
MUSINGS FROM THE OIL PATCH

May 22, 2012

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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 and planning for the future. The newsletter is published every two weeks, but periodically events and travel may alter that schedule. As always, I welcome your comments and observations. Allen Brooks

Two-day Drive To Rhode Island Mirrors Today's Economy

On this trip there were periods when we thought we were in the midst of an economic boom while at others we wondered if the American economic beast had any pulse at all

We recently completed our annual drive to our summer home in Rhode Island. We initially planned for a three-day trip because of scheduling details, but with a bit of luck, timing and fortitude we made the trip in two days. Readers of the *Musings* know we use these 1,900-mile trips as an opportunity to gauge economic conditions through our observations, while recognizing that they are merely anecdotal. In its totality, this trip proved different from most of our recent ones as it mirrored today's economy as we perceive it. On this trip there were periods when we thought we were in the midst of an economic boom while at others we wondered if the American economic beast had any pulse at all.

Those in the Houston area may remember the tremendous thunderstorms that roared through the area Friday night two weeks ago. Thank goodness for a garage to be able to load our car as the rain came pouring down. When we went to bed that night we wondered whether we would be driving in the rain the next day. It didn't take too long for us to learn the answer.

Our automatic windshield wipers seemed never to stop, even though it was only scattered raindrops for much of the early way

We caught the stormy weather not long after Houston and it got progressively worse as we drove into Mississippi. Our automatic windshield wipers seemed to never stop, although it was only scattered raindrops for much of the early way. As we traveled north through Mississippi, the rains came. And then they came harder. And then it was a white-out! Fortunately, almost as soon as the white-out hit an exit opportunity for a rest area materialized, which we gladly seized. We looked at the radar on my wife's iPhone and saw we were on the edge of the bad weather, but it looked like a short distance ahead we would get out of the rain. Wrong! The rain did ease up, but it continued for the rest of the afternoon, evening and half of Sunday.

We wondered: Was their eyesight that much better than ours or the other drivers in our lane?

With our headlights and emergency flashers on and our windshield wipers swishing as fast as possible, we cautiously moved up the highway, oblivious to everything else around us as we concentrated and strained to see whatever was ahead as best we could. It was at that moment that we thought we were back in the middle of the 2008 financial crisis. Why did we think that? As we were cautiously driving in the right-hand lane, well below the speed limit and following a line of emergency flashers ahead and passing stopped cars, 18-wheelers and other automobiles barreled past us at or above the legal speed limit. We wondered: Was their eyesight that much better than ours or the other drivers in our lane? What was their Plan B? Fortunately, during this stretch we never saw anyone forced to revert to Plan B. When you can't see ahead, prudence would dictate adjusting speed to match the risk. In 2008 many people failed to adjust and suffered. In this case, we saw only one vehicle that had slid off the slick highway. It was, however, the only time we saw police that day.

A Google search for "songs about windshield wipers" produced 1.45 million hits

As we drove, we began to wonder whether our entire trip would be viewed through the space between our windshield wipers. That got us thinking about songs about windshield wipers. I know – what a crazy thought, but we couldn't get those lyrics from [Me & Bobby McGee](#), written by Fred Foster and Kris Kristofferson and sung by lots of singers including Janis Joplin, out of our head. Those lyrics, "With them windshield wipers slappin' time, And Bobby clappin' hands, we finally sang every song that driver knew, yeah." The more we thought about it, we wondered exactly how many songs referred to windshield wipers. A Google search for "songs about windshield wipers" produced 1.45 million hits. After we started looking through the hits, it seemed many of them focused on Eddie Rabbitt's song, [Driving My Life Away](#), which contains the lyrics "those windshield wipers slappin out a tempo, keepin perfect rhythm with the song on the radio." The search also produced information that Mr. Rabbitt had written the song, Kentucky Rain for Elvis Presley and that he appeared in the TV soap operas *Days of Our Lives* and *All My Children*. He died in 1998 at 57.

The song, [Windshield Wipers In The Rain](#) by C.W. McCall popped up

We also thought of the song, [Rhapsody in The Rain](#) by Lou Christie who was probably more famous for his [Lightnin Strikes](#) and [Two Faces Have I](#). Our Google search produced some other trips down memory lane. The song, [Windshield Wipers In The Rain](#) by C.W. McCall popped up. It turns out that McCall was actually a pseudo name for William Dale Fries, Jr. in Iowa. He attended the University of Iowa and played in its band. While he was interested in music, he majored in graphic design. He went on to an advertising career, first at a TV station and then an Omaha advertising firm where he created a truck driver character, C. W. McCall, for a series of advertisements for a local bakery. While the ads weren't particularly successful, the series won the prestigious Clio Award for Mr. Fries. He then recorded a country and western song capitalizing on the trucking theme and used the C. W. McCall name. His early road

songs included Wolf Creek Pass and Black Bear Road. Most of us will know him for his song, Convoy that was a hit during the citizen's band (CB) radio era when everyone had a "handle" and went around saying "Breaker! Breaker!" and was on the lookout for "bears" (police officers) in "gumball machines" (police cars) with "cameras" (radar detection devices).

What made us think we were observing a schizophrenic economy? On the first leg of our trip, admittedly a Saturday morning, we experienced extremely light traffic with almost no trucks. Additionally, we only saw five recreational vehicles – three on the westbound side of the highway. I think we passed just one pickup truck pulling a travel trailer during the first five hours of our drive. By then we were heading northeast on I-59 through Mississippi. Traffic remained relatively light, but we picked up more trucks heading north. Fortunately, the traffic wasn't too heavy as we encountered the heavy rain. We know we didn't pass any RVs or travel trailers during that stretch, but we don't know about the other side of the highway as we couldn't see it.

The difference in daily truck traffic made us think about the pattern of U.S. economic statistics this spring – surging one month and retreating the next, leaving the impression of a sputtering recovery

After Saturday's light traffic, Sunday brought much heavier traffic and many more trucks, RVs and travel trailers. At times the traffic was so thick and our travel impeded by trucks trying to pass one another that we often were traveling well below the legal speed limit. Every rest stop and truck stop we passed was chocked full of 18-wheelers. We were left scratching our head at the sharp difference in traffic patterns from Saturday to Sunday. Could Mother's Day explain it? How about college graduations? Those might explain some of the auto traffic, and we did see signs of it, but those explanations don't explain the heavier truck traffic than the prior day. The difference in daily truck traffic made us think about the pattern of U.S. economic statistics this spring – surging one month and retreating the next, leaving the impression of a sputtering recovery.

There was no line at the drive-in and employees were actually standing around

Another interesting comparison was our food stops. We lunched at McDonald's both days – Lafayette, Louisiana on Saturday and Salem, Virginia on Sunday. At noon on Saturday, the McDonald's was empty with only two or three tables of customers. There was no line at the drive-in and employees were actually standing around. On Sunday at nearly 1 pm, admittedly at a McDonald's more integrated into the community, there were two lines of customers at the counter and a drive-in line that wrapped around the facility. The age span of customers resembled a barbell with older ones at one end and young families with lots of children at the other. It made us think we had wandered into a more localized restaurant than a typical McDonald's located close to a highway. Sunday being Mother's Day may have impacted the number of diners and the number of families.

What was most striking about the Salem McDonald's was its living room. Smack dab in the middle of the restaurant was a wall with a

This was the first time we have ever seen a living room in a McDonald’s

fireplace (we assume it was electric) and a set of four easy-chairs, two marble-topped end-tables and two fake ficus trees. Above the area was a wooden ceiling with recessed lights, like you would find in a living room in a home. We have been in several newly-designed McDonald’s, which tend to be more open with moveable tables and different seating arrangements. This was the first time we have ever seen a living room in a McDonald’s.

The hotel was not full, although the parking lot displayed almost one car from every Eastern and Southeastern state

We experienced the same divergence at dinners at our Cracker Barrel stops. Saturday night we were in Tuscaloosa, Alabama where at 6 pm we walked right in to an empty table and overly attentive service due to a lack of diners. We also had no problem getting a hotel room near the Lookout Mountain resort area in Chattanooga, Tennessee. The hotel was not full, although the parking lot displayed almost one car from every Eastern and Southeastern state. The next day at 7 pm at Hamburg, Pennsylvania we encountered a waiting line, which lasted 10-15 minutes. Because there were a lot of local people (flowers gave it away) and large tables of diners, we figured the crowd was celebrating. Based on our dining experiences, we appreciate the power of Mother’s Day.

The price per gallon fell as we moved east and north and then rose the closer we got to the East Coast

There was also a two-world view with respect to gasoline prices. The price per gallon fell as we moved east and north and then rose the closer we got to the East Coast. The latter trend is not surprising because of the refinery situation in the Philadelphia area that we wrote about several issues ago, making the region more dependent on gasoline imports from Europe where prices are determined by higher-priced Brent crude oil. When we arrived in Rhode Island, we discovered that we were in the land of super high gasoline prices. From the highway to our home we passed two gasoline stations, one of which is known to often have the highest pump prices in the state because it is on a route to the beaches. The two stations listed regular gasoline prices at \$3.919 and \$3.969 per gallon. Fortunately, when we are here gasoline consumption is not a major purchase.

Exhibit 1. Gasoline Price Trends

Location	Price per gallon
Houston, TX	\$3.719
Slidell, LA	\$3.559
Trussville, AL	\$3.479
Kingsport, TN	\$3.429
Shippensburg, PA	\$3.599
Whitehou, NJ	\$3.739

Source: GAB

To top off our two days of mixed travel signals, we arrived in recession-worn Rhode Island to read an article in *The Providence*

Our gut and observations say this economy is getting better but at such a slow pace it's often hard to discern

Journal about how a local economist at the University of Rhode Island (URI) who publishes an index of economic activity for the state learned that the Department of Labor Statistics was publishing inaccurate statistics that were presenting the economy as worse than it is. This URI professor will now publish two index values – one based on the official statistics and the other using “better” data. We are still trying to figure out this disparity. Why would the state be putting out worse than actual economic statistics – to get more aid from the federal government or to strengthen a case for higher taxes? On the other hand, is this professor, who says things are better than the officials say, worried about cuts to funding at URI that might cost staff their jobs? Rhode Island’s official unemployment rate is 11.1%. The professor says it is really between 10% and 11%. Is it 10.1% or 10.9%? One estimate is materially different while the other is within the range of “noise.” The key point is that both parties agree that 2,200 jobs were lost last month; not a very good record. We’re confused why this debate is underway. Maybe our confusion comes because we only recently pried ourselves from our car seats after two very long days of driving. Our gut and observations say this economy is getting better but at such a slow pace it’s often hard to discern. We hope we’re wrong.

Backdoor Attack On Shale Development And Fracturing

The latest attack, which is actually a backdoor approach, was on the transportation safety record of the oil and gas extraction industry, and was launched in an extended article in The New York Times last week

The development of oil and gas shale has been a target of fossil fuel opponents and environmentalists for the past few years, or at least since natural gas evolved into a green-energy killing force due to its growing production and low price. The latest attack, which is actually a backdoor approach, was on the transportation safety record of the oil and gas extraction industry, and was launched in an extended article in *The New York Times* last week. The article was headlined, “Deadliest Danger Isn’t at the Rig but on the Road” and was authored by Ian Urbina who had authored a series of anti-gas shale articles in the paper last summer. The article was placed prominently in the center of the front page, spanning three of the page’s six columns, of last Tuesday’s newspaper and above the fold (a location designed to ensure importance for people scanning the front page for articles determined by the editors to be of particular interest and importance).

In both crashes, the driver of the pickup fell asleep at the wheel due to fatigue and ran into a pole or highway sign

The article begins by describing the death of Timothy Roth in the crash of a pickup truck carrying him and three other crew members returning home from a long work shift on a drilling rig in Ohio. The deadly accident occurred last July and involved the men leaving at 10 pm for a four-hour drive back to their employer’s shop in West Virginia. This was not the first time Mr. Roth had been involved in a crash similar to this one in recent months. In both crashes, the driver of the pickup fell asleep at the wheel due to fatigue and ran into a pole or highway sign. Mr. Urbina slides from the story of the fatal accident into a comment that over the past decade the industry

There will be a significant increase in oilfield service trucking activity as wells that are hydraulically fractured lead to more truck trips, “roughly 500 to 1,500 truck trips per well,”

has experienced more than 300 deaths of oil and gas workers who were killed in highway crashes, which happens to be the largest cause of fatalities for the industry. The incidents of highway deaths is blamed in part on oilfield service company exemptions from highway safety rules that allow truck drivers to work longer hours than drivers in most other industries.

Mr. Urbina points out that “federal officials” estimate that more than 200,000 wells will be drilled over the next decade. Since most of these wells will be associated with oil and gas shales, there will be a significant increase in oilfield service trucking activity as wells that are hydraulically fractured lead to more truck trips, “roughly 500 to 1,500 truck trips per well,” than for conventionally drilled and completed wells. The reason for the increased truck traffic is the need for massive amounts of water to be used in hydraulic fracturing operations. The attack on shale wells is conveniently disguised by this brief reference to the environmental impact from the need for millions of gallons of water for a fracturing job and its contribution to increased oilfield service truck traffic, which is inherently unsafe due to the industry’s exemptions from the safety rules governing all other highway trucks.

Here again is another reason why the oil and gas industry needs increased regulation and control, or even outright banning

Mr. Urbina’s argument is that the safety exemptions for the oilfield service industry coupled with the dramatic increase in drilling and fracturing work to be undertaken in the future, and the poor condition of oilfield trucks and lax federal inspection efforts will lead to increased deaths. Moreover, and as supported by comments from readers attached to the online version of the article at *The New York Times* web site, the public is concerned about being on the highways with these unsafe trucks. The argument was further targeted to the Marcellus and Utica shale regions of the Northeast with its narrow roads, hilly terrain and snow and ice weather conditions. Here again is another reason why the oil and gas industry needs increased regulation and control, or even outright banning, as not only is the process of drilling and fracturing these wells risky for local citizens, e.g., water pollution and increased earthquake risk, but the associated increase in truck traffic could cause more highway crashes and deaths for the locals.

Operator error is among the leading causes of oilfield accidents, and it often happens when workers are fatigued or lax in following procedures

There is little doubt the petroleum industry is a risky business, but safety is an area of intense focus by company managements and oilfield workers. Are there accidents in this business? Sure, but accidents can happen despite following the best safety practices and having the finest equipment. Operator error is among the leading causes of oilfield accidents, and it often happens when workers are fatigued or lax in following procedures, which can be related to not only being tired but also being overconfident in performing routine tasks. Unsafe equipment was an area Mr. Urbina explored in the article, citing data from the Pennsylvania State Police department showing that “40 percent of 2,200 oil and gas industry trucks inspected from 2009 to this February were in such bad

Mr. Urbina said that “Nearly a third of the 648 deaths of oil field workers from 2003 through 2008 were in highway crashes”

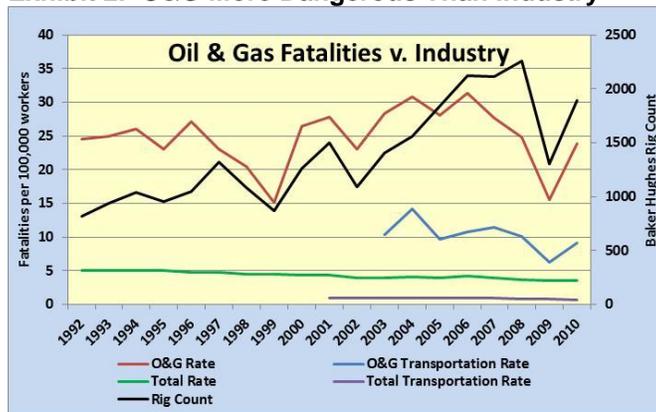
What is most interesting is the similarity of the pattern of the industry fatality rate and the rise and fall of the Baker Hughes drilling rig count

condition that they had to be taken off the roads.” This statement was followed by a section of the article discussing Mr. Roth’s employer having been repeatedly cited for allowing its drivers to exceed the 14-hour legal limit for shifts. As a result, the company had lost its federal transportation registration but soon merged with another company and began operating under that company’s registration. He also discussed claims that the company and its supervisors had instructed its drivers how to falsify their logbooks. These claims were denied in court documents and a lawyer for the firm declined to comment on the claims in the article.

In discussing the role highway accidents played in the fatality data for the oil and gas extraction industry, Mr. Urbina analyzed industry data available from the federal Centers for Disease Control and Prevention. We went to this same data source to verify his claims, which we found to be essentially correct. But in examining the data, we also gained a greater appreciation for the safety trends of the industry and the role transportation accidents play in its fatalities. Mr. Urbina said that “Nearly a third of the 648 deaths of oil field workers from 2003 through 2008 were in highway crashes.” In our examination of the data, we found that highway deaths accounted for 38.8%, or more than a third. It is possible Mr. Urbina miscounted, or merely wanted to be conservative in making his point. The more telling statistic is that for all industry fatalities due to highway crashes, after elimination of the oil and gas industry ones, the rate was only 24%.

We have charted the oil and gas extraction industry fatality and highway-related deaths data versus overall industry and against the Baker Hughes drilling rig count. The chart in Exhibit 2 allows us to see just how much more dangerous oilfield work is compared to the rest of corporate America. What we see is that between 1992 and 2010 the rate of fatalities per 100,000 workers for industry overall has slowly declined from 5 to 3.6. Over the same time period, oil and gas extraction industry fatalities went from 24.8 to a peak of 31.3 in 2006 before improving in recent years. There was a sharp drop in fatalities in 2009, which coincided with the shutting down of oil and gas activity due to the financial crisis. The rate jumped back up in 2010 to nearly the same rate experienced in 1992. What is most interesting is the similarity of the pattern of the industry fatality rate and the rise and fall of the Baker Hughes (BHI-NYSE) drilling rig count. This suggests that the challenges of developing a consistent safety pattern for contract drillers are significant. What is also interesting, especially in relation to the thrust of *The New York Times* article is the steadily declining oil and gas extraction industry fatality rate related to transportation. This pattern would suggest, despite the upturn in 2010, that the oil and gas industry has actually become safer, rather than more dangerous over time.

Exhibit 2. O&G More Dangerous Than Industry

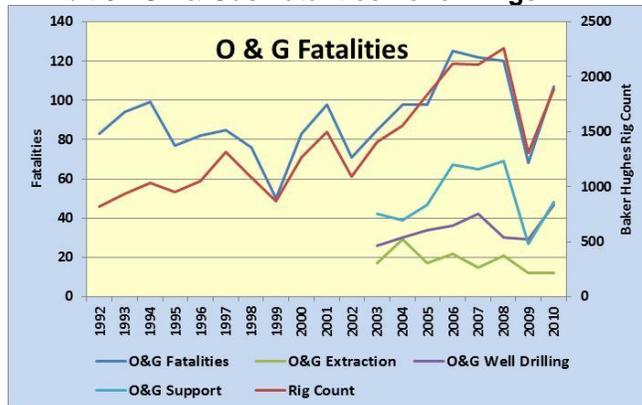


Source: Centers for Disease Control and Prevention, PPHB

The drilling group showed a fairly stable number of fatalities with a rise associated with the sharp ramp up in drilling activity in 2007 before it collapsed in 2008 and 2009

Another way of looking at the oil and gas extraction industry fatality data is shown in Exhibit 3. We have plotted the absolute number of fatalities for the oil and gas extraction industry and the oil and gas extraction support industries. The support data is divided between oil and gas well drilling and oil and gas extraction support. This additional detail has only been available since 2003, so we also show the sum of the three industry components. Once again, as in the fatality rate chart, there is a very strong correlation between the changes in the Baker Hughes rig count and the total number of industry fatalities. But when we examine the components, there are interesting patterns. The drilling group showed a fairly stable number of fatalities with a rise associated with the sharp ramp up in drilling activity in 2007 before it collapsed in 2008 and 2009. The number of fatalities for the extraction portion of the industry showed a steadily declining trend during the period. The support group showed the greatest increase during the drilling boom associated with the climb in oil prices toward \$150 per barrel and the growth in gas shale drilling. For the entire period, the support fatalities mirrored the movement in the drilling rig count.

Exhibit 3. Oil & Gas Fatalities Follow Rigs



Source: Centers for Disease Control and Prevention, PPHB

Not surprisingly, the data shows that smallest companies, i.e., those with fewer than 20 employees consistently have the worst fatality experience

Another interesting set of data accompanying *The New York Times* article was a chart showing the difference in fatality rates by company size and industry focus. We present that data in Exhibit 4. Not surprisingly, the data shows that smallest companies, i.e., those with fewer than 20 employees consistently have the worst fatality experience. The companies with the best records are the largest. This is not surprising as larger companies are better able to develop safety education programs. That, however, does not excuse the smaller companies from being more lax in both their development of safety programs and their enforcement of the guidelines and regulations that are at the heart of the programs. The data also shows that drilling companies have the highest fatality rates while oil and gas operators have the lowest rates. Again not a surprising result based on the inherent risk of the respective businesses. It behooves the managements of small companies in the oil and gas extraction industry to be more diligent about their safety efforts.

Exhibit 4. Small Companies Have Highest Fatality Rates

Fatality rate (per 100,000) by company size and type			
Company Size	Drilling Contractor	Well Service	Oil and Gas Operator
Up to 19 workers	212	72	28
20 to 99 workers	47	25	10
100 or more workers	21	18	5

Source: *The New York Times*, PPHB

These work rule changes will force companies to hire additional drivers and will cause industry operating costs to rise

In the last part of *The New York Times* article the focus shifted to the oil and gas industry's fight against the tightening standards for highway truckers and their application to the industry. The Department of Transportation (DOT), the Federal Motor Carrier Safety Administration (FMCSA) and the Pipeline and Hazardous Materials Safety Administration have implemented new work rules limiting the hours an over-the-road truck driver can work and his use of communications equipment. Now, truckers will no longer be able to use hands-free cell phones. This restriction comes as the DOT works hard to implement rules to address distractions while driving that is believed to be the cause of vehicle accidents. Additionally, there has been a modification in the working hours of highway truckers. The proposed rule calls for total hours to be cut back from 82 hours to 70 in a seven-day period. Drivers must also observe 30 minutes of rest within every 8-hour work period, although they can rest at any time during the time span. Drivers are also limited to an 11-hour work day. The biggest change is the 70-hour week as drivers now must observe a 34-hour rest period (two full nights of rest) before starting their next week. The American Trucking Association has filed a suit in the U.S. Circuit Court of Appeals for the District of Columbia requesting that the court review the FMCSA rules in light of them being arbitrary and overly burdensome on the industry. These work rule changes will force companies to hire additional drivers and will cause industry operating costs to rise

While rule changes won't stop drilling and fracturing operations, they could, and likely will, boost costs making more prospects uneconomic

sharply. These rule changes, and other potential regulatory changes will impact the oil and gas industry, boosting costs and reducing operating flexibility. While rule changes won't stop drilling and fracturing operations, they could, and likely will, boost costs making more prospects uneconomic until commodity prices rise. The oil and gas industry needs to understand it is under attack. The attacks will come from many directions, and maybe not all anticipated, but they will continue to come.

Offshore Wind Gets Boost By Interior But Boot From Market

Estimates are that the underwater line and its connection points onshore will cost \$5 billion

The Department of the Interior's Bureau of Ocean Energy Management (BOEM) granted permission to Atlantic Wind Connection to construct an underwater power transmission line that will eventually extend 380 miles from Virginia to New Jersey. The line is being designed to ultimately deliver upwards of 7,000 megawatts of offshore power to the states along the East Coast, many of which have renewable power mandates. It will take at least 10 years to construct the line and it will be substantially more expensive than a similar grid built onshore. Estimates are that the underwater line and its connection points onshore will cost \$5 billion, but the capital for the project will come from private investors led by Google (GOOG-Nasdaq). BOEM's approval was based on its assessment that there was no other project that would object to the granting of rights-of-way to the seabed for the construction of the underwater line. The project will still require additional federal and state permits before it can be built.

Exhibit 5. Project Plan



Source: Atlantic Wind Connection

It is interesting that this project was approved at the same time that offshore wind projects are being abandoned or are struggling to raise financing. The most recent project to shut down was a demonstration turbine planned by a joint venture formed in 2010 between Spanish wind turbine manufacturer, Gamesa, and Newport News Shipbuilding to design a 5-megawatt prototype turbine to be

“An analysis of current conditions indicates that a viable commercial market in the United States is still farther out, as much as three or four years away, at the earliest”

installed in waters off the coast of Virginia. Installation of the prototype turbine near Cape Charles, Virginia had been approved by the Virginia Marine Resources Commission. The collaborative effort has been focused on designing a turbine with a high degree of reliability, low maintenance and servicing requirements, and a low cost of energy. The turbine is supposed to contribute to civil engineering efficiencies in infrastructure development.

The companies said in a statement, “An analysis of current conditions indicates that a viable commercial market in the United States is still farther out, as much as three or four years away, at the earliest.” As a result, the companies decided that making further investment in the effort was impractical. While the companies acknowledged that the regulatory climate had improved in recent years, the lack of an offshore grid, such as Atlantic Wind Connection’s proposed system, and the uncertainty about an extension of the production tax credit for renewable fuels due to expire at year end make securing financing for the project impossible because the economics are uncertain. As a result of this decision, the joint Offshore Wind Technology Center, opened in February 2011 in Chesapeake, Virginia will be closed at the end of the year.

The two prominent offshore Atlantic wind projects – Cape Wind’s turbine array off the coast of Massachusetts and Deepwater Wind’s farm off Rhode Island’s Block Island – say that this decision to shut down the Virginia project will have no impact on their plans. Cape Wind has been working its way through the approval processes for over a decade and is now in its project financing phase. Deepwater Wind representatives state that their project is going ahead full steam. A concern has to be that Deepwater Wind’s project offshore Delaware was abandoned and its office there shut down due to the inability to find a suitable financial partner as a result of the uncertainty of the future regulatory and subsidy status.

The entire U.S. wind effort is suffering from the uncertainty about the extension of the production tax credit and other renewable subsidies

While the wind effort off the East Coast struggles to gain momentum, the entire U.S. wind effort is suffering from the uncertainty about the extension of the production tax credit and other renewable subsidies. The hope for a national renewable energy standard are gone unless President Barack Obama is re-elected and either can create a standard through government agencies or by executive order since the likelihood of Congress approving such a plan is remote at best. What is interesting is that even onshore wind turbines are experiencing problems due to funding and regulations. In Falmouth on Cape Cod, the town shut down one of two turbines because of noise pollution. The noise issue had forced the town to stop the turbine during daytime hours, but the noise level exceeded the acceptable threshold for its neighbors so it has been completely shut down.

We have also just learned about a problem with a proposed wind

In Canada, wind turbines cannot be located closer than 1,640 feet from a home, while in Vermont the distance is determined by the sound of the blades

farm in Derby Line, Vermont. Two dairy farmers in Vermont, whose farms lie along the border with Stanstead, Quebec, have plans to erect two industrial-sized wind turbines. They are counting on the turbines to provide a steady source of income. The problem is that one of the turbines is about 1,000 feet from some homes in Vermont and Canada. In Canada, wind turbines cannot be located closer than 1,640 feet from a home, while in Vermont the distance is determined by the sound of the blades, and the developer says the turbines would meet the requirements. The standard is that the turbines cannot exceed Vermont's 45-decibel noise limit.

Media reports suggest that the battle has already reached the point that the mayor of Stanstead has threatened to cut off water to some homes on the American side

There are seven homes in Quebec that would be less than 1,640 feet from the wind turbine. One family with two young children, located about 1,500 feet away, is opposed. A woman with an 8-year old autistic child living on a horse farm 3,700 feet away is leading the opposition. She has said that her son is hypersensitive to noise, which is the motivation for her opposition. The project has not yet been approved by Vermont regulators. The wind turbines will be visible for miles, which further complicates the challenge of arriving at an equitable solution. Media reports suggest that the battle has already reached the point that the mayor of Stanstead has threatened to cut off water to some homes on the American side. While the wind turbines must only meet Vermont standards, the relationship between the two towns that are virtually one community with a border running through it would suggest that adhering to the Canadian distance standard might be the appropriate solution.

Beyond Conventional Energy – A New Newsletter Is Born

“The search for cleaner energy is set to be one of the great industry challenges of the 21st century, as the world looks beyond fossil fuels to meet future energy needs”

The newsletter, *New Energy*, which is focused on renewables, carbon and transportation, has recently begun publishing. We have a trial subscription. What we found interesting was the editor's explanation for why his publisher needed to add another specialized energy newsletter to its existing stable of a dozen energy publications covering the crude oil, natural gas, nuclear power, jet fuel, energy financing and broad energy markets. He believes that “The search for cleaner energy is set to be one of the great industry challenges of the 21st century, as the world looks beyond fossil fuels to meet future energy needs.” This is an admirable goal, but as Vaclav Smil has shown, every energy transition in which a new fuel reaches a 20% to 30% share of total energy supply requires 50 to 100 years to occur.

The editor goes on to make the point that “clean energy can no longer be viewed in isolation from the wider industry.” That is clearly the case, but it doesn't mean that clean energy automatically is entitled to a privileged position just because it is clean. Again, the history of each energy transition has seen the world shift from a lower energy per unit of fuel to a higher one. The challenge is to find the next highly energy-intensive fuel, which hopefully will be cleaner than the fossil fuels we are using now. A problem with clean fuels,

The issue is that we are trying to take old energy technologies – those with lower energy concentrations per unit of fuel – and turn them into fuels with greater energy outputs

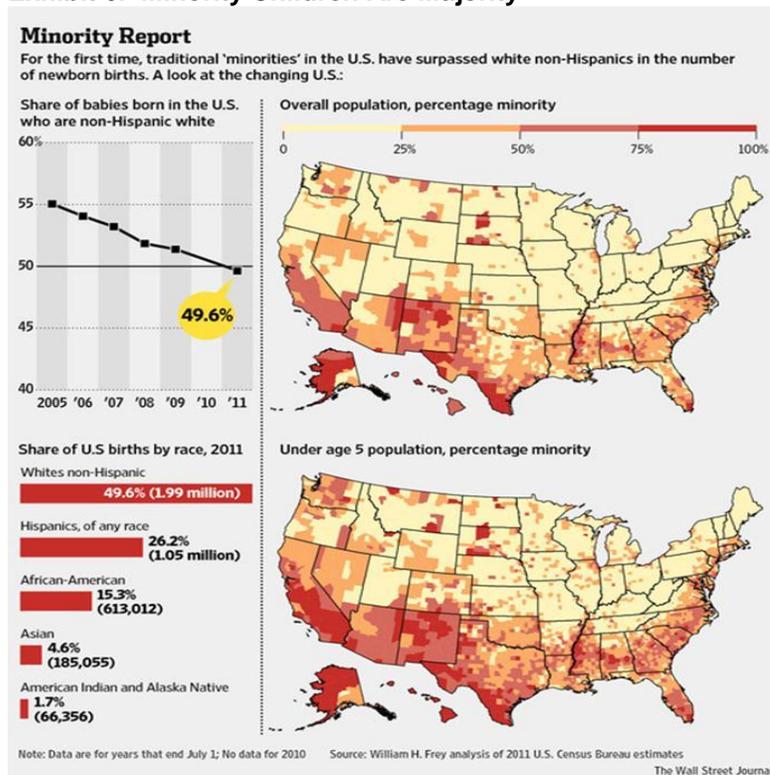
as set forth by the editor is that “As costs fall and technology advances, the story is gradually becoming less about subsidies and more about direct competition with conventional fuels.” The issue is that we are trying to take old energy technologies – those with lower energy concentrations per unit of fuel – and turn them into fuels with greater energy outputs. There may be many socially desirable qualities to these clean fuels, but they do not match the energy intensity of fossil fuels, especially crude oil. We are not sure that this new newsletter can break away from being a niche publication appealing to a narrow audience with a limited perspective on energy markets.

Demographics Raise Troubling Issues For Energy Demand

This marked the first time in the history of the United States that non-Hispanic white children accounted for less than half the country’s births

One day last week, *The Wall Street Journal* had two articles of interest and significance for people concerned with trying to estimate energy demand growth. One article dealt with the Census Bureau release of data showing that for the twelve-month period July 2010 to July 2011, minority births accounted for more than 50% of all births in the country. This marked the first time in the history of the United States that non-Hispanic white children accounted for less than half the country’s births.

Exhibit 6. Minority Children Are Majority



Source: *The Wall Street Journal*

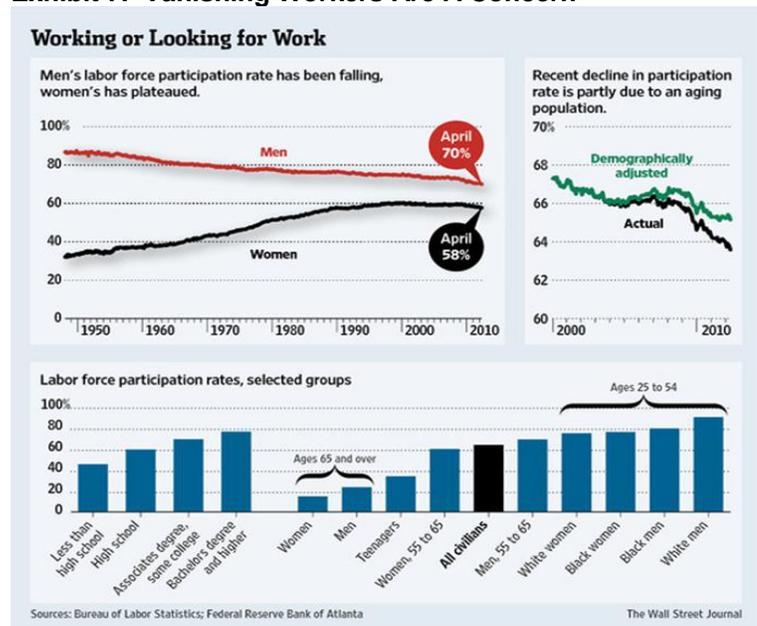
For the economy, this rapidly growing non-white population gives America a significant workforce advantage over other developed countries

During the same time, the number of people working or looking for work hasn't grown at all

The statistics point to the white population being barely above the point where births (1,025) exceed deaths (1,000). In contrast, all other ethnic groups showed a birth/death ratio of 3,940/1,000. According to data from the Pew Hispanic Center, Hispanic women give birth to 2.4 babies on average, compared with 1.8 babies for non-Hispanic whites. Moreover, minority women are younger on average, so more of them are in childbearing years. For the economy, this rapidly growing non-white population gives America a significant workforce advantage over other developed countries. Both Japan and parts of Europe are experiencing shrinking populations as deaths outnumber births. The economies of these countries will be struggling with falling populations, and aging populations. Even China has a demographic challenge as a result of its one-child population control program, which dictates that the country's population will peak in 2015. These trends highlight the importance of the second article that dealt with the missing jobs in today's economy.

David Wessel, who writes the "Capital" column in *The Wall Street Journal*, authored an article questioning where all the workers have gone. As he pointed out, the number of people in the U.S. who are 16 years old or older and not in the military has grown by 5.4 million over the past two years. During the same time, the number of people working or looking for work hasn't grown at all. He questioned whether this was because the baby-boomers have started to retire, or have a lot of people dropped out of the workforce temporarily and will come back when the economy improves, or are these drop-outs never to return.

Exhibit 7. Vanishing Workers Are A Concern



Source: *The Wall Street Journal*

Male participation has slowly declined since 1948 while the women's rate has increased

Mr. Wessel did a brief review of the history of workforce participation of men and women and how that has changed over time. Male participation has slowly declined since 1948 while the women's rate has increased. The female participation rate rose until it hit 60% in the early 1990s and then plateaued until the recession and the disappointing recovery. The analysis looks at the labor force participation rate of various population categories. Equally interesting is the graph in Exhibit 7 showing the decline in the overall labor force participation rate compared to an estimate of what it would have been had demographic trends remained stable.

The downside to this scenario is that there is an increase in the number of Americans who will need the support of a smaller workforce and it makes the budget deficit greater because there are fewer workers to pay taxes

The last part of the article dealt with the issue of what happens with the missing workers if they return to work as the economy improves. What Mr. Wessel worries about is whether the falling participation rate "signals a more worrisome dynamic: More jobless and disheartened workers turning to disability benefits or reluctant retirement, or otherwise leaving the workforce for good." Mr. Wessel believes this would be not only a waste of human potential, but also that it diminishes the maximum rate at which the U.S. economy can grow. The downside to this scenario is that there is an increase in the number of Americans who will need the support of a smaller workforce and it makes the budget deficit greater because there are fewer workers to pay taxes. The number of 'discouraged workers' is probably understated because the government survey only counts those who say they want to work and have looked for a job in the past 12 months. As long-term unemployed workers lose their benefits, they disappear from the workforce. Will they return, or are we destined to have a large population of never-again employed with the associated economic and social costs?

The demographic changes underway in America will have an impact on the pace of economic activity and the amount of energy needed. A slower growing economy, with more people living in urban areas, means a reduced rate of future energy consumption. Will that be our future, or are we destined for another scenario?

UK Renewables And Wind In Particular Under Attack

It also has a 2020 target to meet 15% of Britain's energy consumption requirements from renewable sources, such as wind, solar, biomass and marine energy sources

The UK government has one of the most ambitious climate targets in the world with a 2050 goal of cutting greenhouse gas emissions by 80% from 1990 levels. It also has a 2020 target to meet 15% of Britain's energy consumption requirements from renewable sources, such as wind, solar, biomass and marine energy sources. To achieve these goals, Britain has been aggressively building onshore wind farms and now offshore ones. There has developed a vocal minority of citizens who are highly critical of these wind farms, which forces the wind industry to launch media efforts to re-establish its popularity. Recently, RenewableUK, a wind and marine power lobby group, reported that onshore wind farms are the least costly source of low-carbon energy, however the opposition by people to the look of wind turbines has slowed its development and raised the cost for

RenewableUK officials believe that it is “undemocratic” for a “vocal anti-wind minority to derail the UK’s plans for renewable energy”

the UK to achieve its climate targets. The lobby group commissioned market research firm Ipsos MORI to conduct a survey among British citizens about their view of wind power. By surveying online 1,009 adults between the ages of 16 and 64 across the United Kingdom, the market research firm found 57% gave a score between seven and 10 in response to a question about their view of wind farms on the landscape, where one meant completely unacceptable while 10 was completely acceptable. Seventeen percent of the participants were opposed while 22% were neutral and 4% did not know.

RenewableUK officials believe that it is “undemocratic” for a “vocal anti-wind minority to derail the UK’s plans for renewable energy.” One of the latest to rail against wind farms, although not English, was Donald Trump who appeared last month in Scotland’s parliament demanding that the country end plans for an offshore wind farm he fears will spoil the view at his exclusive new \$1.2 billion golf resort. Mr. Trump attended a hearing on how the Scottish government can achieve its green targets for 2020. The plans call for installation of 11 200-foot tall wind turbines off the coast near the golf course.

When challenged for hard evidence about his claims on the negative impact of turbines, Mr. Trump responded, “I am the evidence; I am a world class expert on tourism”

Mr. Trump claimed Scottish leader Alex Salmond and his predecessor Jack McConnell gave him verbal assurances a wind farm would not be built off the coast of his resort. “They wanted my money,” said Mr. Trump. “I was lured into buying the site, after I spent my money they came and announced the plan.” Mr. Trump told the committee, “Scotland, if you pursue this policy of these monstrous turbines, Scotland will go broke.” His view was that tourists would be turned off by the wind turbines and that they would abandon Scotland for places such as Ireland and elsewhere. When challenged for hard evidence about his claims on the negative impact of turbines, Mr. Trump responded, “I am the evidence; I am a world class expert on tourism.” His claim brought laughter from the public gallery. Scotland’s tourism agency said its own research shows 83% of UK visitors will not be turned off by turbines.

He also demonstrates that prolonged periods of low wind conditions at times of high electrical demand are to be expected as regular occurrences

The dispute over wind power and its cost has spilled into a debate about the amount of and need for subsidies between two green organizations - RenewableUK and the Renewable Energy Foundation (REF). RenewableUK believes that the contribution of wind power technology is an important factor in the UK’s security of energy supply. REF argues that this is a “simplistic” analysis as government wind power subsidies have distorted the wind market and will ultimately result in strengthening the UK’s reliance on natural gas, particularly at times of peak power demand. REF relies on the work of Paul-Frederick Bach, the author of [The Variability of Wind Power](#) that shows there is little wind ‘smoothing’ across Northern Europe wind fleets. He also demonstrates that prolonged periods of low wind conditions at times of high electrical demand are to be expected as regular occurrences. This has been the pattern of

wind energy in Denmark, the leading wind power developer in Europe. The country has been able to ship surplus wind power to Norway and then receive clean energy back when needed. The UK doesn't have this flexibility.

To help counter this argument, RenewableUK has been pointing to data released from UK energy regulator Ofgem in its Renewables Obligation (RO) annual report for 2010/11. It shows that support for onshore wind added just £4.68 (\$7.40) to household annual energy bills. Supporting all renewables under the RO – including offshore wind, wave, tidal, biomass and landfill gas – costs consumers £15.15 (\$23.97) each.

Because the UK has moved from a gas surplus status to now having to import gas, it is subject to high liquefied natural gas (LNG) prices

Renewables firm, Ecotricity, pointed out that according to Ofgem's December 2011 Electricity and Gas Supply Market Report the rising cost of imported natural gas added about £120 (\$189.82) to residential energy bills last year. Ecotricity noted that this increase in the cost of gas added more than 10% to energy bills, while support for onshore wind added less than 0.05%. Because the UK has moved from a gas surplus status to now having to import gas, it is subject to high liquefied natural gas (LNG) prices. Those prices are rising so much, given that most LNG contracts tie their price to that of crude oil, that the UK's big six electricity companies have actually mothballed gas-fired power plants in favor of coal-fired ones. That is obviously not a positive for the country's efforts to reduce carbon emissions.

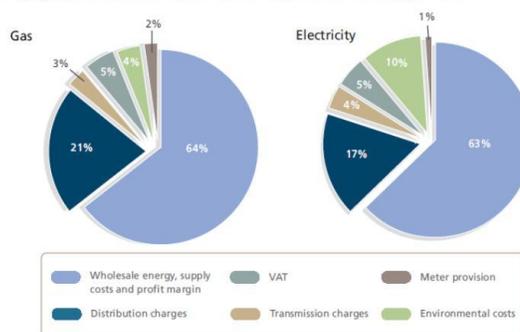
If, however, we add the fuel component of electricity to the share of the gas bill, then we are talking about a total fuel component equal to £656.24 (\$1,038.07), which says that the high cost of gas impacted the bill by nearly 20%

We found the comments about the impact of rising natural gas prices and the impact of renewables on energy bills very interesting. It is even more so when one understands that only 63% of a homeowner's electricity bill is related to the wholesale price of energy. As reported by Ofgem, the medium annual electricity bill in the UK is £424 (\$670.70), based on 3,300 kilowatt-hours (kWh) of consumption, or about 0.1285 pounds (\$0.20) per kWh. Given the average bill, £267.12 (\$422.54) represents the fuel component. The incremental costs for wind and renewables seem reasonable, but we are hard pressed to think that gas prices have contributed nearly half of the electricity fuel bills. If, however, we add the fuel component of electricity to the share of the gas bill, then we are talking about a total fuel component equal to £656.24 (\$1,038.07), which says that the high cost of gas impacted the bill by nearly 20%. That doesn't fit with the statement from Ecotricity that the impact was 10%. We conclude that Ecotricity related the gas cost to the combined gross electricity and gas bills, which is the wrong analysis since there are components of customer bills that are unrelated to commodity market forces such as the cost of distribution and transmission (regulated by Ofgem), meter costs and valued added taxes. The environmental component relates to the government programs to save energy, reduce emissions and deal with climate change. According to Exhibit 8, environmental program costs account for 10% of gross electricity bills and 4% of gas bills. Combined the

environmental component impact on the consumer's energy bill is 6.5% of the total.

Exhibit 8. How Consumer's Bill Breaks Down

Breakdown of gas and electricity bills. This reflects gas and electricity prices in January 2011. The average gas bill for a standard direct debit account is £608. For electricity it is £424.



Source: Ofgem

We are at a loss to explain the discrepancy other than to suggest the lower percentage figure makes the environmental impact cost more acceptable to British citizens

However, if we add the wind and renewable amounts impacting consumer bills as reported by Ofgem (£4.68 + £15.15) (\$7.40 + \$23.97), the impact is only 2% of total consumer energy bills but 3% of the fuel component. So how does this compare with the Ofgem percentage breakdown that translates into 6.5% of the consumer's gross energy bills and 10.2% of the fuel component? We are at a loss to explain the discrepancy other than to suggest the lower percentage figure makes the environmental impact cost more acceptable to British citizens. The discrepancy, however, makes us skeptical about the claim of the impact of rising natural gas prices on consumer energy bills. Just to be clear, the Ofgem figures and the Ecotricity claims were reported on an environmental web site, although we have verified the Ofgem figures from their web site. This suggests to us that the web site writer never used a calculator to verify the claims. The ultimate hypocrisy of the web site article is that the writer claims clean-energy subsidy critics are basing their arguments on outdated and inaccurate data. We would caution that one should know your sources and verify their accuracy record before blindly accepting claims.

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