industry institutional restructuring that may impede the U.S. oil and gas industry the way the reaction to the Three Mile Island accident in 1979 has curtailed the U.S. Nuclear Industry.

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Table 1
Worldwide Operational and Prospective Wells, 1983-2007

	Firm	Operational Wells			Prospective Wells		
REGION	Type	Slope	Deep	Ultra	Slope	Deep	Ultra
Africa	IOC	64	400	-	-	515	69
	LOC	24	55	-	-	70	12
	NOC	-	20	-	-	41	-
Europe	IOC	77	36	-	15	47	-
	LOC	-	-	-	-	1	-
	NOC	263	-	-	17	-	-
Latin America	IOC	-	20	-	-	18	16
	LOC	2	-	-	-	-	-
	NOC	20	397	32	2	306	82
North America	IOC	74	288	34	1	88	144
	LOC	134	154	33	1	181	50
	NOC	2	25	15	-	6	16
Others	IOC	-	35	-	-	55	-
	LOC	13	48	-	2	107	-
	NOC	25	-	-	-	21	-
Worldwide	IOC	215	779	34	16	723	229
	LOC	173	257	33	3	359	62
	NOC	310	442	47	19	374	98

Table 2
Worldwide Discovered Fields and Estimated Reserves, 1983-2007

	Firm	Number of Fields			Reserves, MMTOE		
REGION	Type	Slope	Deep	Ultra	Slope	Deep	Ultra
Africa	IOC	4	61	5	218	2,631	122
	LOC	2	19	2	80	464	39
	NOC	-	6	-	-	123	-
Europe	IOC	6	9	-	243	483	-
	LOC	-	1	-	-	0	-
	NOC	26	-	-	1,033	-	-
Latin America	IOC	-	4	2	-	92	69
	LOC	1	-	-	12	-	-
	NOC	2	51	12	20	1,824	431
North America	IOC	12	62	24	53	1,009	602
	LOC	48	118	24	82	661	196
	NOC	1	13	9	3	66	79
Others	IOC	-	9	-	-	295	-
	LOC	2	27	1	61	810	26
	NOC	2	3	-	22	74	-
Worldwide	IOC	22	145	31	514	4,510	793
	LOC	53	165	27	235	1,936	261
	NOC	31	73	21	1,078	2,087	510

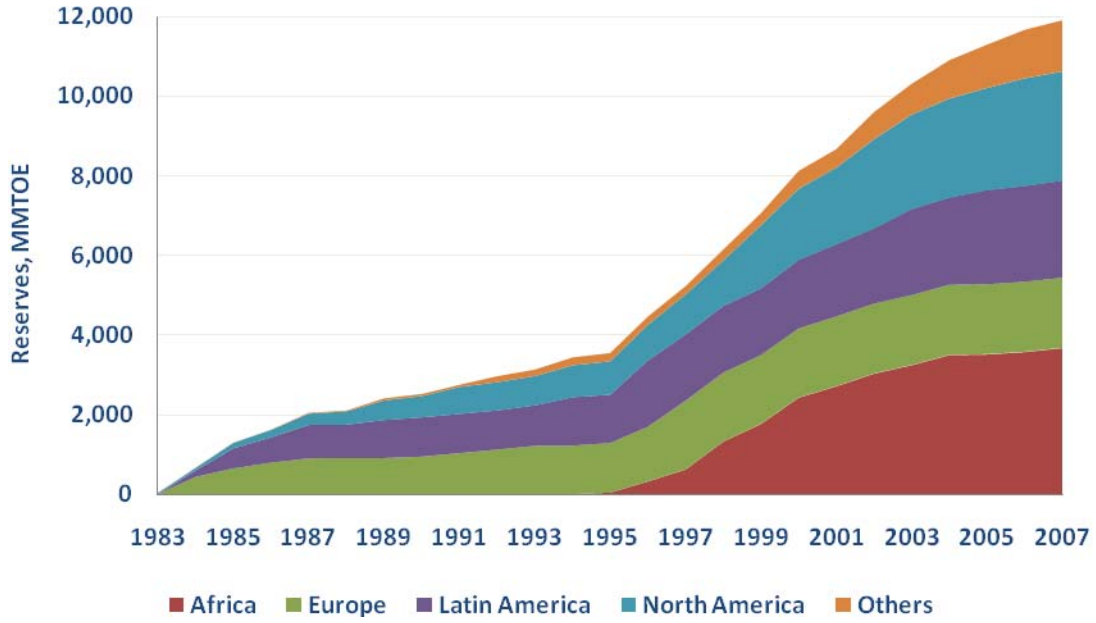

Figure 1: Cumulative Worldwide Deepwater Reserves Trends by Region, 1983-2007

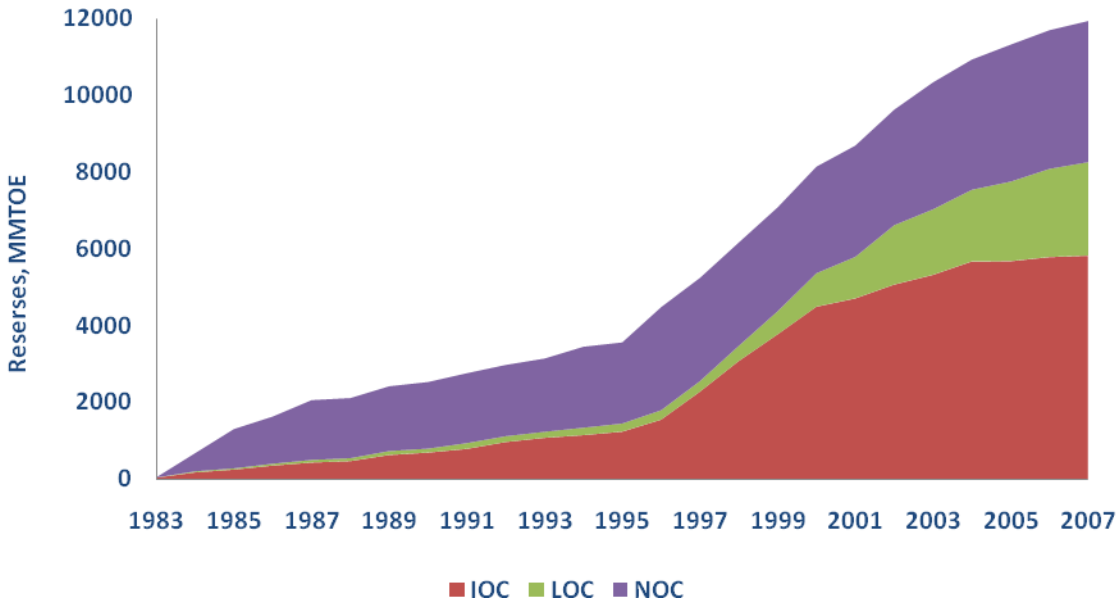

Figure 2: Cumulative Worldwide Deepwater Reserves Trends by Firm Type, 1983-2007