

MUSINGS FROM THE OIL PATCH

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Allen Brooks
Managing Director

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

A Natural Gas Bull Takes on the Bears

Mark Papa sees higher gas demand, higher gas prices and higher finding and development costs

Mark Papa, the highly successful leader of EOG Resources, Inc. (EOG-NYSE), recently spoke to a combined luncheon meeting of the Houston chapters of the Independent Petroleum Association of America (IPAA) and the Texas Independent Producers and Royalty Organization (TIPRO) about his view of the health of the natural gas market. Mr. Papa is a natural gas bull. He sees higher gas demand, higher gas prices and higher finding and development costs. In presenting his bullish case, he took on the natural gas bears residing on Wall Street who see lower prices and less attractive opportunities for exploration and production and oilfield service companies in the future. Who's right? Tune in next year.

The natural gas market has become even more weather sensitive than it has been, meaning that gas prices will be more volatile going forward than they have been in the past

The bullish case laid out by Mr. Papa is tied to his view that U.S. natural gas consumption has increased as a result of the growth in the number of new homes and commercial establishments heated by gas and cooled by electricity generated by newly constructed gas-fired power plants. Due to this demand growth, Mr. Papa points out that the natural gas market has become even more weather sensitive than it has been, meaning that gas prices will be more volatile going forward than they have been in the past. The final point in his thesis is that domestic natural gas production is not growing, contrary to the view of the gas bears. He believes producers are struggling to sustain existing gas production. Developing new gas reserves is driving, and will continue to drive, finding and development costs up, necessitating a new, higher plateau for domestic gas prices in his opinion.

The bears on the domestic gas outlook base their view on the growing stream of new production coming largely from the highly

As gas prices fall, aggressive producers, who have very little margin for error with their cash flows, will be forced to shut down drilling and development activity

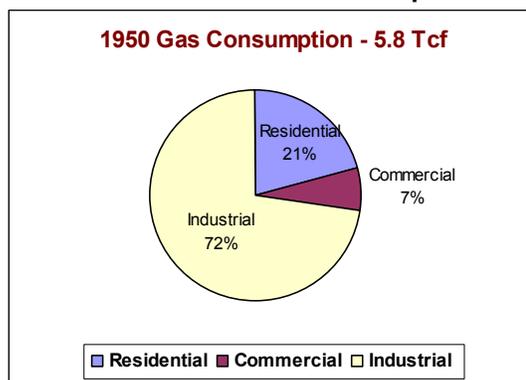
active non-conventional gas areas. Growing production is about to run headlong into the high level of gas in storage at the end of this heating season and the sharp increase in liquefied natural gas (LNG) imports due to a warm winter in Europe. These conditions will combine in a perfect storm and driving natural gas prices down according to the bears. As gas prices fall, aggressive producers, who have very little margin for error with their cash flows, will be forced to shut down drilling and development activity. When that happens, the oilfield service companies, who are in the midst of expanding their capacities, will lose all pricing power and, in fact, will begin competing on price for future work, destroying their profit margins. The outlook for lower earnings will depress service company stock prices. Á la, a bear market in energy stocks.

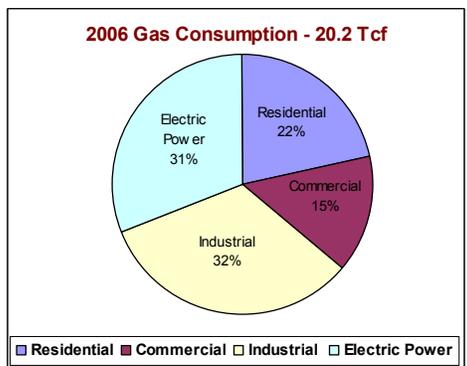
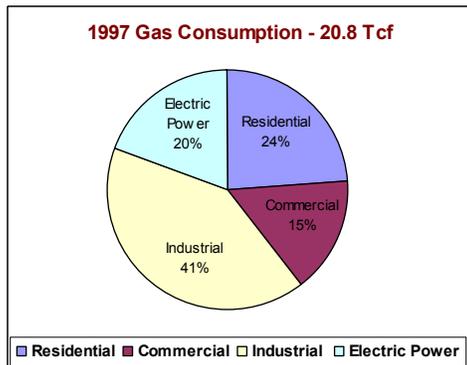
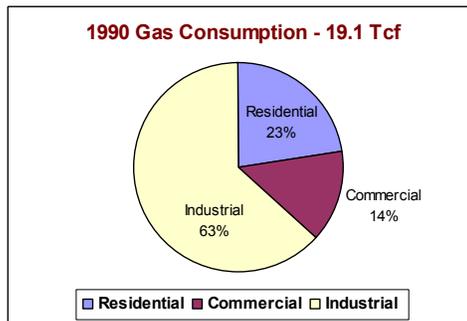
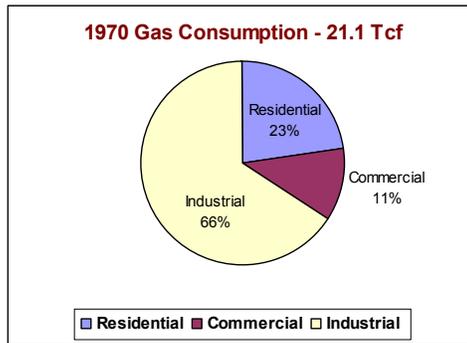
While the battle between the gas bulls and bears is much like the debate over the glass half full or half empty, we thought it would be interesting to look more deeply into the state of the gas market. We have heard the arguments on both sides of this issue in the past, so there is not a lot new, other than the data. The only problem with the data is that it often changes in presentation form over time. For example, we thought it would be interesting to look at the evolution of natural gas consumption in the United States over time, in order to better understand where we are currently. In some ways the data undercuts Mark Papa's thesis about the growth in natural gas demand.

Residential, commercial, industrial and electric power generation market shares have not changed materially over the past 56-years

We took the gas consumption data from the U.S. Energy Information Administration's (EIA) web site, but found that the reporting categories changed in 1997 as the agency decided to present information with greater granularity. However, when we look at the domestic gas market from 1950 to 2006 by broad category of consumer – residential, commercial, industrial and electric power generation – we find that sector shares have not changed materially over the 56-year period. The only real change has been that gas for electric power generation has grown at the expense of industrial demand. In recent years, some industrial demand has been shifted to the electrical generation category since the power is used to run industrial plants.

Exhibit 1. Share of Gas Consumption 1950-2006



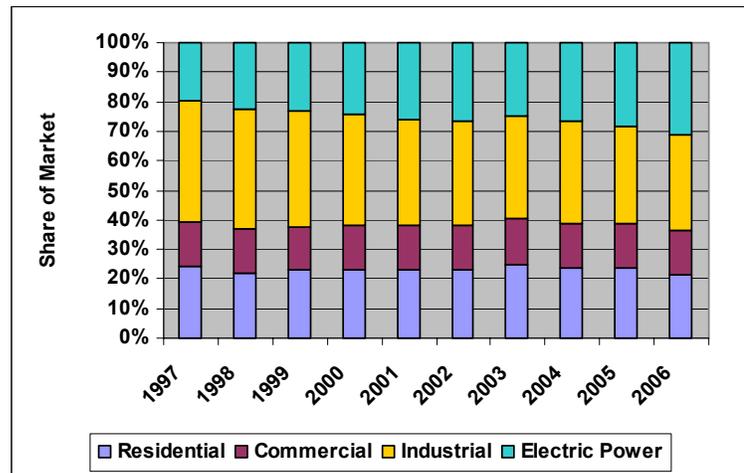


Source: EIA, PPHB

The major change has been in the electric power and industrial sector, where the combined share has declined from 72% in 1950 to 63% in 2006

Over the 56-year period, there has been about a fourfold increase in the size of the domestic gas market, but the residential share has barely budged – moving from 21% in 1950 to 22% in 2006. Clearly, the volume of gas going to residential customers has multiplied, but the share has been static. The commercial share has more than doubled from 7% to 15%. The major change has been in the electric power and industrial sector, where the combined share has declined from 72% in 1950 to 63% in 2006. Within that broad category there has been a marked shift as industrial demand for gas has fallen, in keeping with the erosion of the U.S. basic industry base, only to be offset by increased gas to power electric generating facilities.

Exhibit 2. Consumption Shares Remarkably Stable



Source: EIA, PPHB

More telling about the demand picture is the split among sectors over the 10-year period spanning 1997 to 2006. Between the start and end of that period, the market for domestic gas actually declined slightly from 20.8 trillion cubic feet (Tcf) to 20.2 Tcf, which may have been due to the warm winter weather. The share of the market represented by commercial demand was unchanged over this period at 15%, but residential demand declined from 24% to 22%. The big change over the period was the shrinking of industrial’s share from 41% to 32%, while electric power consumption’s share expanded from 20% to 31%. It is interesting to observe that the shifts within the industrial sector occurred steadily during the period. The residential and commercial shares were essentially stable.

Electric power has become a more important driver for gas demand because it is tied closely to the air conditioning market, giving the gas business a second demand peak during the year

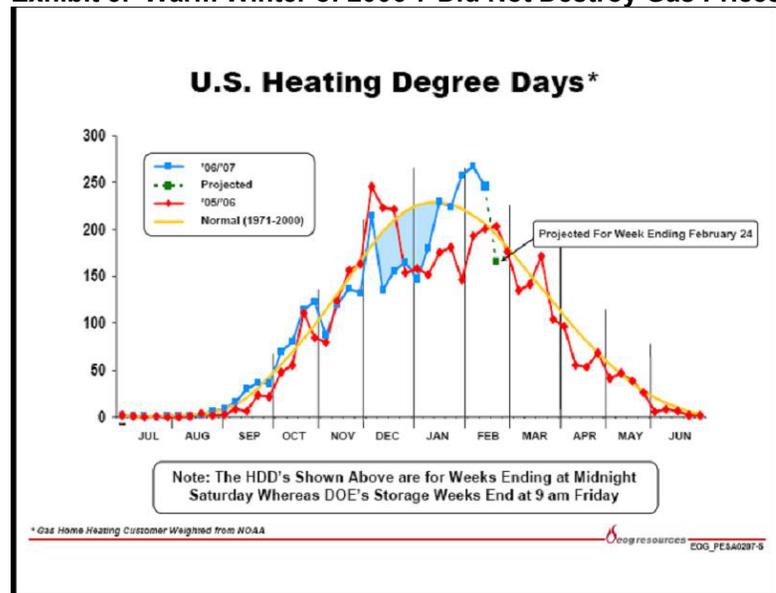
While on the surface it would appear that the sector share data has undercut Mark Papa’s thesis, the reality is that the growth of the electric power generation share of the gas market is the more important dynamic. Electric power has become a more important driver for gas demand because it is tied closely to the air-conditioning market, giving gas a second demand peak during the year. In addition, there is some electric power demand associated with heating residences and commercial establishments. The decline in gas consumption in the industrial sector reflects the shift

The early cold snaps in December of both 2005 and 2006, buoyed gas producers' spirits, only to be dashed by warm weather

of the underlying forces impacting economic activity in the United States and thereby cementing the view that gas demand is increasingly becoming more weather-sensitive and less economically-sensitive.

To emphasize the impact of the increased sensitivity of gas markets to weather, Mr. Papa showed a chart of heating degree days during the past two winters compared to the long-term pattern for the winter months during 1971-2000. He used a chart to demonstrate that the early cold snaps in December of both 2005 and 2006, buoyed gas producers' spirits. Unfortunately, those cold periods were followed by unseasonably warm spells. In the case of the winter of 2005-6, the warm weather persisted throughout most of that winter season, only becoming cold again in mid-February and returning back to the historic demand line. The winter of 2006-7 experienced the same early cold and then warm weather, but this time the warm spell ended in mid January and was followed by abnormally cold weather at the end of January and early February. While not shown on this chart (Exhibit 3), abnormally cold weather was also experienced in March and early April, which has contributed to the recent strengthening in natural gas prices.

Exhibit 3. Warm Winter of 2006-7 Did Not Destroy Gas Prices

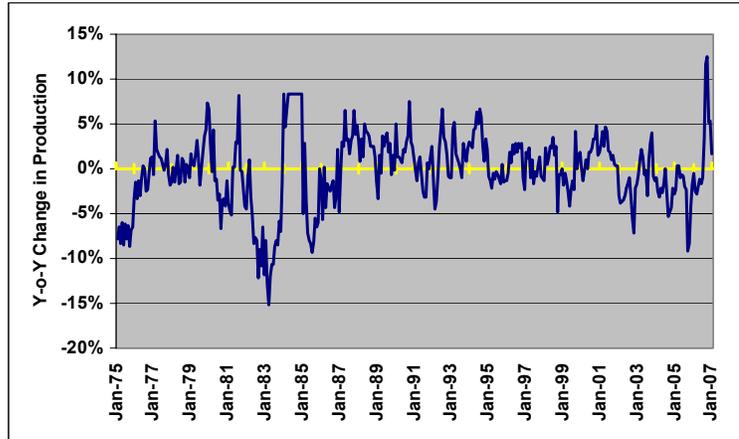


Source: EOG Resources, Inc.

The natural gas bears rest much of their case on the analysis of the recent trend in domestic gas production

The natural gas bears rest much of their case on the analysis of the recent trend in domestic gas production. They believe, in response to the upturn in natural gas-oriented drilling and the heavy emphasis on developing un-conventional gas resources, that domestic gas supplies are growing rather than falling as has been the case for most of the prior five years. This is most clearly shown by the monthly year-over-year change plotted for the past 31 years.

Exhibit 4. Gas Production Has Turned Positive Recently



Source: EIA, PPHB

However, when you look more closely at the record of monthly year over year changes in gas production for the past two years, the trend, with the exception of the impact of the hurricane impacted

Exhibit 5. Production Growth: Up or Down?

Date	Marketed Production per Day (Bcf/d)	Year-over-year change in production
Jan-2005	52.79	-2.3%
Feb-2005	53.67	0.3%
Mar-2005	54.55	0.3%
Apr-2005	53.78	-1.0%
May-2005	52.98	-0.7%
Jun-2005	53.52	-0.8%
Jul-2005	52.79	-1.9%
Aug-2005	52.13	-2.3%
Sep-2005	46.98	-9.1%
Oct-2005	47.94	-8.3%
Nov-2005	50.50	-4.3%
Dec-2005	51.50	-1.9%
Jan-2006	52.50	-0.6%
Feb-2006	52.33	-2.5%
Mar-2006	52.98	-2.9%
Apr-2006	52.72	-2.0%
May-2006	52.39	-1.1%
Jun-2006	52.64	-1.6%
Jul-2006	52.25	-1.0%
Aug-2006	53.97	3.5%
Sep-2006	52.47	11.7%
Oct-2006	53.93	12.5%
Nov-2006	53.12	5.2%
Dec-2006	54.26	5.4%
Jan-2007	53.37	1.7%

Source: EIA, PPHB

For the past six months, the year-over-year production change has been positive

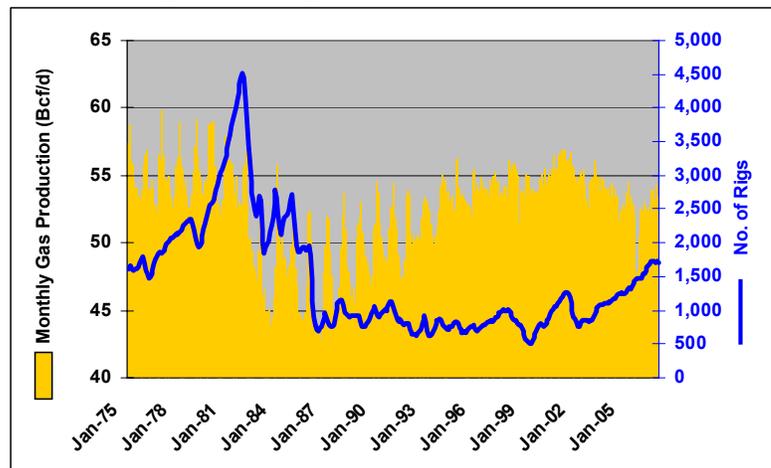
The January production growth number of 1.7% reflects a substantially slower increase and may signal that the decline dynamic is being re-established

months of September through November 2005, has shown steady improvement. In fact, for the past six months, the year-over-year production change has been positive. This period, coupled with the prior three-month period beginning in May that showed only a marginal decline, would suggest that the industry is making significant progress in reversing the long-term downward trend in domestic gas production.

While Mr. Papa acknowledged that recent months have shown positive comparisons versus the prior year, he pointed to the most recent (January) production data released by the EIA. He seized upon the January production growth number (+1.7%), which reflects a substantially slower increase than any of the prior five monthly totals, as a sign that the production momentum has shifted and the decline dynamic is being re-established.

We thought we would look at the gas drilling situation in a little more depth to see what we could learn. A chart of natural gas production in the United States, plotted against the Baker Hughes domestic rig count for the past 31 years, shows a very interesting pattern – both for historic production and drilling activity. We must acknowledge that the rig count includes rigs drilling both for oil and gas, so its relevancy to gas production is not absolute. The message of this chart is that the very high drilling activity in the late 1970s supported a high level of gas production – higher than we are producing today.

Exhibit 6. Higher Drilling Needed to Sustain Gas Production



Source: EIA, PPHB

It is taking more drilling to get similar gas production compared to the effort needed in earlier periods

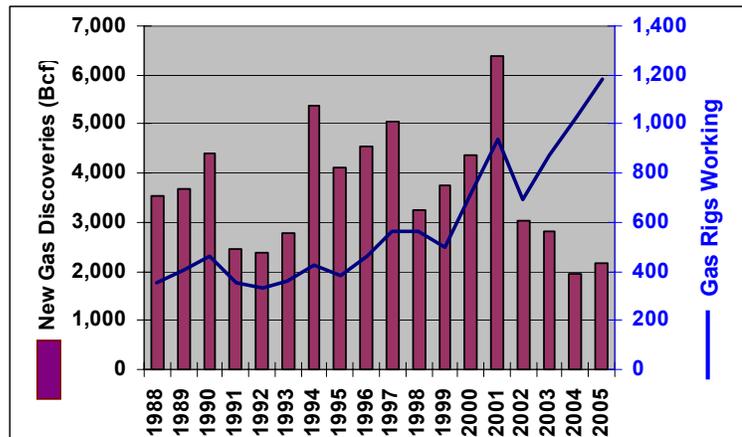
Interestingly, the extended period of flat drilling activity from the late 1980s until about 2000 still allowed producers to boost production almost back to the peak levels achieved in the late 1970s. Since the drilling downturn in 2002, the climb in drilling activity has been met with falling gas production results. This has underpinned the mantra of gas producers over the past few years that it is taking more drilling to get similar gas production compared to the effort needed in earlier periods.

The significant seasonal spikes in production, experienced up until the early 1990s, have been replaced by almost steady monthly production

The last observation we would make about the chart is to point out how the significant seasonal spikes in production experienced up until the early 1990s have been replaced by almost steady monthly production. This more stable monthly gas production has been facilitated by the growth in natural gas storage capacity that helps the system meet the seasonal heating demand peak. Additionally, cooling needs, met by gas-fired power plants, have helped boost gas demand during the traditionally weak summer months, resulting in the creation of a more stable monthly gas demand profile during the course of a year.

Another indication of the challenge gas producers are having in meeting production needs is to consider the amount of new gas discovered as a result of gas-oriented drilling. While annual gas volumes fluctuated from the late 1980s through the 1990s, gas-oriented drilling was fairly stable until the latter few years of the 1990s. After a great year for new gas discoveries in 2001, in response to a high level of gas-oriented drilling, the two lines diverged dramatically during 2002 through 2005. The lines on the chart would suggest that the more the industry drilled for natural gas in those years, the less it found each year.

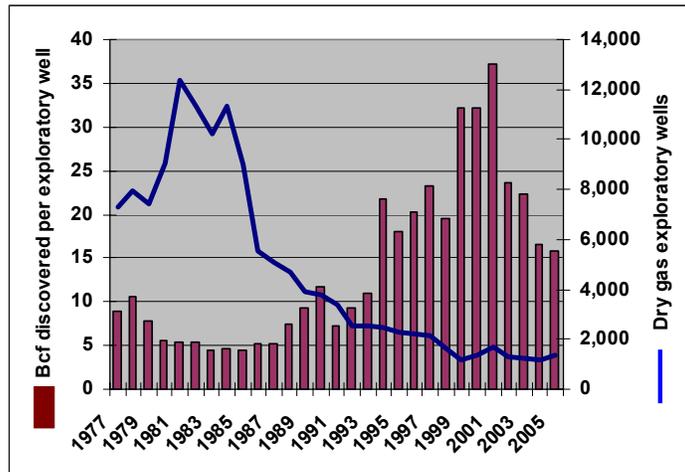
Exhibit 7. More Rigs Working, But Less Gas



Source: EIA, PPHB

It will be very interesting to see the reserves discovered per well in 2006, since the number of gas exploratory wells jumped by 49% over 2005

In contrast to that trend, if we look at drilling productivity for the industry, it is clear that, even though it has not found as much gas per exploratory well drilled since 2001, there has been an improvement in well productivity. That improvement, which became evident starting in 1994 reflects the increased use of 3-D seismic, improved well stimulation techniques and more horizontal drilling. It will be very interesting to see what reserves are discovered per well drilled in 2006, since the number of gas exploratory wells jumped by 49% over 2005. Has the industry's well productivity remained stable, improved or deteriorated? The answer to that question will help determine whether the growth in year over year production is sustainable or not.

Exhibit 8. Will More Exploratory Wells Boost Discoveries?

Source: EIA, PPHB

What role is the national effort to expand our corn crop to meet the increased demand for ethanol boosting gas consumption associated with fertilizer production?

So the battle between the bulls and the bears will continue. The primary influencing factor appears to be the weather. This is likely to make gas prices more volatile. Whether gas demand will grow, shrink or remain stable will depend both on the weather and the economy. On the other hand, will our domestic gas supply grow? Or is it merely experiencing a near-term surge? What role is the national effort to expand our corn crop to meet the increased demand for ethanol boosting gas consumption associated with fertilizer production? Or will we merely continue to import fertilizer?

Many questions; but few answers – at the moment. The issue of gas supply may be the most important one because it could trump the demand issue, as long as Canada continues to deliver its volumes and Europe allows us to buy relatively cheap LNG. We will be watching for answers to these questions in the coming months.

2007 Hurricane Season Targeted As Dangerous

The new forecast looks for more hurricanes (9 versus 7) and more intense hurricanes (5 versus 3)

The most recent 2007 hurricane forecast from Professors Philip Klotzbach and William Gray at the Department of Atmospheric Science of Colorado State University calls for a more severe storm season than predicted in their December forecast. The April 3, 2007 forecast calls for 17 named storms, up from the 14 predicted in the team's December 2006 forecast. The new forecast also looks for more hurricanes (9 versus 7) and more intense hurricanes (5 versus 3). Both the prior and this latest forecast call for more storms in every category than the average experienced during the 50-year period from 1950 to 2000. During that time there was an average of 9.6 tropical storms each year, with 5.9 becoming hurricanes and 2.3 being classified as intense hurricanes.

Exhibit 9. New Hurricane Forecast Calls for More Storms

	Average							12/8/06	4/3/07
	1950-2000	2001	2002	2003	2004	2005	2006	2007F	2007F
Named Storms (NS)	9.6	15	12	14	14	26	10	14	17
Named Storm Days (NSD)	49.1	63	54	71	90	116	53	70	85
Hurricanes (H)	5.9	9	4	7	9	14	5	7	9
Hurricane Days (HD)	24.5	27	11	32	46	48	10	35	40
Intense Hurricanes (IH)	2.3	4	2	3	6	7	2	3	5
Intense Hurricane Days (IHD)	5.0	5	3	17	22	17	2	8	11

Source: Professors Klotzbach and Gray, PPHB

The Colorado State University tropical storm forecasting efforts have been expanded in recent years to include attempting to develop a forecasting model to estimate the landfalling probabilities of storms at locations along the United States East and Gulf Coasts. This effort, done with the help of professionals from the GeoGraphics Laboratory of Bridgewater State College in Massachusetts, potentially could help residents, first responders and insurance companies to gauge the likelihood of tropical storms and hurricanes hitting various regions and coastal locations during the upcoming storm season. The greater the ability to accurately predict these landfall probabilities, the better prepared all involved parties will be to handle a storm and minimize the human and financial impact.

The Gulf Coast from the Florida peninsula to the city of Brownsville in South Texas probability is projected at 49%, compared to the 30% average experienced over the past century

Based on the results of the landfall model, the probability that a major hurricane, either a category 3, 4 or 5 hurricane, will hit somewhere along the entire U.S. coastline is forecast at 74%. This compares to the average for the last century of 52%. The probability of the U.S. East Coast, including the Florida peninsula, being hit is estimated at 50%, compared to the historic average of 31%. The Gulf Coast from the Florida peninsula to the city of Brownsville in South Texas probability is projected at 49%, compared to the 30% average experienced over the past century.

In preparing its forecast, the Colorado State University team is using a methodology perfected during its 24-year forecasting history that employs statistical techniques derived from the analysis of 55 years of past data and a separate study of analog years, which have similar precursor circulation features to the current season. The team prepared its early April forecast utilizing revamped statistical prediction techniques that employed fewer predictors and only used data for the two months prior to the forecast issue date. The early forecast model demonstrated reasonable hindcast skill for the period 1950-1995. They then used an updated data series that covered the period 1950-2001 and the forecast showed an improved hindcast skill and better physical insights into why such precursor relationships have an extended period memory.

Two of the three precursor data series included surface temperature data from areas off the coast of Spain and North Africa and another off the eastern coast of Argentina. They also used data on sea level pressures from an ocean region located in the South Pacific due west of Chile. All three of these data series were for the months of

February and March and all the data was available at the end of March. The combination of the three data series suggest an active hurricane season for 2007.

Exhibit 10. Analog Storm Years for 2007 Hurricane Forecast

Year	NS	NSD	H	HD	IH	IHD
1952	7	40	6	23	3	7
1964	12	71	6	43	6	15
1966	11	64	7	42	3	8
1995	19	121	11	62	5	12
2003	16	79	7	33	3	17
Mean	13	75	7	40	4	12
2007F	17	85	9	40	5	11

Source: Professors Klotzbach and Gray, PPHB

The forecasters believe that the 2007 hurricane season will experience activity slightly more than what was experienced in the average of the five analog years

The team of scientists also considered analog years in preparing its forecast. Based on the historic data, there are five years since 1949 with characteristics most similar to what the scientists observed in the February-March 2007 data and the characteristics that they expect to see in the August-October 2007 period. The best analog years were 1952, 1964, 1966, 1995 and 2003. The forecasters believe that the 2007 hurricane season will experience activity slightly more than what was experienced in the average of these five years.

The warm sea surface temperatures are likely to continue being present in the tropical waters of the Atlantic Ocean and the North Atlantic during 2007

The weak El Niño condition that rapidly developed during August to October 2006, and which was cited as the reason for the more moderate hurricane season last year, has now dissipated. The warm sea surface temperatures are likely to continue being present in the tropical waters of the Atlantic Ocean and the North Atlantic during 2007, due to the fact that we are in a positive phase of the Atlantic Multidecadal Oscillation (AMO). For these reasons, the Colorado State University team has boosted its earlier predictions for the number of storms this hurricane season and why it looks for the season to be more active than normal.

Professor Gray has reduced his role in the preparation phase of the hurricane forecast and is spending more time on climate issues and perfecting the landfall probability forecast model. In the tropical storm forecast report, there is a section devoted to the question of whether global warming is responsible for the increase in hurricane activity experienced during the past several years. The interest in this question is related to the landfall of four major hurricanes in 2005 (Dennis, Katrina, Rita and Wilma) and the four Florida landfalling hurricanes in 2004 (Charley, Frances, Ivan and Jeanne).

Despite the global warming of the sea surface that has taken place over the last three decades, the global numbers of hurricanes and their intensity have not shown increases in recent years, except for the Atlantic Basin, based on a study by Philip Klotzbach. He attributes the increased Atlantic Basin hurricane activity to the

naturally occurring AMO. The Atlantic Basin has seen a large increase in major hurricanes during the 12-year period of 1995-2006 (average of 3.9 per year) compared to the prior 25-year period of 1970-1994 (average of 1.5 per year). This large increase in Atlantic Basin hurricanes is primarily the result of the multidecadal increase in the Atlantic Ocean thermohaline circulation (THC) that is not directly related to global temperature increases or to human-induced greenhouse gas increases. Changes in ocean salinity are believed to be the principal force behind the THC, according to Prof. Klotzbach.

Exhibit 11. Global Warming Not Cause of More Hurricanes

Years	Named Storms	Hurricanes	Intense Hurricanes (Cat 3-4-5)	Global Temperature Increase
1900-1949 (50 Years)	189	101	39	
1956-2005 (50 Years)	165	83	34	+0.4°C

Source: Professors Klotzbach and Gray, PPHB

The data for the 15-year period 1990-2004 with an earlier 15-year period, 1950-1964, there was no observed difference in hurricane frequency or intensity even though the global surface temperatures were cooler and there was a general global cooling during the earlier period

Part of the evidence Prof. Klotzbach employs is a comparison of the current period with earlier periods in the 1940s and 1950s when the Atlantic Basin was just as active in terms of hurricanes. When he compared the data for the 15-year period 1990-2004 with an earlier 15-year period, 1950-1964, there was no observed difference in hurricane frequency or intensity even though the global surface temperatures were cooler and there was a general global cooling during the earlier period in contrast to the global warming during the recent period. Prof. Klotzbach's research also produced data showing that the number of named storms, hurricanes and intense hurricanes was slightly greater during the 50-year period of 1900-1949 compared to the 50-year period of 1956-2005, yet global temperatures were four-tenths of a degree Centigrade higher in the latter period.

The Colorado State University forecast team does not put too much emphasis on the two hurricane seasons of 2004-2005. They admit the activity was unusual, but it was well within the bounds of hurricane variation. They point out that after these two very active years, 2006 experienced slightly below-average activity and no hurricanes made landfall in the United States, marking only the 12th year since 1945 that we have experienced no U.S. hurricane landfalls.

Since 1945, there have been only two consecutive-year periods where there were no hurricane landfalls

Since 1945, there have been only two consecutive-year periods where there were no hurricane landfalls. The two consecutive seasons were 1981-1982 and 2000-2001. The lack of landfalls in the latter consecutive season period is impressive considering that both of these seasons experienced above-average hurricane activity. From Hurricane Irene in 1999 to Hurricane Lili in 2002, 21

Of the 79 major hurricanes in the Atlantic Basin during the 1966-2003 period, only 19 (24%) of them made U.S. landfall

Joe Bastardi holds to his view, first expressed last year, that the Northeast region will likely be a target of storm strikes over the next ten years

As Joe Bastardi puts it, “We are living in a time of climatic hardship. We’re in a cycle where weather extremes are more the norm and not the exception.”

consecutive hurricanes developed in the Atlantic Basin without a single U.S. landfall.

Further to the landfall and global warming issues, the team points out that between 1966 and 2003, U.S. major hurricane landfall numbers were below the long-term average. Of the 79 major hurricanes in the Atlantic Basin during the 1966-2003 period, only 19 (24%) of them made U.S. landfall. During the two seasons of 2004-2005, seven of 13 (54%) came ashore. None of the two major hurricanes that formed during 2006 made U.S. landfall. As the Colorado State University team put it: “This is how nature sometimes works.”

About the same time the Colorado State University team issued its revised forecast for 2007, AccuWeather.com’s hurricane forecaster, Joe Bastardi, issued a warning that the U.S. Gulf Coast is at a much higher risk than normal of destructive weather this season. He believes we will not experience as many storms as in 2005 when 27 storms formed, but that the intensity of the storms that form will be of greater concern. He still holds to his view, first expressed last year, that the Northeast region will likely be a target of storm strikes over the next ten years since we are in a storm pattern similar to that experienced in the 1940s when the Northeast was hit by two major storms.

Another forecasting service, WeatherBug, also calls for an active hurricane season. It is calling for 13-15 named storms, 7-9 of which could reach hurricane status. Three of those hurricanes are predicted to become major hurricanes. They too believe that the warm waters in the Atlantic Ocean and the ending of El Niño, to be followed by La Niña, are the primary reasons for the greater hurricane activity in 2007. WeatherBug picked three analog years as part of its forecasting methodology. Those years are 1936, 1971 and 1998. All three years had above-normal activity with hyperactivity at 150% of normal or higher.

According to Joe Bastardi, the pattern of Atlantic Ocean water temperatures is the leading factor in determining the power of storms in this hurricane season, as well as the overall cyclical trend of more extreme weather across the U.S. His partner, Ken Reeves, pointed out that in 1992, there were very few tropical storms, yet the U.S. experienced one of the most destructive storms in recorded history – Hurricane Andrew. As Joe Bastardi puts it, “We are living in a time of climatic hardship. We’re in a cycle where weather extremes are more the norm and not the exception. One of the ways this manifests itself is in the intensity of hurricanes and tropical storms. Last year was just a breather, because the overall pattern shows no sign of reversing in the near term.” Be forewarned and on guard for disruptions in the Oil Patch and energy markets this hurricane season.

Transocean's Bob Long and the Dictionary

That headline hardly drew any attention, as one would certainly expect the CEO of the world's largest deepwater-focused offshore drilling contractor to be positive about his business' outlook

Little did Transocean Inc. (RIG-NYSE) CEO Bob Long realize that the Reuters reporter covering his comments at the Howard Weil Energy Conference in New Orleans two weeks ago would get into parsing his words. In an April 2, 2007, item run on the Reuters Newswire, the reporter headlined Bob Long's comments as, "Transocean remains 'bullish' on deepwater." That headline hardly drew any attention, as one would certainly expect the CEO of the world's largest deepwater-focused offshore drilling contractor that has a multi-billion dollar backlog of work for its rigs to be positive about his business' outlook. The article's lead sentence stated that the company's outlook for deepwater drilling remained very strong and that the strength was attributed to supply constraints on available deepwater drilling rigs.

The article went on to quote Bob Long. "We remain extremely bullish on the outlook for deepwater drilling," he said. But what did get our attention was the last line of the article that said, "In March, Houston-based Transocean said it was 'very optimistic' about the deepwater market and said consolidation would be good for the industry."

So the question may be whether the absence of "very" in front of Bob Long's Howard Weil "bullish" statement signals that things are not as "optimistic"

We understand that given the restrictions on comments about their business due to Reg FD, executives are sticking closely to legally scrubbed scripts. This is part of the reason why investors attend every possible industry investment conference where company managements make presentations and all the one-on-one sessions with company executives since these can provide opportunities to read body English and try to discern whether a company's prospects are changing. But what we were not aware of was that financial reporters were into playing that game – especially since one of the definitions of "bullish," according to both the Merriam-Webster Online Dictionary and the online version of The American Heritage Dictionary of the English Language is "optimistic." So the question may be whether the absence of "very" in front of Bob Long's Howard Weil "bullish" statement signals that things are not as "optimistic" as everyone previously thought, or does his use of "extremely" to modify "bullish" trump that assessment? Even Bill Safire probably wouldn't wade in on this debate.

Cape Wind Saga Takes One More Step Forward

The Massachusetts environmental approval moves the Cape Wind project one step closer to being built

The Cape Wind project to construct and operate 130 wind turbines in a 25-square-mile area in Nantucket Sound and provide as much as 79% of the electricity for Cape Cod, Martha's Vineyard and Nantucket received Massachusetts environmental approval. This approval moves the project one step closer to being built. It must now receive approval from federal agencies charged with considering its environmental impact on the federal waters in which it will be located. Unfortunately the process is being delayed.

Environmental groups see the value in generating clean energy in a region characterized by highly polluted air due to coal power plant emissions, but local residents do not want the region's beauty and water tourism potentially harmed

The project has been a lightning-rod for battles between environmental groups who see the value in generating clean energy in a region characterized by highly polluted air due to coal power plant emissions, and local residents who do not want the region's beauty and water tourism potentially harmed by the "ugly" wind turbines that form the core of the project. The opponents are led by wealthy industrialists and politicians with vacation homes on Martha's Vineyard, Nantucket and Cape Cod, including Sen. Edward Kennedy (D-MA). The opponents are concerned about the project's potential impact on the region's fishing industry, tourism, bird habitat, ocean navigation, the marine environment and views from summer homes.

Both the former governor of Massachusetts, Mitt Romney, and the current leader, Gov. Deval Patrick (D-MA), backed the project. On March 30, Massachusetts Secretary of Environmental Affairs Ian A. Bowles, said that the environmental report for Cape Wind had passed state muster. The state environmental agency was charged with reviewing the impact of the underwater cables that would connect the turbines to the shore. The report acknowledged that the project "provides significant environmental benefits." Sec. Bowles commented that compared to electricity generated by coal-fired power plants, Cape Wind would offset 802 tons of sulfur dioxide, 497 tons of nitrous oxide and 733,876 tons of carbon dioxide each year. These savings are equivalent to taking 175,000 cars off the road. Combined with the \$10 million mitigation package in which Cape Wind has agreed to pay \$5.6 million over 20 years and restore marine and bird habitats, these savings were enough to overcome any environmental detriments the project might cause.

As expected, the Conservation Law Foundation came out in support of the project as a way to combat climate change and reduce dependence on fossil fuels. On the other hand, the Alliance to Protect Nantucket Sound called the decision "wholly unacceptable" and said it "reflects the current administration's willingness to sacrifice Nantucket Sound to advance its renewable energy agenda." A spokeswoman for Sen. Kennedy said that he hopes the various federal agencies that must review the project will give serious consideration to the safety, maritime, environmental and economic concerns raised by the Cape Wind proposal. Of course Sen. Kennedy's friends on Capitol Hill have been hard at work trying to derail the proposal and to influence the agencies' considerations, with what seems so far to be little success.

An announcement that the Minerals Management Service (MMS) needs more time before releasing its environmental review causes speculation about what is behind the delay

An announcement that the Minerals Management Service (MMS) needs more time before releasing its environmental review causes speculation about what is behind the delay. The report, which was scheduled to be released either in late April or early May, now will not be released until "late summer." That will delay the final decision on Cape Wind until mid-2008, or possibly later. This delay is of concern given the extensive review and analysis of the project that has extended since it was announced in 2001. One view is that the MMS is trying to make the report "bulletproof" against litigation that

is widely anticipated, although some observers are wondering if a powerful official made a call to the MMS. Could a politician be trying to shift the approval timeline until after the 2008 election in hopes his party will win the presidency and initiate legislation to ban the project?

The Cape Wind saga could now become a full-scale war

The Cape Wind saga was thought to be only a minor skirmish within the future wars that are going to be waged as global warming solutions are proposed. It could now become a full-scale war. Up until recently, the battle lines over global warming appeared to be clearly defined: environmentalists versus big business. But now, the lines are blurred as factions within the environmental movement battle and businesses start to side with the different factions in an effort to try to influence the outcome of legislation and regulation. We will definitely need scorecards for these upcoming battles.

Global Climate Change Initiative Targets Shipping

A report calls for tighter emission standards for the international shipping industry

On March 22, the International Council on Clean Transport (ICCT) issued a 100-page report calling for tighter emission standards for the international shipping industry. Dealing with this call may pit various arms of the United Nations against each other. On one hand, the UN has undertaken a Herculean effort to attack the problem of global climate change and its associated social and economic impacts. On the other is the body's International Maritime Organization (IMO) that regulates global shipping activity in an effort to promote global trade by limiting confusing and contradictory national regulations. A recent announcement by the oil tanker owners association suggests that the UN is likely to solve the emissions problem with the support of the shipping industry, rather than over its dead body.

Exhibit 12. Ocean-shipping Volumes Growing Rapidly

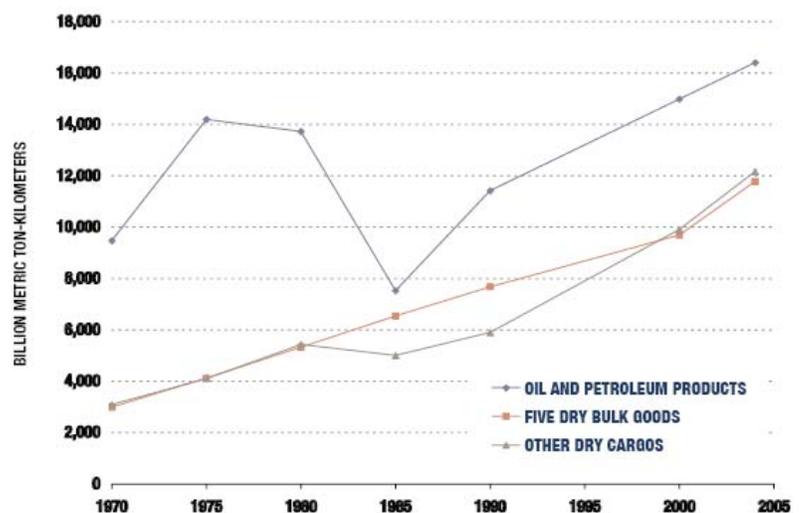


FIGURE 2. World Seaborne Freight Transport in Metric Ton-Kilometers by Type of Freight (UNCTAD 2005)
Source: International Council on Clean Transport

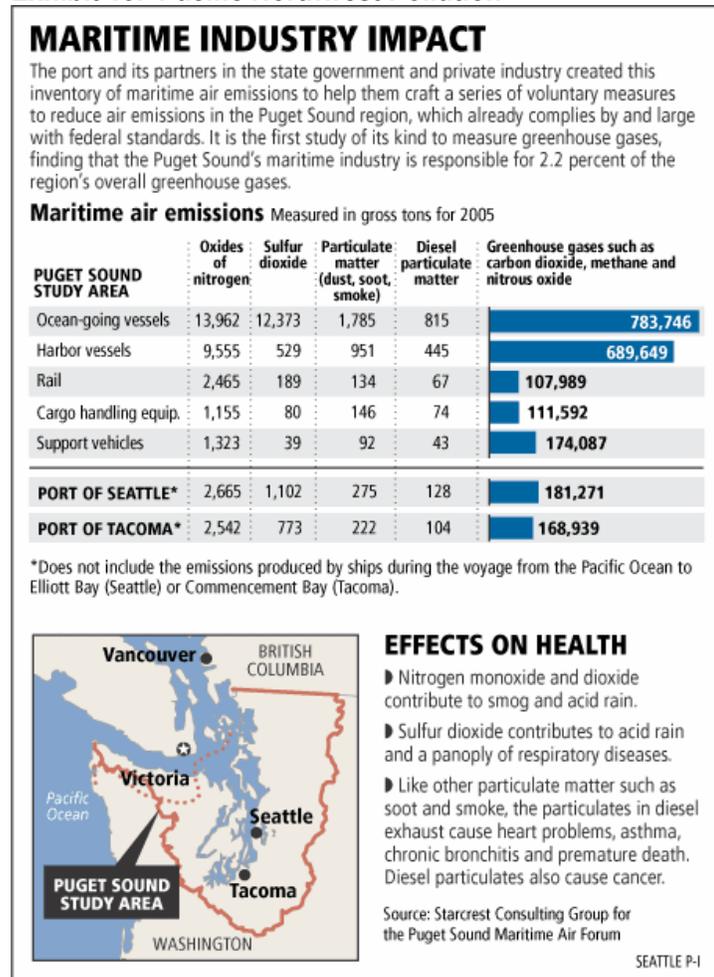
Over the past three decades, the volume of goods, measured in metric ton-kilometers, transported by the maritime industry has grown at an average rate of 5% annually

The maritime industry is responsible for 2.2% of Puget Sound's greenhouse gas emissions

Ocean-going vessels transport about 90% of all the trade by volume to and from the 25 members of the European Community and nearly 80% by weight of all the goods shipped in and out of the United States. Over the past three decades, the volume of goods, measured in metric ton-kilometers, transported by the maritime industry has grown at an average rate of 5% annually. Since emissions by ocean-going vessels have been only moderately regulated, the growth in maritime activity has been accompanied by a commensurate rise in the industry's contribution to global and local air pollution.

In the Pacific Northwest, a baseline study of emissions within the Puget Sound region points out the emissions problems associated with the maritime industry and its associated equipment. According to the study, the maritime industry is responsible for 2.2% of the region's greenhouse gas emissions. The purpose of the study was to establish the volume of pollutants in the area so that the impact of emissions control regulations and actions can be assessed.

Exhibit 13. Pacific Northwest Pollution



Source: *Seattle Post-Intelligencer*

Carbon dioxide emissions from shipping sector exceed the annual greenhouse gas emissions from all but 10 of the 39 industrialized nations originally part of the Kyoto Protocol

Although ocean-going vessels are among the most efficient modes for transporting freight, they also generate a substantial volume of greenhouse gas emissions. Currently, carbon dioxide (CO₂) emissions from the international shipping sector exceed the annual greenhouse gas emissions from all but 10 of the 39 industrialized nations that were originally part of the Kyoto Protocol. Given the projected growth in international shipping, these emissions present a growing challenge.

Ocean-going vessels are also major emitters of nitrogen oxides (NO_x), sulfur oxides (SO_x) and particulate matter (PM). It is estimated that by 2020, ship emissions contributions to the European Community inventories of NO_x and SO_x will surpass total emissions generated by all land-based mobile, stationary and other sources in the 25-member nation region.

70-80% of all ship emissions occur within 250 miles of land

Air quality impacts from ocean-going vessels are especially significant in port cities and coastal regions adjacent to shipping lanes. Studies making use of geographic marine activity data have estimated that 70-80% of all ship emissions occur within 250 miles of land. This is not totally surprising given the high proportion of global trade that occurs among close together countries. Except for certain trade routes that traverse the oceans between continents, most goods travel from place to place along well established coastal trade routes.

Exhibit 14. Most Ocean Shipping is Close to Shore

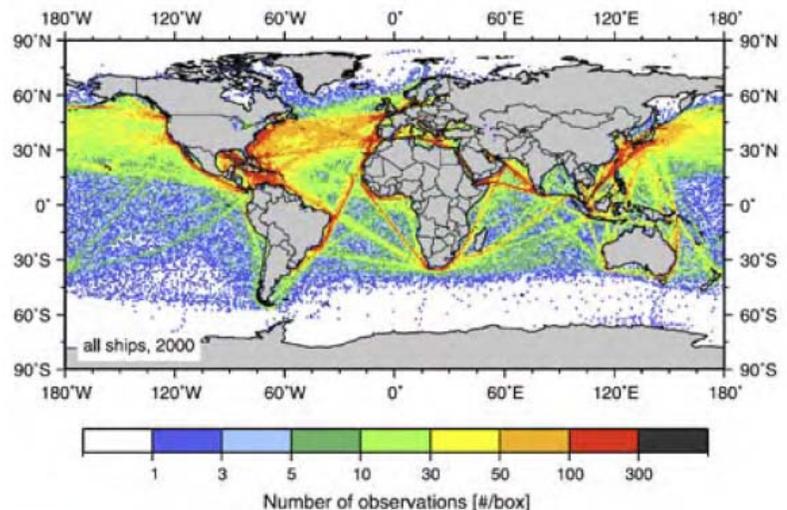


FIGURE 3. Vessel Traffic Density in 2000 (Eyring et al 2005b)
Source: International Council on Clean Transport

The emissions problems due to coastal trade are further impacted by the ship traffic in and out of harbors and the time spent loading and unloading cargos. A think-tank, Civic Exchange, called Hong Kong and Shenzhen, the densest shipping and related logistics area in the world due to geographically small port areas and the distance between the two cities. The volume of ocean-going trade within Asia

The IMO is often accused of not moving fast enough on issues and/or not issuing sufficiently tight regulations

and between Asia and other regions of the world continues to grow. The emissions impact of this growth was pointed out by Civic Exchange in a March 2006 report where it demonstrated that marine vessels emitted 21,000 tons of PM, CO₂, NO_x and SO_x in this area in 2003. That compared with only about 10,000 tons emitted in 1990. The report also showed that during this time period, emissions from land vehicles decreased compared to the steady rise in marine pollution, while aviation sources remained steady.

Now that the shipping industry has been targeted as a major source of global greenhouse gas emissions, the question is what can be done about it. The UN's IMO was established to provide the regulatory framework for the ocean-going shipping industry. There are 139 member countries in the IMO, so the organization attempts to deal with global issues in a consensual manner. As a result, the IMO is often accused of not moving fast enough on issues and/or not issuing sufficiently tight regulations. That seems to be the case with air pollution emissions.

The IMO took up some of these issues in late 2005 as the shipping industry prepared to deal with various local and regional air quality restrictions. In a position paper distributed to its members in December 2005 framing the issues and asking members for comments, the IMO argued that governments and regional inter-governmental organizations are not persuaded that regional measures can inhibit trade. Therefore, the IMO needs to remind those governments and regulatory bodies that international shipping is the servant of world trade and regulations need to be applied globally and through the IMO.

The IMO needs to remind legislators that fuel supply provisions must be agreed with the oil refining industry to ensure that they are practical and affordable and that fuel with the agreed parameters will be available in the required quantities

In furtherance of this point, the IMO paper stated, "Regarding air pollution, it is unsustainable for ships to be subject to a myriad of differing levels of emission control in different ports around the world." The IMO recognizes that the battle over air quality is underway and the organization and its members need to be engaged, but presenting a unified position. Since most of the air quality issues are derived from the fuel ships use, the IMO believes that regulators need to understand the myriad of factors impacting global fuel supplies and the number of parties involved. The IMO put it, "There is one underlying principle that legislators must recognize: fuel supply provisions must be agreed with the oil refining industry to ensure that they are practical and affordable and that fuel with the agreed parameters will be available in the required quantities." The maintenance of fuel quality is of great importance.

At the present time, the IMO has agreed to a cap on sulfur in bunker fuel of 4.5% by volume. However, for the past three years, the average sulfur content actually has been about 2.6%. Various proposals to reduce the sulfur content to 1%, or even as low as 0.5%, will create severe hardships for the shipping industry. The oil tanker owners association, International Association of Independent Tanker Owners (INTERTANKO), has proposed that the maritime industry adopt a global rule to use diesel instead of high-sulfur

The fuel cost for a 15-20 day voyage from a Middle East oil producing country to a Japanese refinery using marine diesel instead of bunker fuel would increase by \$400,000 to over \$1.1 million

California ports are establishing electric power facilities that ships can plug into to enable them to turn off their engines and eliminate emissions while loading and unloading

bunker fuel, rather than face multiple regional fuel standards.

One estimate is that at current Singapore prices, the fuel cost for a 15-20 day voyage from a Middle East oil producing country to a Japanese refinery using marine diesel instead of bunker fuel would increase by \$400,000 to over \$1.1 million. INTERTANKO believes that moving to marine diesel and away from bunker fuel would put the shipping industry in the forefront of the environmental movement, but the proposal would carry a heavy price for many shipping companies. They are also likely to question the value of spending that much money when they are traveling across oceans were no one is close to being impacted by the emissions.

Requirements of the State of California and within the sulfur emission control areas (SEAC) agreed to by the IMO necessitate ships burn low-sulfur fuel oil. In the SEAC areas, 1.5% or less sulfur fuel oil must be burned. At the present time, the Baltic region is the only SEAC, but this summer the North Sea and Scandinavia will become the second SEAC to mandate low-sulfur fuel oil. New SEAC regions are likely to be established soon. That means ships traveling to these regions must have dual-fuel capability.

Several California ports along with the state and some other international ports are mandating that 0.1% sulfur fuel be used when ships are in port. Additionally, these ports are establishing electric power facilities that ships can plug into to enable them to turn off their engines and eliminate emissions while loading and unloading. According to the California Air Resources Board, it expects smog from ships to represent 20-25% of the total pollution in Los Angeles by 2020. The reduced sulfur fuel, slower steaming mandates in California waters and harbor-side electric power options should all work to minimize that smog outlook.

Given the fact that Europe will be reviewing its directive on shipping emissions in 2008 and that the environmental regulators in the U.S. have already called for sulfur levels of 0.1% in their submissions to the IMO, the battle over new fuel standards has just begun. When you consider the potential impact of 65% fuel cost increases for tankers switching from bunker fuel to marine diesel, there could be huge impact on the economics of shipping, and obviously the price for the cargoes carried, depending on the fuel decisions reached.

**Contact PPHB:
1900 St. James Place, Suite 125
Houston, Texas 77056
Main Tel: (713) 621-8100
Main Fax: (713) 621-8166
www.pphb.com**

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