

## MUSINGS FROM THE OIL PATCH

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**Note:** *Musings from the Oil Patch* reflects an eclectic collection of stories and analyses dealing with issues and developments within the energy industry that I feel have potentially significant implications for executives operating oilfield service companies. The newsletter currently anticipates a semi-monthly publishing schedule, but periodically the event and news flow may dictate a more frequent schedule. As always, I welcome your comments and observations. Allen Brooks

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### Semiconductor Chips: More Power! Less Energy!

**The new Xeon models represent a nearly 10-fold improvement in power consumption per processor over the past year and a half**

All of corporate America is determined to become more energy efficient. One area of intense focus is technology - most particularly computers. Intel Corp. (INT-NYSE), one of the leading manufacturers of processor chips to run computers, announced it has developed new versions of its four-processor Xeon chips for server systems that are 38% to 58% less power hungry. The new Intel chips are rated at 50 watts of power consumption. They join a product line that has models drawing 80 watts or 120 watts of power and offer greater computing performance than conventional chips. The company said the new Xeon models represent a nearly 10-fold improvement in power consumption per processor over the past year and a half.

This new product helps keep Intel in the race with its rival, Advanced Micro Devices Inc. (AMD-NYSE), to add more processors to its chips as well as reduce the power consumption. Not only are customers helped financially by reduced power consumption for their computers, but the lower power output should mean less heat generated, which in turn means less air conditioning to counteract the heat. Intel has an existing "quad-core" product line of chips, called Clovertown, which are actually two dual-processor chips packaged together on a single chip, but they are not as energy efficient.

AMD is expected to launch its own new chip with four processors on a single silicon disk. At the present time, its Opteron chip family has one that draws 68 watts and another that requires 95 watts. It is our understanding that each manufacturer rates its chips' power consumption differently making direct power comparisons difficult.

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**Corporate information technology departments will be caught in the battle between bosses who are looking at controlling operating costs and workers wanting or needing more processing speed**

According to Intel, two models of the Xeon chip were formally announced on March 12. The two models are TL5320 and TL5310 and they operate at 1.86 gigahertz and 1.60 gigahertz, respectively. By comparison, two 120-watt models in the company's Clovertown product line operate at 2.33 gigahertz and 2.66 gigahertz. Two 80-watt models operate at 1.86 gigahertz and 2.33 gigahertz. One has to wonder whether customers have to accept a lower processing speed along with the reduced power consumption. If so, we suspect that corporate information technology departments will be caught in the battle between bosses who are looking at controlling operating costs and workers wanting or needing more processing speed.

**Power consumption of data centers doubled between 2000 and 2005, and now accounts for 1.2% of American electricity consumption**

Recognizing this fact, a consortium of computer hardware and software providers was formed to launch a "Green Grid" dedicated to reducing data center (server) power consumption. Between 1996 and 2006, according to Jed Scaramella of market research firm IDC, the number of servers in use went from 6 million to 28 million and the average power consumption of each server grew from 150 watts to 400 watts. An estimate made by the Lawrence Berkeley National Laboratory found that the power consumption of data centers doubled between 2000 and 2005 and now accounts for 1.2% of American electricity consumption. Other estimates put that consumption at 4% of total electricity consumption.

Analysts studying the data center and server power consumption issue suggest that three changes need to occur. First is the migration from dual-core to quad-core processor chips, which is reflected in the Intel announcement. Secondly, data centers need to use more efficient power supplies. That means more use of direct current (DC) rather than alternating current (AC) power. At the present time, data centers are performing many conversions between AC and DC that wastes energy, which is emitted as heat and increases the need for air conditioning. The challenge is that there is no standard for DC power supplies among computer hardware vendors. Developing new power supply standards is one aim of the new consortium. The third change involves more careful use of cooling systems. There are new cooling systems that are linked to temperature sensors on servers that can direct air conditioners to blast cool air on particular servers only when needed, reducing overall cooling needs. One hardware manufacturer, HP (HP-NYSE), suggests this technology could save 25-40% of data center cooling costs.

**Overly optimistic computer demand forecasts produced wildly aggressive power consumption estimates**

At the height of the tech boom in 2000, many energy analysts tried to estimate how much power it took to run the massive data processing and computing server installations that were destined to take over the world. Given the wild projections for the growth of computers in service and their use, energy analysts began forecasting huge power demands that would necessitate the construction of a large number of new electric power generating plants to meet this growing power need. What we discovered, unfortunately, was that overly optimistic computer demand forecasts produced wildly aggressive power consumption estimates and they

**Forecasters predict that associated energy costs will continue to rise and will rival annual computer hardware spending by 2010**

all came crashing down like a house of cards with the recession of 2001. It was a painful lesson for analysts to be reminded of the cardinal rule of forecasting models: garbage in; garbage out.

However, the operational changes for data centers envisioned by the computer consortium will take time. As a result, some forecasters predict that associated energy costs will continue to rise and will rival annual computer hardware spending by 2010. That forecast, given continued pressures for “green” initiatives by companies, may spur accelerated investment in upgrades that are designed to stop, and eventually reverse, the upward spiral in power consumption requirements.

## Canada’s Worst Scenario – An Early Spring Breakup

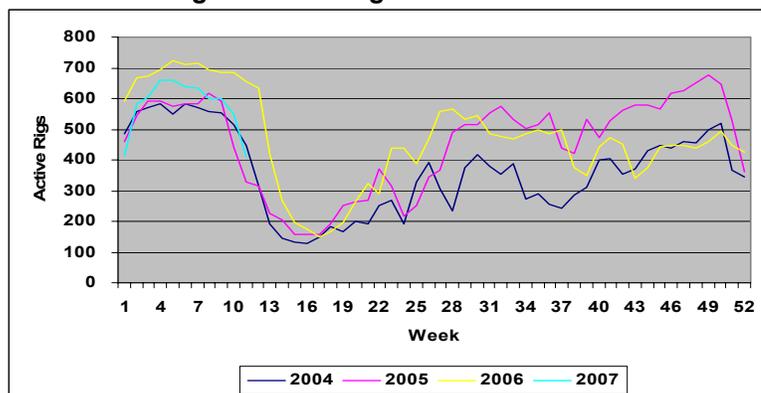
**Larger Canadian E&P companies elected to slow down their drilling activity in the shallow gas and coal bed methane regions**

The past nine months in the Canadian oil patch have not been particularly kind to the local oilfield service industry. Around mid-year last year, in response to falling natural gas prices and rising oilfield costs, certain of the larger Canadian E&P companies elected to slow down their drilling activity. Much of the reduction in activity was centered in the shallow gas and coal bed methane regions. This was a prudent strategy for producers in the face of the growing profitability squeeze with little visibility that conditions might change in the foreseeable future. In light of the higher degree of caution by producers, the 2006-2007 winter drilling season turned out not to be as strong as anticipated last spring.

**The spending decline was certainly not anticipated when Canadian contract drillers began their fleet expansion efforts several years ago**

The producer caution was further reinforced last fall as crude oil prices slid from their lofty \$77 summer peak towards \$50 per barrel and natural gas markets remained severely depressed. Producer budgets for 2007, as reported by the Lehman Brothers E&P expenditure survey, suggest that spending in Canada will decline by seven percent to \$22 billion from the estimated \$24 billion spent in 2006. The spending decline was certainly not anticipated when Canadian contract drillers began their fleet expansion efforts several years ago. Unfortunately, the pressure of too many rigs and not enough work is being felt once again by the drilling fraternity.

**Exhibit 1. Diving Canadian Rig Count Not Unusual**



Source: Baker Hughes, PPHB

**The real problem for the Canadian drillers is that the rig count did not rise as high in this winter's drilling season as it did last year**

The March 14, 2007, issue of *The Globe and Mail* contained an article on the front page of the Report on Business section that highlighted an early spring arrival as halting the winter drilling season. According to the article, the arrival of warmer weather means the winter thaw of ice and snow has started two to three weeks ahead of normal. As shown in Exhibit 1, the Canadian rig count since 2004, as reported by Baker Hughes (BHI-NYSE), usually starts taking its seasonal dive due to the road bans associated with spring break up about this same time every March. But as the chart demonstrates, the real problem for the Canadian drillers is that the rig count did not rise as high in this winter's drilling season as it did last year before commencing its traditional swan dive.

To examine this phenomenon in greater detail, we went to the Canadian Association of Oilwell Drilling Contractors (CAODC) to look at their rig count data in greater depth. The CAODC compiles its data with the help of two independent companies – Divestco and Nickle's Daily Oil Bulletin. We went and looked at the winter drilling data the CAODC reported on its web site from 2002 through 2007.

#### **Exhibit 2. Spring Break Up Starts With Much Lower Utilization**

Week of	Peak	Mid-March	Active	Idle	Total	Utilization	Change In
							Active Rigs
	23-Jan-07		654	191	845	77.4%	
		13-Mar-07	491	354	845	58.1%	163
	8-Mar-06		742	43	785	94.5%	
		14-Mar-06	731	54	785	93.1%	11
	22-Feb-05		693	37	730	94.9%	
		15-Mar-05	461	269	730	63.2%	232
	24-Feb-04		645	48	693	93.1%	
		16-Mar-04	546	147	693	78.8%	99
	11-Feb-03		607	60	667	91.0%	
		18-Mar-03	531	136	667	79.6%	76

Source: CAODC, PPHB

We looked first for the peak weekly rig count during each year's winter drilling season. In every case, the weekly peak occurred sometime within the January to March period. We also looked to see where the rig count was at the middle of March to see whether it truly reflected an ending of the winter drilling season. But the more telling analysis was to look at the fleet utilization rate at the peak and mid-March date.

**With the exception of last winter, the change in the rig count from its peak to the mid-March date reflected a healthy decline in both the number of rigs working, but more importantly in the utilization of the fleet**

What we found was that with the exception of last winter, the change in the rig count from its peak to the mid-March date reflected a healthy decline in both the number of rigs working, but more importantly in the utilization of the fleet. The newspaper article stated that the "big thaw" usually doesn't come until the end of March, but it has arrived several weeks earlier. We understand that the end of March is the typical thaw period, but the timing of this year's thaw is having a more pronounced impact this spring on the industry because of the low overall fleet utilization rate and the

**The real problem for Canadian contract drillers is that they have added 60 rigs to the fleet, or about a 7.5% expansion**

comparison with the boom experienced last year coupled with that year's late arrival of spring break up. We noted that this winter, from the peak to this week's CAODC rig count figure, 163 rigs have been laid down. This is clearly a very large number, coming on a base of 845 available rigs. However, in 2005, the peak to mid-March decline in active rigs was about 60 more than this year's drop, and that came on a total fleet with 115 fewer rigs.

The real problem for Canadian contract drillers is that they have been super optimistic about the industry outlook and between last year and now, have added 60 rigs to the fleet, or about a 7.5% expansion. The slowdown in spending by producers coupled with the fleet expansion has kept fleet utilization well below the point where contractors gain pricing leverage over their customers. So, faced with a several weeks of less-than-peak utilization, and having added to their cost structure by granting wage increases to rig hands, drilling contractors are looking at a serious squeeze in profitability. While not a disaster, this winter and spring represents another period when the balance of economic power in the industry has shifted away from the contractors and back to the producers. At some point it will shift back, as it always does. The oilfield business cycle represents nature's way of frustrating the maximum number of people over its short lifespan.

## **EU Confronts Energy Politics and Economic Realities**

**The EU's strategy is to become independent of potential energy blackmail by Russia**

A week ago, the European Union (EU), after several days of intense negotiations, adopted a new energy plan that is more ambitious than the bloc's current Kyoto Protocol requirements and, if met, would establish the region as the world leader in dealing with global climate change. The EU also challenged the United States, China and India to match its ambitious agenda to confront the possible ravishes from global climate change. However, the terms of the agreement required blurring some lines and deferring specifics for further negotiations, raising the specter that the grand strategy might fail over the details. At the end of the day, the plan, which is ambitious in its attempt to deal with multiple energy issues in one policy initiative, is really a signal that the EU's strategy is to become independent of potential energy blackmail by Russia.

The EU's new plan will increase the use of renewable energy, decrease carbon emissions, diversify the bloc's clean fuel supplies and reduce its dependence on Russian energy supplies by 2020. Under the terms of the plan, the EU as a whole aims to reduce its carbon emissions by 20%, increase the use of renewable fuels to 20% of its total energy demand, use biofuels for 10% of the region's transportation needs and reduce total EU energy demand by 20%. All of this is in addition to any progress that implementing the Kyoto Protocol reductions has already achieved.

If the United States, China and India will match the EU's greenhouse gas reduction goal, the 27-member bloc would agree to increase its

**The binding targets are to be achieved on an EU-wide basis rather than on a country-by-country basis**

reduction target to 30%. This aspect of the plan certainly begs the question of why not set the higher goal as its initial target? Or does avoiding that step without first securing an agreement from the rest of the key industrial economies of the world recognize the economic hardships that may befall the EU member countries?

While certainly an ambitious plan, the leaders of the EU worked hard to ease the difficulties individual members will have in meeting the targets. First, the binding targets are to be achieved on an EU-wide basis rather than on a country-by-country basis. Each member of the EU will be allowed its own target for meeting the renewable energy goal. This is especially important since renewable energy sources such as wind and solar power only account for seven percent of the current energy mix used by the Europeans. This approach will allow richer countries with more experience in renewable energy to carry more of the burden. By agreeing to this approach, the worst polluters in the fast-growing economies of Eastern Europe will bear less of a burden than the Western European members. Many of the eight former Communist countries that have joined the EU since May 2004 are far behind the rest of the EU countries in achieving greenhouse gas emission reductions and developing renewable resources. For example, Poland still depends upon coal for 90% of its heating requirements.

**Another blurring of the details was the decision to classify nuclear power as an alternative fuel**

Another blurring of the details was the decision to classify nuclear power as an alternative fuel, a move pushed by France and Finland who depend on nuclear power for much of their electricity generation, and opposed by non-nuclear states such as Denmark, Ireland and Austria. The text of the plan blurs the distinction between "alternative" and "low-emissions" technologies. It also allows each country to determine its own energy mix, which will not be subject to requirements from the European Commission that enforces EU policies.

**Had these policies and the infrastructure been in place, the problems Europe confronted over natural gas in January 2006 and crude oil in January 2007 could have been avoided**

The agreement provides for EU member countries to assist each other in maintaining security of energy supply, unity on negotiating with external energy suppliers and the development of an infrastructure to cushion Europe in the case of a supply shock. Had these policies and the infrastructure been in place, the problems Europe confronted over natural gas in January 2006 and crude oil in January 2007 could have been avoided. From a political strategy viewpoint, this agreement to reduce greenhouse gas emissions, increase alternative energy use, reduce overall energy consumption and secure energy supplies produces a form of political insurance. By reducing total energy demand by a fifth and then mandating that at least a fifth of the remainder come from locally-generated renewable sources as well as diversifying into low-carbon energy, a huge bite will be taken out of European dependence on any particular energy supplier.

With the agreement in place, the EU can move forward in its efforts to diversify the sources of its current petroleum imports. There are various plans being proposed such as building a natural gas pipeline

from the Middle East, constructing additional pipelines from North Africa and adding new LNG import facilities in the region. While all of these plans will take time, they represent significant new initiatives that fit within the broad policy of improving the EU's political insurance and energy supply assurance. The only fly in the ointment may be the September deadline for the European Commission to propose specifically how the burden of meeting the overall energy plan targets will be allocated. We wonder if King Solomon is available to help.

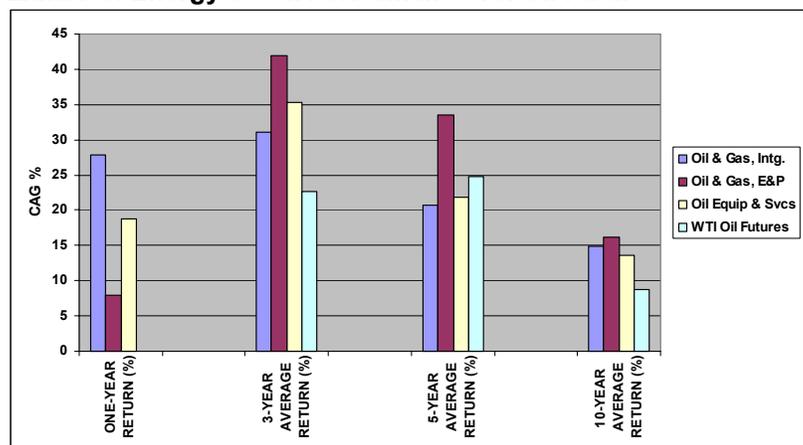
## Making Money in Oil & Gas on Wall Street

**The Oil & Gas, Exploration & Production (E&P) and Oil Equipment and Services (oil service) sectors ranked 9<sup>th</sup> and 10<sup>th</sup>, respectively**

At the end of February, *The Wall Street Journal* produced its annual Shareholder Scorecard on the performance of 1,000 major U.S. companies compared to their peers in 75 industry groups. Within the 75 sectors listed, based on the ranking of 5-year compound annual total returns, the Oil & Gas, Exploration & Production (E&P) and Oil Equipment and Services (oil service) sectors ranked 9<sup>th</sup> and 10<sup>th</sup>, respectively. The Oil & Gas, Integrated (integrated oils) sector came in 14<sup>th</sup>. This was a very commendable performance given the performance of oil and gas prices, but one has to wonder whether industry conditions were the primary driving force for the performance.

The Scorecard was prepared by taking the 1,000 largest companies in the Dow Jones U.S. Total Market Index at year-end 2006 that had a stock market trading history of at least 12 months. The size measure was based on a company's total value for its publicly traded common stock. The industry groups are based on the Industry Classification Benchmark used by the Dow Jones Global Indexes family.

**Exhibit 3. Energy Stock Performance vs. Oil Futures**



Source: The Wall Street Journal, NYMEX, PPHB

As can be seen from Exhibit 3, all three oil industry sectors outperformed crude oil futures prices for the 1-year, 3-year and 10-

**Commodity prices, while a driving factor in the short-term often aren't as much of a driver behind stock price performance as one might think**

year measurement periods, but trailed for the 5-year period. Despite that record, the industry stock groups showed markedly different performance over these same investment holding periods.

In the 1-year time period, the E&P stocks came in 63<sup>rd</sup>, while oil service was 37<sup>th</sup>. Crude oil futures prices were essentially unchanged between year-ends 2005 and 2006, despite soaring to a new high and falling off sharply in the second half of last year. However, the integrated oils were the 7<sup>th</sup> best performing industry group, which suggests that factors such as dividends, share buybacks and large market capitalizations may have had more to do with stock price performance than commodity prices.

Over the 3-year time period, as oil prices demonstrated strong performance due to their strength in the first and second years of the period, E&P stocks ranked 3<sup>rd</sup>, oil service was 4<sup>th</sup> and the integrated oils were 9<sup>th</sup>. On the long-term measurement period, the integrated oils came in 10<sup>th</sup> and the E&P stocks were 14<sup>th</sup>, while oil service ranked 30<sup>th</sup>. Based on these records, it becomes clearer that commodity prices, while a driving factor in the short-term often aren't as much of a driver behind stock price performance as one might think.

*The Wall Street Journal* also produced lists of the top and bottom performing 25 companies for each of the four measurement periods. Only one company from the three energy sectors was on any of the underperforming lists. That company was Patterson-UTI Energy (PTEN-NASDAQ) that ranked 18<sup>th</sup> with a 28.7% price decline for the 1-year time period. On the best performing list for 1-year was Veritas-DGC (no longer public, +141.3%) at No. 7 and Core Labs NV (CLB-NYSE, +116.8%) at No. 12. Veritas was helped by its acquisition at a healthy premium over the going market price along with the positive outlook for all seismic-related companies. Core's performance was due to its outstanding earnings results and management's commitment to using excess cash flow to buy back and retire a significant amount of its outstanding shares.

In the 3-year time period, there were four energy companies in the top 25 performers, with two companies on the 5-year list and four on the 10-year list. Veritas was No. 5 on the 3-year list and Core was 15<sup>th</sup> on the 10-year list. The other common theme among the results was the performance of the small refiners. Holly Corp. (HOC-NYSE) made three lists (3-year, 5-year and 10-year), while Frontier Oil (FTO-NYSE) was on the 3-year and 10-year lists.

**Solid management performance and being in the right market capitalization category contribute to outstanding investment performance**

Clearly, if overall industry trends are positive, having solid management performance and being in the right market capitalization category will help contribute to outstanding investment performance. In addition, what these performance ratings further demonstrate is that even in a highly cyclical industry, such as oil and gas, investors can create wealth if they remain patient.

## Exhibit 4. Scorecard of Energy Stock Performance Through December 31, 2006

COMPANY NAME	STOCK SYMBOL	ONE-YEAR RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY	3-YEAR AVERAGE RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY	5-YEAR AVERAGE RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY	10-YEAR AVERAGE RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY
<b>Oil Equipment &amp; Services</b>									
Core Laboratories	CLB	116.81	97.98	69.31	33.97	42.02	20.19	34.48	20.92
Halliburton	HAL	1.11	-17.73	35.20	-0.14	38.86	17.04	9.16	-4.40
Veritas DGC	VTS	141.28	122.45	101.41	66.08	35.86	14.04	16.56	3.00
Superior Energy Services	SPN	55.25	36.42	51.49	16.15	30.45	8.63	26.97	13.41
Unit	UNT	-11.96	-30.79	27.18	-8.15	30.30	8.47	17.24	3.68
FMC Technologies	FTI	43.59	24.76	38.30	2.96	30.23	8.41	NA	NA
Oceanenergy International	OIL	59.50	40.67	41.54	6.21	29.12	7.30	17.47	3.90
Grant Prideco	GRP	-9.86	-28.69	45.09	9.76	28.17	6.34	NA	NA
Smith International	SIH	11.60	-7.23	26.19	-9.14	25.49	3.67	14.03	0.47
National Oilwell Varco	NOV	-2.42	-21.26	39.87	4.53	24.31	2.49	14.81	1.25
Diamond Offshore Drilling	DO	17.73	-1.11	59.55	24.21	23.39	1.57	12.50	-1.06
Cameron International	CAM	28.14	9.31	31.56	-3.78	21.33	-0.50	10.74	-2.82
Helix Energy Solutions	HLX	-12.59	-31.43	37.53	2.19	20.51	-1.31	NA	NA
Schlumberger	SLB	31.05	12.22	33.50	-1.83	19.59	-2.24	12.34	-1.22
Transocean	RIG	16.07	-2.76	49.91	14.57	19.10	-2.73	10.17	-3.39
Noble	NE	8.19	-10.64	28.79	-6.54	17.56	-4.26	14.42	0.86
Weatherford International	WFT	15.44	-3.39	32.41	-2.92	17.54	-4.29	17.29	3.73
Baker Hughes	BHI	23.68	4.84	33.66	-1.68	16.76	-5.06	9.44	-4.12
GlobalSantaFe	GSF	24.08	5.25	34.96	-0.37	16.73	-5.10	NA	NA
Seacor Holding	CKH	45.58	26.75	33.12	-2.22	16.40	-5.43	8.97	-4.59
Helmerich & Payne	HP	-20.49	-39.32	21.56	-13.77	15.97	-5.86	10.95	-2.61
Enco International	ESV	13.12	-5.72	22.92	-12.41	15.39	-6.43	7.91	-5.65
Patterson-UTI Energy	PTEN	-28.72	-47.55	12.91	-22.43	15.25	-6.57	22.10	8.54
Pride International	PDE	-2.41	-21.24	17.20	-18.13	14.72	-7.10	2.59	-10.98
BJ Services	BJS	-19.55	-38.38	18.38	-16.96	12.91	-8.91	16.67	3.10
Rowan	RDC	-5.56	-24.39	13.84	-21.50	12.24	-9.59	4.31	-9.25
Nabors Industries	NBR	-21.37	-40.21	12.80	-22.54	11.65	-10.18	11.96	-1.60
Tidewater	TDW	10.03	-8.80	19.23	-16.11	9.23	-12.59	2.41	-11.15
Industry Group Average		18.83		35.34		21.82		13.56	

COMPANY NAME	STOCK SYMBOL	ONE-YEAR RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY	3-YEAR AVERAGE RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY	5-YEAR AVERAGE RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY	10-YEAR AVERAGE RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY
<b>Oil &amp; Gas, Integrated</b>									
Marathon Oil	MRO	54.62	26.72	44.30	13.30	29.01	8.33	17.93	3.06
ConocoPhillips	COP	26.53	-1.37	32.90	1.90	22.06	1.39	15.59	0.72
Murphy Oil	MUR	-4.81	-32.72	17.16	-13.84	20.95	0.27	17.52	2.65
Hess	HES	18.30	-9.60	42.58	11.58	20.80	0.13	11.41	-3.46
Exxon Mobil	XOM	39.08	11.17	25.80	-5.20	16.96	-3.72	14.72	-0.15
Chevron	CVX	33.70	5.80	23.25	-7.75	14.28	-6.40	12.04	-2.83
Industry Group Average		27.91		31.00		20.68		14.87	

COMPANY NAME	STOCK SYMBOL	ONE-YEAR RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY	3-YEAR AVERAGE RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY	5-YEAR AVERAGE RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY	10-YEAR AVERAGE RETURN (%)	SURPLUS/DEFICIT RELATIVE TO INDUSTRY
<b>Oil &amp; Gas, Exploration &amp; Production</b>									
Ultra Petroleum	UPL	-14.44	-22.34	57.11	15.14	73.40	39.94	NA	NA
Southwestern Energy	SWN	-2.48	-10.37	80.35	38.38	68.25	34.78	26.05	9.93
Holly	HOC	75.85	67.95	97.45	55.48	62.89	29.43	34.82	18.70
Range Resources	RRC	4.62	-3.28	63.89	21.93	55.68	22.22	9.57	-6.56
Denbury Resources	DNR	21.99	14.09	58.68	16.71	50.04	16.58	14.48	-1.64
Frontier Oil	FTO	53.76	45.86	91.04	49.07	49.22	15.76	44.53	28.41
XTO Energy	XTO	12.17	4.28	43.11	1.14	44.94	11.48	37.01	20.88
Quicksilver Resources	KWK	-12.90	-20.80	50.35	8.38	41.94	8.48	NA	NA
Valero Energy	VLO	-0.33	-8.23	65.10	23.13	41.07	7.61	27.80	11.67
Tesoro	TSO	7.51	-0.39	65.82	23.85	38.34	4.88	16.85	0.72
Chesapeake Energy	CHK	-7.74	-15.64	29.99	-11.98	35.76	2.30	1.07	-15.05
Occidental Petroleum	OXY	24.27	16.37	34.68	-7.29	32.95	-0.51	19.37	3.24
Cabot Oil & Gas	COG	34.90	27.00	46.36	4.39	31.15	-2.32	18.97	2.84
Sunoco	SUN	-19.43	-27.33	36.58	-5.39	29.86	-3.60	20.78	4.65
Devon Energy	DVN	8.06	0.16	33.67	-8.30	28.96	-4.50	15.07	-1.05
St. Mary Land & Exploration	SM	0.33	-7.57	37.66	-4.31	28.74	-4.72	20.09	3.96
EOG Resources	EOG	-14.62	-22.52	39.82	-2.15	26.63	-6.83	17.89	1.76
Apache	APA	-2.29	-10.18	18.64	-23.33	23.66	-9.80	16.69	0.56
Noble Energy	NBL	22.47	14.57	30.83	-11.14	23.27	-10.19	7.95	-8.18
Newfield Exploration	NFX	-8.23	-16.13	27.31	-14.66	20.95	-12.51	13.46	-2.67
Pioneer Natural Resources	PXD	-22.10	-30.00	8.13	-33.84	15.95	-17.51	1.02	-15.10
Pogo Producing	PPP	-2.15	-10.05	0.64	-41.33	13.59	-19.88	0.75	-15.38
Forest Oil	FST	7.07	-0.83	19.53	-22.44	11.58	-21.88	3.30	-12.82
Anadarko Petroleum	APC	-7.45	-15.35	20.51	-21.46	9.80	-23.66	11.13	-4.99
Dynegy CI A	DYN	49.59	41.69	19.15	-22.82	-22.08	-55.54	-7.78	-23.91
Plains Exploration & Production	PXP	19.63	11.73	45.63	3.66	NA	NA	NA	NA
Cimarex Energy	XEC	-14.80	-22.70	11.15	-30.82	NA	NA	NA	NA
Industry Group Average		7.90		41.97		33.46		16.12	

Source: The Wall Street Journal, PPHB

## Jack Welch Creates Global Warming Controversy

The man credited with building the General Electric Company (GE-NYSE) into a global industrial powerhouse and recognized for his management acumen, Jack Welch is no stranger to controversy.

**The Welches wrote that they “tend to have a ‘not so fast’ attitude when any controversial topic forms part of a juggernaut of a political party’s agenda”**

Since leaving GE under a cloud of controversy due to his lucrative retirement deal with its numerous perks chronicled by his high-profile divorce, Mr. Welch and his new wife, Suzy, have been writing books and a column for *Business Week*. In the February 26<sup>th</sup> issue of the magazine, the Welches tackled a controversial subject that seems to be creating its own controversy. In their column, Jack and Suzy responded to a question from a reader about global climate change. The letter writer, Heidi Boncher of New York, said that since virtually every scientist agrees that global warming is destroying our planet, how can the Welches actually believe that the jury is still out on this subject?

The Welches wrote that they “tend to have a ‘not so fast’ attitude when any controversial topic forms part of a juggernaut of a political party’s agenda.” And they see that situation in the global warming debate. Unfortunately, they cited an article on the front page of *The New York Times* highlighting the ominous trends for the planet as spelled out in the latest summary report of the Intergovernmental Panel on Climate Change (IPCC). They then went on to point out an editorial in *The Wall Street Journal* that highlighted that the report’s underlying scientific findings were not as apocalyptic as believed. In fact, recent reports from people involved in writing several of the four portions of the report to be released later this year suggest that many of the claims and projections in the 2001 IPCC report have been toned down or possibly abandoned.

**Their conclusion about the global warming controversy from a corporate executive’s viewpoint should be to embrace the French philosopher Pascal’s Wager**

The Welches’ conclusion was actually an honest admission that most of us probably would agree with: “we simply don’t know.” What was most interesting about their column was their view of what the conclusion about the global warming controversy from a corporate executive’s viewpoint should be. They said the conclusion should embrace the French philosopher Pascal’s Wager. In 1670, Pascal, basically using game theory, argued that it was a better bet to believe in God because the expected value of believing is always greater than the expected value of not believing. Therefore, the Welches recommended that corporate executives should make that wager.

**“Given all the possible outcomes, the upside of being ready and prepared for a ‘fearsome event’ surely beats the alternative”**

They wrote. “If you accept it [global warming] as reality, adapting your strategy and practices, your plants will use less energy and emit fewer effluents. Your packaging will be more biodegradable, and your new products will be able to capture any markets created by severe weather effects. Yes, global warming may not be as damaging as some predict, and you might have invested more than you needed, but its just as Pascal said: Given all the possible outcomes, the upside of being ready and prepared for a ‘fearsome event’ surely beats the alternative.”

A few weeks later, the Welches were taken to task by a series of letters to the editor of *Business Week* that challenged them over their belief that global warming is a possibly unsettled issue. As one writer put it, “Jack, this debate is over, and the scientists have won. There is no other side, there is no other hand, there is no more time

**I doubt these professors would want their pension fund investments run for performance geared for centuries not years**

for fence-sitting and prevarication.” And another writer made the following point, “If they were to talk to actual climate scientists, however, and avoid the spin doctors trying to overlay their agendas onto media interpretations of the science, they would come away understanding that the case for a human fingerprint on climate change is close to airtight.”

A third letter, written by two professors of chemistry at Calvin College in Grand Rapids, Michigan, discussed the validity of the IPCC report. They took to task the Welches’ use of the editorial from *The Wall Street Journal* and suggested that businessmen needed to change their thinking. They wrote, “To equate hundreds of scientific studies with an opinion piece in *The Wall Street Journal* indicates that we have truly entered an age where truth is relative. We need to change our way of thinking from short-term, bottom-line models to one that spans decades or even centuries and that takes the needs of both human and nonhuman communities, present and future, into account.” We were amused by the statement since I doubt these professors would want their pension fund investments run for performance geared for centuries not years. Moreover, the professors fail to acknowledge the analysis prepared by the head of the Statistics section of the Academy of Social Science that found the peer reviewed articles were totally entwined by co-authors of sister articles and many of these peer reviewers were preparers of the data upon which the articles they were reviewing were based.

Several months ago, even before the release of the IPCC report and the public debate flare-up over global warming, a column in *The Financial Times* discussed how the “green lobby” must be treated as a religion. The columnist, John Kay, discussed the anthropological evolution of similar myths by different cultures. He pointed to the deep-seated need for humans to deal with the myths of the Fall from Grace and the Apocalypse. The Christian religion describes how to deal with the temptation of Adam and Eve (Fall from Grace) and warns of the Last Judgment (Apocalypse).

**Environmentalism embraces a myth of the Fall from Grace: the loss of harmony between man and nature caused by our materialistic society, which is preached by Al Gore**

According to the writer, environmentalism now fulfills for many people the longing for simple, all-encompassing narratives, or myths, to explain phenomenon beyond the human mind’s capacity to grasp. Environmentalism offers an alternative account of the natural world to the religious explanation and it provides an alternative anti-capitalist account of the political world to the Marxist theory. Environmentalism embraces a myth of the Fall from Grace: the loss of harmony between man and nature caused by our materialistic society, which is preached by Al Gore. Mr. Gore’s documentary, [An Inconvenient Truth](#), recounts the words of Chief Seattle, as his tribe relinquishes its ancient lands: “Will you teach your children what we have taught our children? That the earth is our mother?”

We have no knowledge whether these words were actually spoken, or whether the dialogue is merely a scriptwriter’s fantasy. Myths are literature, not history or science, and as such their educational value does not depend on their literal truth.

**For the environmentalists, the growth of our modern industrial economy provides the link between the sins of our past and the catastrophe of our future, unless we act to redeem ourselves**

The greater challenge for the Apocalypse myth depends upon the view that our sins have damaged our inheritance and, although almost too late, immediate reform can transform our future. So just as Christians look to the Second Coming with a mixture of fear and longing, Marxists looked for the collapse of capitalism in the same way. For a long time, environmentalism was missing a persuasive Apocalypse myth. The discovery of global warming filled the gap in its canon. Environmentalists attach significant importance to the assertion that the planet is warming up, but even more to the belief that humans are the cause. The first assertion is true, but the second is less certain. But for the environmentalists, the growth of our modern industrial economy provides the link between the sins of our past and the catastrophe of our future, unless we act to redeem ourselves.

**Most of the environmental initiatives that have been, and are being, initiated all have significant commercial lobbies behind them**

The writer of the column went on to point out that business leaders do not have to believe in the doctrines of the environmental movement. But companies must respect the belief systems of the countries in which they operate. Moreover, they must acknowledge both the constraints and commercial opportunities that arise from these belief systems. Most of the environmental initiatives that have been, and are being, initiated all have significant commercial lobbies behind them. Businesses must be careful that environmentalism's rituals and rhetoric take the place of substance and send them off on destructive rather than constructive paths.

The natural cautiousness of Jack and Suzy Welch, coupled with their strategic advice for businessmen, truly reflects an astute dissection of the impact of these two forces. We doubt Jack Welch is concerned with the religious fever of the letter writers, because business decisions need to reflect restrained emotion. The debate over the course of action that society should embark on to deal with the global warming issue is far from over even though environmentalists would like it to be. Businessmen need to assess the risk of being on the wrong side of this debate in running their companies, but that doesn't mean they can't enter the debate with a high degree of skepticism.

## **New Strategy for Attacking Greenhouse Gas Emissions**

**The recent decision by two leading environmental groups to support the private equity buyout of TXU may mark a new strategy in the battle over global warming and how best to cure it**

The recent decision by two leading environmental groups to support the private equity buyout of TXU (TCU-NYSE) in return for the promise of the proposed new owners to scrap plans to construct eight of 11 new coal-fired power plants may mark a new strategy in the battle over global warming and how best to cure it. The new strategy has been copied by other agreements between environmental groups and corporations securing climate friendly new business arrangements. A more interesting development is the Canadian strategy to attack greenhouse gas emissions.

Last week, a report prepared by two environmental groups utilizing data reported to Environment Canada showed that the province of

**Alberta's industry generated 40% of the country's emissions**

Alberta is Canada's leading source of greenhouse gas emissions. Alberta's industry generated 40% of the country's emissions, followed by the provinces of Ontario, at 28%, and Saskatchewan, at 8%. Alberta is the leader for two reasons – oil sands developments and coal-fired power plants.

The study was conducted by Environmental Defense and the Canadian Environmental Law Association and used the emissions data from Environment Canada for 2005 that is required to be supplied by all major companies in Canada. Alberta has seven of the 10 biggest polluters in Canada. Besides the oil sands plants operated by Syncrude Canada Ltd. and Suncor Energy Inc. (SU-NYSE), the province has five coal-fired power plants that rank among the top 10 polluting power plants in the country.

**Environmentalists believe that it would be easier for governments to pass regulations controlling pollution from a handful of major companies than to convince millions of motorists to drive less or purchase more fuel-efficient cars**

Ontario has two coal-fired power plants – the number one and five ranked plants in terms of emissions. Saskatchewan also has a number of power plants that are coal-powered, which accounts for its third-place ranking. But what is most interesting in Canada is that environmentalists are targeting industry-generated emissions because they account for about half of all greenhouse-gas emissions in Canada. The environmentalists believe that it would be easier for governments to pass regulations controlling pollution from a handful of major companies than to convince millions of motorists to drive less or purchase more fuel-efficient cars.

The strategy, as explained by Fe de Leon, a researcher at the Canadian Environmental Law Association, "If you deal with the biggest emitters first, I think you would deal with a significant portion of the problem." The only problem with this strategy is that it needs to be directed at specific companies that can reasonably be expected to comply. The compliance systems or technologies needs to be available if progress is going to be made.

**The legislation Mr. Blair has proposed would require future UK government ministers to set five-year carbon budgets stipulating the proposed reduction and the means to achieve it**

In contrast to the Canadian approach, and possibly the approach of the environmental movement in the United States, is the recently announced proposal by British Prime Minister Tony Blair. It seems Mr. Blair, who has already struck up a friendship and working relationship with California Governor Arnold Schwarzenegger, is trying to outdo his friend as the leading government proponent for emissions control. The legislation Mr. Blair has proposed would require future UK government ministers to set five-year carbon budgets stipulating the proposed reduction and the means to achieve it. This would be part of the mechanism to meet the bill's goal of cutting Britain's carbon emissions by 60% from 1990 levels by 2050. That goes well beyond the EU's proposed 20% reduction by 2020.

At the same time Mr. Blair was proposing his bill, British Airways plc (BAB-NYSE) was disclosing the failure of its carbon offset scheme. The scheme was launched a year ago and offered BA customers the chance to mitigate the impact of their air travel by voluntarily purchasing carbon offsets. Under the program, BA would use the

**The carbon price is still only half the level at which firms might consider it worthwhile to invest in cutting-edge carbon capture and sequestration technology**

customer money to invest in carbon mitigation schemes such as planting trees. Over the past year, the money paid by customers has enabled the company to offset 1,600 tons of carbon dioxide, which is equal to the carbon emissions of three roundtrips between London and New York. However, it is hard to blame BA for the lack of interest of its customers.

Part of the problem is that the European carbon cap and trade scheme was established with too many credits issued and with too high a value. When it became evident that the credits were overvalued, their price crashed. The EU regulators are still trying to determine how best to establish the value of carbon credits. What they know now is that the carbon price is still only half the level at which firms might consider it worthwhile to invest in cutting-edge carbon capture and sequestration technology. In the UK, the profit margin on a kilowatt of traditional coal-fired electricity is still very attractive, even after paying for the carbon permit.

**Being present at the creation is the single best guarantee for financial success**

The European experience with cap and trade is behind the drive by U.S. companies to be involved in and supportive of that scheme for regulating carbon emissions in this country. Since no one knows exactly how, or when, a system will be established; having a seat at the table with those who will help establish the system and value the credits makes it imperative that companies become early endorsers of it. The realization that the global warming momentum behind a carbon cap and trade system is building means managers must look at the system from the viewpoint of protecting their companies from having their economics decimated, or trying to figure out how to turn it into a benefit or profit center. Being present at the creation is the single best guarantee for financial success.

## **OPEC Challenges Non-OPEC Oil Supplies**

**OPEC members have 100 projects under way with an estimated cost greater than \$100 billion**

At last week's meeting in Vienna, Austria of the members of the Organization of Petroleum Exporting Countries (OPEC), President Mohammed al-Hamli, who is also the oil minister for the United Arab Emirates, announced that members are actively working to boost their production capacity. According to al-Hamli, the members have 100 projects under way with an estimated cost greater than \$100 billion that would boost OPEC's crude oil productive capacity to over 38 million barrels per day (b/d) by 2010. Over 50% of the investment will be in Nigeria and Saudi Arabia.

At the present time, the OPEC 10 members have a productive capacity of 30.1 million b/d while total OPEC capacity is 34.1 million b/d, including Iraq and Angola. It was unclear from the comments made at the OPEC press conference to which base figure the increase should be applied, but we are assuming the total OPEC number. That would imply a total increase of over 4 million b/d, plus we have seen other forecasts that also call for OPEC's natural gas liquids to increase by over 2 million b/d during this forecast period.

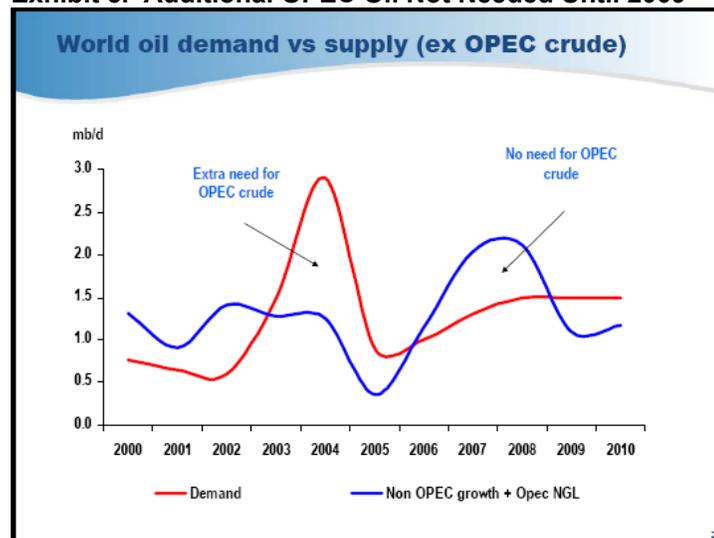
**Is the investment announcement also a signal that the members are starting to confront declining production with efforts designed to sustain it, but presented their efforts as designed to boost capacity?**

**By signaling how much incremental production would come from OPEC members are they trying to get non-OPEC countries to deter investment in new projects?**

We found the OPEC statement quite interesting both for what it said and what it implied. The supposed step up in OPEC member oil production capacity investment suggests that the organization is highly sensitive to charges it might be trying to manipulate prices by leaving the world guessing from where and when new oil supplies will arrive. We also wondered if the investment announcement is also a signal that the members are starting to confront declining production with efforts designed to sustain it, but presented their efforts as designed to boost capacity.

On the other hand, the potential increase in OPEC's production capacity by 2010, a short four years away, would seem to put downward pressure on crude oil prices – or at least high futures prices that signal investor concerns about long-term oil supplies. Or could it be that OPEC is worried about the sharp ramp-up in non-OPEC production forecasts by Cambridge Energy Research Associates (CERA) and *Petroleum Review* magazine? By signaling how much incremental production would come from OPEC members at presumably lower costs (\$5,700 to \$15,000 per daily barrel with an average cost of \$9,500) than non-OPEC oil, might OPEC members be trying to get non-OPEC countries to deter investment in new projects?

#### Exhibit 5. Additional OPEC Oil Not Needed Until 2009



Source: OPEC Medium Term Outlook, Nov. 2006

**It is only in 2009 and thereafter that OPEC foresees a need to supply incremental oil to the global market**

In the March monthly review and forecast of petroleum markets released by OPEC, it is looking for an increase in non-OPEC production of 1.18 million b/d in 2007. That represents almost all the projected increase in demand (+1.3 million b/d). In the Medium Term OPEC Outlook for oil supply and demand, the organization expects non-OPEC oil supply growth in 2007 and 2008 to eliminate any need for additional oil from OPEC. It is only in 2009 and thereafter that OPEC foresees a need to supply incremental oil to the global market, assuming its estimate of annual global oil demand proves correct.

Our reaction to President al-Hamli's comments is similar to the childhood taunts of "my father can beat up your father." In this case it seems to be, OPEC's production growth will be bigger than non-OPEC's, so don't mess with OPEC.

## OPEC Worries Over Alternative Fuel Market

**OPEC commented how Asia is following the U.S. lead in expanding its biofuel industry**

The March Monthly Oil Report issued March 15 by OPEC has a brief commentary about alternative fuel markets. The discussion focused on the fact that three new biodiesel plants with a capacity of 1.05 million tons of output (21,000 b/d) will be commissioned this year in Indonesia. OPEC commented how Asia is following the U.S. lead in expanding its biofuel industry, but that the expansion is having a negative affect on grain prices and is negatively impacting the environment worldwide. We believe that OPEC is referring to the ecological damages in Brazil and Indonesia. In addition, OPEC points out that the biofuel industry is facing financial problems caused by declining oil prices and a worldwide increase in feedstock prices. They further note that starting in April 2008 the UK will mandate minimum biofuel sales of at least 2.5% of oil companies' sales. And in Germany, they highlighted, the fall in diesel prices has so far reduced biodiesel consumption this year by almost 30%, as biofuel tax incentives lost their advantage over petroleum fuels.

**OPEC's focus on biofuels reflects the organization's unstated fear that this fuel could minimize, or possibly even eliminate, the growth in overall petroleum transportation-related fuel demand, which remains the backbone of global oil demand growth and OPEC's future**

We have noticed an increased focus by OPEC on the growth of the biofuel market, which it currently estimates at 0.8 million b/d. While the increments are still small, such as the three Indonesian plants, OPEC recognizes that drips can eventually become torrents. This attention on biofuels reflects the organization's unstated fear that this fuel could minimize, or possibly even eliminate, the growth in overall petroleum transportation-related fuel demand, which remains the backbone of global oil demand growth and OPEC's future. We believe you should expect to hear more comments and observations from OPEC about the health of the biofuel market. And in addition, you should expect increased visibility of the biofuel market's outlook for growth included in OPEC's medium- and long-term oil market outlook projections.

## Halliburton Forsaking Houston?

**Halliburton's CEO Dave Lesar announced that the company was setting up its corporate office in Dubai and he was going to be based there**

A week ago last Sunday, the Houston and national media was buzzing following the announcement by Halliburton's (HAL-NYSE) CEO Dave Lesar that the company was setting up its corporate office in Dubai and he was going to be based there. Many people in Houston didn't do the: Where's Dubai? Nor did they do the: Why Dubai? Energy people living here have a pretty good idea both where Dubai is – and not because Michael Jackson spent some time in exile there – and the fact that it sits at the hub of the shifting locus of global energy resources and future oilfield activity.

The national East Coast media, along with many Democratic

**The national East Coast media, along with many Democratic politicians, had a field day dreaming up schemes behind the move**

politicians, had a field day dreaming up schemes behind the move. According to the media, Halliburton was trying to avoid the unseemly investigations by Washington of its performance under its no-bid military contracts in Iraq. They were hoping to avoid any prosecution coming from these investigations. They also thought the company was seeking to avoid paying corporate income taxes by moving, which they took as a personal affront to the men and women of the military in the Middle East. At the end of the day, however, it became more and more apparent that they were afraid they wouldn't have Halliburton to kick around anymore.

As more details came out about the move and more sane analysts had time to contemplate the step, it became increasingly clear that this was a business-driven move.

The type of office Halliburton is planning on establishing will more closely resemble the headquarters office it maintained in Dallas for many years following the acquisition of Houston-based, Brown & Root. An explanation for the Dallas location is that it was equidistant between Halliburton's headquarters in Duncan, Oklahoma and Houston, Texas. In those days, when I initially started researching the company, the corporate headquarters office was located in the Southland Center and consisted of about five senior officers with a handful of secretaries. (I must admit, those ladies had the largest hairdos I had ever seen.) This was an office for bankers, security analysts and visiting oil industry leaders to call on Halliburton executives, but the real work of the company was performed in the field and at the various divisional operating and manufacturing centers. We suspect the Dubai office will fulfill much of the former role, but its location reflects how the global oil patch has evolved.

**The new office is located in the same time zone, or close to neighboring time zones, as its growing business activity**

The other thing about this new office is that it is located in the same time zone, or close to neighboring time zones, as its growing business activity. Based on discussions with a senior Halliburton executive, he commented on how being tied to a Blackberry device keeps him on call 24/7. As he described it, he finishes up his work and emails here in Houston on Friday evening, only to be deluged by emails from the Middle East beginning on Saturday morning as its work week starts up. By the time the Halliburton exec gets issues resolved and things running smoothly, it's Sunday evening and Australia is starting to go to work. As North American activity slowly becomes less important as a driver for the company's future earnings growth, operational responsibilities here can be more easily delegated to subordinates, which would not only ease the exec's work load as he shifts off the 24/7 schedule, but also provide him more time to strategize about future business initiatives.

Another aspect of locating corporate headquarters out of the U.S. is tied to the impact of Homeland Security and the changing oil industry labor force composition. Again, this executive mentioned welcoming a class of new engineers to the company's training center here, only to find out that one of them from the Middle East had undergone six hours of detention at U.S. immigration upon his

**Houston just wasn't big enough to hold the CEOs of the three largest oilfield service companies**

arrival at Houston. He commented that this was a wakeup call to the fact that the company (and industry) may need to rethink where it conducts training classes.

One personal reaction to the Halliburton announcement was driven by our remembering that at the end of last year, Schlumberger (SLB-NYSE) moved its U.S. headquarters from New York City to Houston. So we couldn't help wondering if Houston just wasn't big enough to hold the CEOs of the three largest oilfield service companies. In reality, though, with the Eastern Hemisphere becoming a much more important factor in global energy supplies, we doubt Halliburton will be the last company to establish a high visibility presence in the region.

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