

## ENERGY

INDUSTRY QUARTERLY

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The Energy Committee of Corporate Finance Associates Worldwide is pleased to present its Second Quarter Energy Newsletter. For further insight or additional information, please contact any member of our committee listed in the left column of this page. Interested parties may obtain addresses and contact numbers by access to our website [www.cfaw.com](http://www.cfaw.com).

## I. Gulf of Mexico Oil Spill

Needless to say the people in the oil and gas industry as well as a multitude of other Americans and foreigners are shocked by the Deepwater Horizon oil spill in the Gulf of Mexico. It is a tragedy for those who lost loved family members and the business and industries' failures that resulted. Nothing like this spill has occurred in more than 70 years of oil and gas exploration in U.S. waters of the Gulf of Mexico.

A review of the ten worst oil spills in the world courtesy of Livescience.com indicates that seven of the worst ten spills were in tanker accidents and the worst spill in history, the Gulf War oil spill was intentional. After seventy plus days, the total volume of oil blown out and "spewed" into the Gulf is unknown. The losses and cleanup will undoubtedly be in the billions of dollars. Exxon reports that it spent \$2.1 billion on the cleanup at Valdez in 1989.

America must increase its technology and regulatory control to prevent a reoccurrence of such an incident again. Our nation needs offshore oil and natural gas for growth now and in the future. Fossil fuels cannot be replaced in the foreseeable future.

This activity supports tens of thousands of jobs in the Gulf alone and contributes significantly to the nation's energy and economic security.

A very interesting viewpoint was expressed recently by former Shell Oil President John Hoffmeister when he was interviewed before the Dallas Democratic Forum and the World Affairs Council of Dallas-Ft. Worth. When presented the question "Who's to blame?" he replied "With 35,000-plus wells drilled successfully, nobody could convince me that equipment doesn't work. It works. It's all but failsafe but it's not failsafe if human factors get in the way of it. I think we're going to see in the end that [the blame falls on] the human factors here — chain-of-command issues, communications issues, engineering issues, judgment issues and the potential damages to the blowout preventer."

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## II. Global Production and Demand for Oil and Gas

The global supply and demand statistics are fairly constant with a few exceptions. This particular newsletter includes performance indices which reflect the 2010 numbers.

As parts of the global economy recover from the worst recession to hit some countries in 70 years, oil and gas markets are forecasted to moderate over two years before 2008 levels of consumption are re-established. The U.S. is expected to make efforts to substantially reduce its gas imports. Demand for acquisition of oil reserves is unprecedented.

Scott Richardson of RBC Richardson Bart says "People are very bullish on oil. It's a commodity people are comfortable with. Oil assets in Texas, Oklahoma and the Rockies are trading near \$90,000 per BOPDE and cash-flow multiples are up to eight times for oil deals."

The International Energy Agency (IEA) lowered its oil demand forecast for the first time in a year on weaker than expected consumption in emerging markets. IEA said it expects total crude demand globally this year to average 86.38 million barrels a day representing 220,000 barrel a day downward revision from April 2010 and 1.6 million barrels a day from 2009. While demand growth from both European and African regions forecast to remain relatively flat, the big change will be demand from Asia continually growing particularly those of China and India. India's total crude oil imports are reported (by Offshore, April, 2008) to rise from 12 billion barrels per year in 2000-2001 to 77 billion barrels per year in 2008-2010. China's oil demand is now about 8 million barrels, the second highest level of oil demand in the world after the U.S. That demand has been increasing about 9% per year for several years. The reasons are the fast rise in vehicles for personal use and the fact that China is "the factory for the world". China uses more oil derived products as a petrochemical feedstock, another reason for the demand and the dramatic growth of their cities with 156 cities doubling their population in seventeen years.

Certain members of our Energy Committee are now or formerly involved closely with that industry and are all amazed by the technological advances in all phases of the Energy Industry. The paramount word most often referred to is technology. As an example the 2010 SPE Intelligent Energy Conference being held in March in Utrecht, the Netherlands was attended by 1,500 executives from 37 countries gathered to discuss the use of intelligent energy (IE) digitally and associated technology-which has become part of mainstream operations in the oil and gas industry. The conclusion was that IE would lead the way in developing more efficient methods to maximize production, increase recovery, and improve health, safety and environmental procedures. Halliburton's representative was quoted as saying "The challenge for intelligent energy is to turn data into information and then that information into knowledge and finally into wisdom."

## PERFORMANCE INDICES

### WORLD CRUDE OIL PRODUCTION<sup>†</sup>

OPEC	2009										2010									
	A	M	J	J	A	S	O	N	D	J	A	M	J	J	A	S	O	N	D	J
Algeria	1757	1757	1756	1806	1826	1826	1826	1826	1826	1830										
Angola	1840	1840	1840	1890	1950	1950	1990	1990	1990	2040										
Ecuador	495	486	491	483	477	475	475	477	470	462										
Iran	4030	4044	4050	4053	4056	4060	4063	4067	4076	4088										
Iraq	2366	2418	2419	2470	2472	2473	2425	2375	2375	2475										
Kuwait*	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350										
Libya	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650										
Nigeria	2217	2212	2059	2051	2193	2240	2290	2370	2450	2480										
Qatar	910	910	910	910	945	945	951	962	974	969										
Saudi Arabia*	8077	8081	8335	8540	8440	8340	8340	8340	8240	8240										
UAE	2412	2412	2412	2413	2413	2413	2413	2413	2414	2414										
Venezuela	2240	2240	2240	2240	2240	2240	2240	2140	2040	2090										
<b>Total</b>	<b>30344</b>	<b>30399</b>	<b>30514</b>	<b>30857</b>	<b>31012</b>	<b>30962</b>	<b>31013</b>	<b>30960</b>	<b>30854</b>	<b>31088</b>										

Non-OPEC	2009										2010									
	A	M	J	J	A	S	O	N	D	J	A	M	J	J	A	S	O	N	D	J
Argentina	672	668	654	654	580	653	665	640	638	638										
Australia	496	417	469	485	493	465	481	478	460	480										
Azerbaijan	1063	1062	1072	1039	1013	1048	1045	997	959	969										
Brazil	1941	1955	1918	1919	1960	1993	1991	1986	1999	1996										
Canada	2484	2373	2494	2594	2521	2484	2515	2750	2674	2643										
China	3795	3775	3824	3801	3844	3826	3828	3813	3863	3968										
Colombia	649	653	661	657	669	680	707	725	735	734										
Denmark	273	260	256	256	271	256	236	241	248	249										
Egypt	558	556	554	552	550	548	546	544	542	541										
Eq. Guinea	325	326	323	322	320	318	317	315	313	309										
Gabon	245	244	243	241	240	239	238	238	235	234										
India	680	671	686	673	669	690	688	696	700	703										
Indonesia	933	938	944	942	935	948	948	944	946	935										
Kazakhstan	1439	1373	1465	1511	1432	1443	1517	1554	1523	1543										
Malaysia	583	582	584	579	575	583	574	542	554	558										
Mexico	2642	2609	2519	2561	2542	2599	2602	2553	2593	2615										
Norway	2072	1890	1850	2147	1970	1923	2077	2123	2073	2060										
North Sea**	3833	3556	3479	3761	3248	3314	3595	3753	3644	3526										
Oman	784	804	807	822	839	835	820	832	844	849										
Russia	9459	9429	9457	9476	9532	9623	9629	9654	9614	9590										
Sudan	480	480	485	490	495	500	500	495	495	500										
Syria	375	370	370	369	367	366	365	363	363	369										
UK	1468	1390	1359	1342	993	1119	1266	1372	1310	1202										
USA	5228	5283	5183	5233	5286	5444	5422	5466	5460	5435										
Vietnam	295	291	293	287	305	326	302	270	298	286										
Yemen	294	283	288	283	284	295	288	271	278	275										
Other	2415	2391	2381	2380	2396	2388	2382	2411	2467	2458										
<b>Total***</b>	<b>41648</b>	<b>41072</b>	<b>41138</b>	<b>41615</b>	<b>41080</b>	<b>41593</b>	<b>41949</b>	<b>42273</b>	<b>42184</b>	<b>42140</b>										
<b>Total World</b>	<b>71992</b>	<b>71471</b>	<b>71652</b>	<b>72472</b>	<b>72092</b>	<b>72555</b>	<b>72962</b>	<b>73233</b>	<b>73038</b>	<b>73228</b>										

<sup>†</sup> Figures do not include NGLs and oil from nonconventional sources.  
<sup>\*</sup> Includes approximately one-half of Neutral Zone production.  
<sup>\*\*</sup> Includes the UK offshore, Norway, Denmark, The Netherlands offshore, and Germany offshore.  
<sup>\*\*\*</sup> Does not include North Sea.  
Source: US Dept. of Energy/Energy Information Admin. (DOE/EIA)

### WORLD ROTARY RIG COUNT

	North Amer.		Latin Amer.		Europe		Middle East		Africa		Asia Pacific	
<b>2009</b>												
Apr.	1069	349	86	253	62	236						
May	990	357	82	253	62	239						
June	1020	343	77	247	64	236						
July	1106	351	73	249	57	244						
Aug.	1158	344	78	234	58	233						
Sept.	1217	355	83	245	57	246						
Oct.	1288	351	84	239	62	247						
Nov.	1384	361	86	253	68	257						
Dec.	1485	353	84	251	70	266						
<b>2010</b>												
Jan.	1726	374	86	260	74	253						
Feb.	1914	382	85	258	84	259						
Mar.	1805	378	94	261	82	259						

Source: Baker Hughes

### WORLD CRUDE PRICES

#### US Dollars/bbl

	Arabian Light			Brent			WTI		
<b>2009</b>									
Apr.	48.20	50.18	49.65						
May	57.09	57.30	59.03						
June	65.94	68.61	69.64						
July	67.64	64.44	64.15						
Aug.	71.21	72.51	71.05						
Sept.	66.69	67.65	69.41						
Oct.	75.94	72.77	75.72						
Nov.	75.91	76.66	77.99						
Dec.	71.97	74.46	74.47						
<b>2010</b>									
Jan.	70.76	76.17	78.33						
Feb.	75.64	73.75	76.39						
Mar.	78.25	78.83	81.20						

Source: US DOE/EIA

### WORLD OIL SUPPLY AND DEMAND<sup>1</sup>

Million BOPD	2008					2009						
	Quarter	4th	1st	2nd	3rd	4th	Quarter	4th	1st	2nd	3rd	4th
Supply	84.88	83.46	83.45	84.42	85.32							
Demand	84.60	83.37	83.63	84.20	84.94							

Source: US DOE/EIA

<sup>1</sup> Includes crude oil, lease condensates, natural gas plant liquids, other hydrocarbons for refinery feedstocks, refinery gains, alcohol, and liquids produced from nonconventional sources.

### III. Markets and Pricing

The spot price of oil has increased considerably from the low of \$30.00/bbl during January 2009 to around \$80.00/bbl at the present.

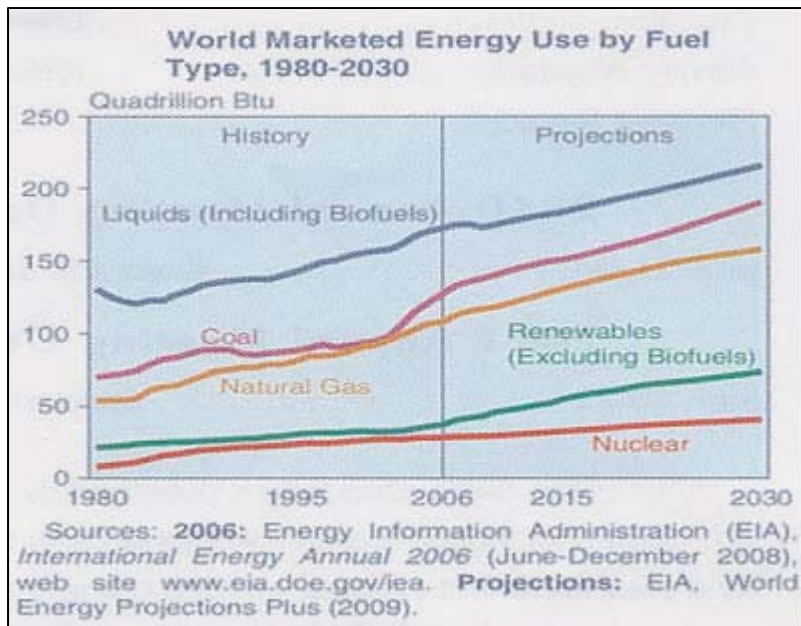
Gas prices have remained at a relatively stable \$4.00 to \$5.00/MMBTU which is less than the 2008 high. The world is faced with a looming gas surplus. This is due to the developing gas plays all over the North American continent and Europe.

Since last year most OPEC ministers have had an informed preference for prices between \$70.00 and \$80.00 per barrel, a level helpful for promoting energy investment but without hitting consumers too hard.

In late April 2010, crude oil again approached an 18 month high rising \$1.79 or 3.1% to \$85.34 a barrel on NY Mercantile Exchange. This high has been suppressed to \$70 to \$80 range.

OPEC accounts for about 40% of the 86 million barrels used globally each day. \*Saudi Arabia has helped other members rally around the \$70.00 to \$80.00 price preference last year but reportedly the Saudi kingdom will move more oil in the world markets to keep the price from going too high. Saudi Arabia has about 4.5 million barrels per day in spare production capacity—more than the total capacity of OPEC’s second largest producer, Iran and could produce more barrels in order to maintain a lid on oil prices.

By using more electricity, natural gas and biofuels in our transportation fleet, we can reduce our dependence on OPEC.



### IV. Current Activity

#### Shale Plays

- The shale plays, both domestic and foreign, have dominated the domestic exploration, development and acquisition activity. We now have sufficient gas reserves to last 45 years. The glut of natural gas has caused the price to be low and fairly constant in the \$4.00 plus range. The Marcellus continues to be the premier area of interest due to its superior economics and relative abundance of acreage in the area. Additionally, Eagle

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Ford acreage in Southwest and East Texas is attracting significant attention because the high liquid content in certain parts of the formation improves economics and also the Eagle Ford play has good reservoir characteristics, ready infrastructure and acreage availability. The low price of gas has caused new emphasis on oil plays in the older mature areas. Significant oil is being recovered in the Bakken Formation from shale and other conventional zones in North Dakota and Montana. The Wolfberry and Wolfbone plays in West Texas have developed into major oil developing area in a mature portion of the Permian Basin. Multiple completion zones are in the Sprayberry, Wolfcamp and Bone Spring formations. Shale gas plays of interest are developing all over the world. (Source: Wall Street Journal, March 10, 2006)

- Apache Corp. will acquire Mariner Energy for \$2.7 billion in a deal that will create the largest U.S. based independent oil and gas producer. This will give Apache its first foothold in the deep water Gulf of Mexico, which has become the major focus of exploration for big oil companies.
- Apache Corp. also announced the acquisition of shallow water assets in the Gulf of Mexico from Devon Energy Corp. for \$1.05 billion. Apache's buying program highlights current oil patch deals as bigger, more financially stable companies pick up assets from cash strapped rivals.

#### **McMoran Discovery**

McMoran's recent colossal discovery referred to as Davy Jones prospect is in 20 feet of water off the coast of Louisiana at South Marsh Island, Block 230, located on the shallow water shelf of the Gulf of Mexico. The well has been logged to a depth of 28,530 feet. A total of 200 net feet of hydrocarbon bearing sands has been indentified in six zones in the Wilcox section of the Eocene-Paleocene. The well is reported to have tapped into an estimated two to six Tcfe of reserves according to Energy analysts. (Source: AAPG Explorer, recent monthly issue)

## **V. Outstanding M&A Exploration and Production Deals**

- Royal Dutch Shell has announced that it is buying East Resources Inc., a major owner of shale gas holdings in the northeast United States for \$4.7 billion from private investors. Shell is Europe's largest oil company and will pay cash for East Resources, a Pennsylvania company that owns more than 2,500 oil and natural gas wells in the U.S. It also controls 1.25 million acres of land in the Marcellus Shale region that runs from New York to Southwest Virginia.
- Earlier this year, Japanese energy giant Mitsui & Co. said it would pay \$1.4 billion for an interest in Anadarko Petroleum Corp's shale assets
- Reliance Industries Ltd. also recently paid \$1.7 billion for part of Atlas Energy's shale gas deposits
- Drillers are especially interested in the Marcellus Shale region and Eagle Ford Shale of Southwest Texas and maintain that they can make a profit even with prices around \$4.00 per MCF

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- Exxon Mobil has drilled the world's longest extended-lateral well from a drilling rig on a fixed platform. The well extends more than six miles horizontally and more than 7,000 feet below sea level. Technologies such as extended-reach drilling help to produce more domestic supplies of oil to meet America's growing energy needs.
  - Halliburton has acquired an oilfield service firm from Boots & Coots for \$1.6 billion
  - Apache has acquired offshore Mariner Energy for \$2.7 billion
  - An \$875 million midstream natural gas joint venture between Kinder Morgan Energy Partners and Petrohawk Energy was announced very recently
  - India's Reliance Energy has entered into a \$1.7 billion joint venture with a group of India investors

## **VI. Alternative Sources of Energy**

### **Unconventional Gas\***

The exploitation of gas resources has developed to the extent that 50% of U.S. gas production comes from coalbed methane gas, tight-sands gas and shale gas. Of these, shale gas is the fastest growing.

In the five year period from 2004 to 2008, U.S. shale gas production almost tripled from 1.88 billion cubic feet per day to 5.52 billion daily. Over the same five years fractured shale gas oil production from the Bakken Formation in Montana, North Dakota and Saskatchewan rose from 23,600 to 153,000 barrels per day.

With technological advances in drilling and completion, there is little exploration risk. The development of such resource plays has become much like a manufacturing process.

The shale gas frenzy has now spread to Europe. Although the gas plays in Europe are in their infancy, the continent has several active areas that could yield trillions of cubic feet of gas. Investigations are underway in at least ten countries. Companies interested in the shale gas potential range from super majors such as Exxon Mobil and Shell to major independents, to small niche players and coal bed methane gas explorers.

In summary, there are according to some estimates (Wall Street Journal May 10, 2010—Amy Myers Jaffe) there are 1,000 trillion cubic feet recoverable in North America alone—enough to supply the nation's natural gas needs for the next 45 years. Europe may have 200 trillion cubic feet of its own.

(\*Source: Oil & Gas Investor)

## Solar Power

More electricity is generated by solar panels in China than anywhere else. In 2009, China produced 36% of all solar panels made world-wide according to Photon Consulting LLC.

The approximate cost to produce electricity from solar power in the U.S. is 25 cents per kilowatt hour. That is more than twice the cost of power generated by coal and natural gas which came in at 10 cents per kilowatt hour according to benchmark figures from Renewable Energy Laboratories.

## Canada Oil Sands

Production from Canada's oil sands grew 14% to 1.49 million barrels a day last year despite the drop in oil prices according to a report from the Alberta Energy Resources Conservation Board. The report also gave its estimate of in place oil sands to 1.8 trillion barrels. Canada's oil sand region is the second largest proven oil reserve after Saudi Arabia's. Canada is the largest supplier of oil to the U.S. and its oil sands are expected to become the largest single source of U.S. oil imports this year.

## Wind

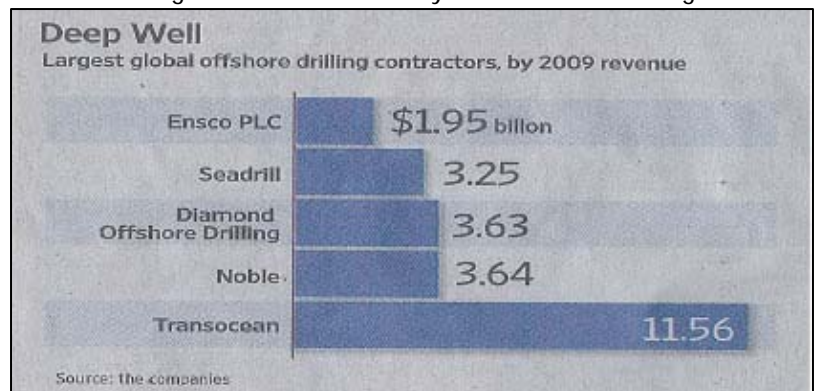
Global wind generating activity by the beginning of 2009 was minimal. This activity supplied only 2% of the total electrical demand in the member countries.

The U.S. at the end of 2000 had a wind generating capacity from less than 15,000 turbines supplying 1.9% of the nation's electrical demand of 3,737 terawatt-hours/year.

## VII. Recent M&A Deals in Equipment and Services

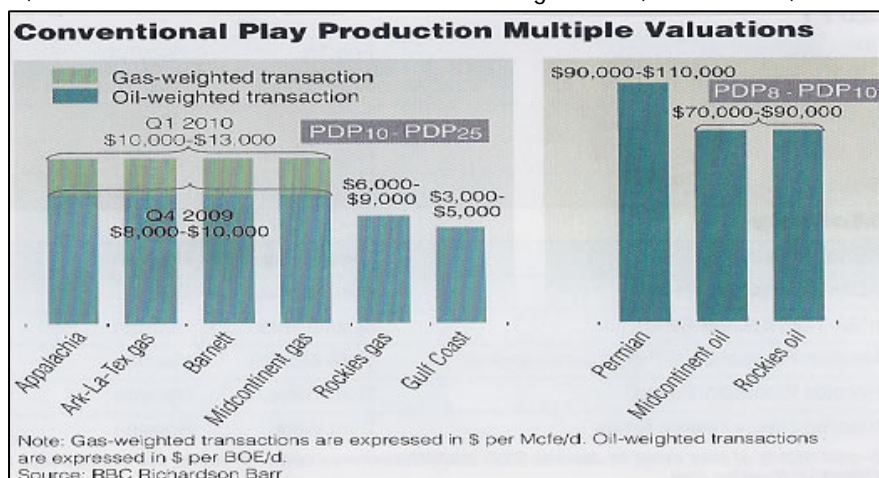
### Noble Corp. Acquisition of FDR Holdings LTD

Zug, Switzerland, June 29 / Noble Corp has agreed to buy offshore driller FDR Holdings LTD. for \$2.16 billion. Noble is the world's second largest offshore driller by revenue and also signed \$4 billion in long-term contracts with oil giant Royal Dutch Shell, PLC, a major FDR customer. This should add to Noble's cash flow at a time when the U.S. administrators imposed moratorium on offshore drilling. A federal judge struck down the ban but the ruling is being appealed. Oilfield service analysts said the deal is likely to trigger additional consideration in the offshore drilling industry. The deal gives Noble six floating drill ships, increasing its rig count to 68 and adds about \$2 billion to its backlogs of contracts. Refer to the bar graph above for Noble's comparable standing with other global contractors.



## VIII. Conventional Production Valuations

Oil assets are the preferred commodity and currently demand 20 % to 40 % premiums to gas transactions. For example, oil assets in the Permian Basin are trading for \$90,000 to \$110,000 (BOPDR) per daily flowing barrel. Long lived conventional gas assets have received valuations in the \$10,000 to \$13,000 per daily flowing thousand cubic feet equivalent (Mcf). Most oil assets are trading hands at discount rates of PV-8 to PV-10 for proved developed producing while gas assets are trading at PV-10 to PV-15. These industry metrics are illustrated by the bar graph above. (Source: Oil & Gas Investor RBC Richardson & Barr, April, 2010)



Buyers for conventional gas assets continue to be financial and private equity players. This sector has accounted for 62% of all conventional gas deals sold in the past 12 months. Master Limited Partnerships, despite their current interests in oil, are also becoming larger participants for conventional gas assets as the supply of oil assets remains modest and extremely competitive.

Undeveloped acreage located in the heart of the Marcellus, Eagle Ford, gas plays and Bakken and Wolfberry oil plays can demand bonus prices of \$1,000 to \$4,000 per acre.



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