

MUSINGS FROM THE OIL PATCH

June 22, 2010

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

Does BP Have a Future in the Gulf, Or At All?

The five people appointed to the commission appear to have strong scientific credentials

Last Monday evening the White House issued a press release announcing the appointment of the five remaining members of the BP Deepwater Horizon Oil Spill and Offshore Drilling Commission. President Obama established the commission to examine the causes of the drilling explosion on Transocean's (RIG-NYSE) Deepwater Horizon rig and the resulting BP plc (BP-NYSE) oil well spill. The five people appointed to the commission appear to have strong scientific credentials suggesting they are well-qualified to conduct the necessary investigation and preparation of a report, presumably with recommendations on how to prevent another such accident, but none have any oil or offshore drilling experience.

It appeared that the White House was cleaning up loose ends before President Obama's speech to the American public

The timing of the appointments, however, was interesting as it appeared that the White House was cleaning up loose ends before President Obama's speech to the American public the following night. This was a necessary move if the President didn't want to be labeled as not being on top of the rig accident and oil spill cleanup. It was with great fanfare that President Obama had announced the formation of this commission. He introduced the panel's co-heads, former Florida U.S. Senator Bob Graham and former Administrator of the Environmental Protection Agency William K. Reilly, during a Rose Garden media event on May 22nd, although the order had been signed the day before. The May 21st order was signed exactly one month after the Deepwater Horizon rig sank.

The week after the rig sank and the well began spewing oil, President Obama ordered a moratorium on new deepwater drilling activity until all deepwater rigs were inspected and certified as being safe to drill. The Interior Department was instructed to

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prepare a report on deepwater drilling and any safety steps necessary and deliver it to the White House within 30 days, or before May 28th. When the report was signed off on by the industry experts asked to review it, there was no drilling moratorium recommendation included as reported in last week's editorial in *The Wall Street Journal*. After the President ordered a six-month deepwater drilling moratorium in response to public and political outrage over the oil spill and concern about safety, he used that period as a measure of the time necessary for the completion of the commission's report. The written order creating the commission says it has a six-month life following the date of its first official meeting, but it can complete its work and deliver its report sooner. Publicly, President Obama has linked the results of the commission study to the expiration of the deepwater drilling moratorium.

The delay in appointing the commission has consumed over 13% of the supposed six-month life of the moratorium

So why did it take the administration fully 24 days to appoint the balance of the commission? Is President Obama concerned about the spill and its effects on the Gulf of Mexico and its coastal citizens along with the harm the moratorium will cause the domestic oil and oilfield service industry and its workers and their families? One has to think not when it takes three and a half weeks to fill-out membership on this commission that is the linchpin in getting the Gulf and the domestic oil industry back to work. The delay in appointing the commission has consumed over 13% of the supposed six-month life of the moratorium. Since the commission has six-months to complete its report following its first meeting, does this linkage suggest that rather than ending in November, the moratorium won't end until sometime in December?

Was it a "shakedown" as Rep. Joe Barton (TX-R) claims or an effective use of the "bully pulpit" as others suggest?

We spent last week watching and reading the media's coverage of President Obama's two-day trip to the Gulf Coast to inspect and gather facts and stories about people hurt by the oil spill and its cleanup effort. We also watched the news coverage of the White House command meeting with BP executives and then the seven and a half hours of tortuous testimony by BP's CEO Tony Hayward the next day. We had missed most of President Obama's Oval Office speech along with 16 million others who previously watched his State of Union Address, but we read the text of the speech and listened to and read the media's and various news pundits' views.

The highlight of last week was the agreement by BP to provide a \$20 billion fund for paying claims from the oil spill. Was it a "shakedown" as Rep. Joe Barton (TX-R) claims or an effective use of the "bully pulpit" as others suggest? For those who want to try to understand what is happening to BP and the oil industry, we suggest readers examine the lessons learned from watching the Russian government's destruction of one of its oil companies, Yukos, and the oil industry's recent experiences with Hugo Chavez in Venezuela.

Briefly, Yukos became one of Russia's premier oil companies after being built under the loans-for-shares program that allowed private companies to buy up state assets in the late 1990s. The program lacked transparency and leaders used asset-stripping maneuvers

As the article pointed out, many novel and non-Russian legal theories were used against Yukos and Mr. Khodorkovsky

to create excessive profits. In the case of Yukos, there is an extensive article in the *Michigan Journal of International Law* that analyzes the history of the company and its legal problems as the company's economic success became a political threat. Yukos became a truly professional operation in the early 2000s by adopting international standards and accountability for financial reporting including having their financial statements audited by PricewaterhouseCoopers. It helped Yukos become a favorite of Russian securities markets and Standard & Poor's.

Once Yukos CEO Mikhail Khodorkovsky took steps to possibly challenge the political power of Russian leader Vladimir Putin, the power of the government and the Russian legal system was brought to bear. Mr. Khodorkovsky and Yukos were charged with money-laundering and tax evasion with the claim reaching \$27 billion, equal to the company's total profits over a four-year period ending in 2003. Mr. Khodorkovsky is now in court facing additional charges as the jail term from his first conviction is coming to an end. As the article pointed out, many novel and non-Russian legal theories were used against Yukos and Mr. Khodorkovsky. The bottom line is that the world-class assets of Yukos were sold cheaply to politically-favored Russian energy companies.

Similar heavy-handed treatment was administered to Royal Dutch Shell (RDS.A-NYSE) over its ownership interest in a Sakhalin Island natural gas development. Now we are being treated to political and legal pressure being applied to the BP-TNK joint venture due to its western ownership. So far ExxonMobil (XOM-NYSE) has been able to avoid similar problems, although attempts have been made.

Most of us are probably more familiar with the January 2007 partial nationalization of western oil companies operating heavy oil extraction plants in the Orinoco River region of Venezuela in joint venture with the state-owned oil company at the behest of President Hugo Chavez. Last year, the oilfield service companies operating in Venezuela were subjected to similar heavy-handed treatment by the Chavez government because their costs were limiting the government's oil profits (the cash flow powering the government).

This is in keeping with its view that every crisis should be used to advance its political agenda and that it is best accomplished by targeting subjects and then demonizing them

Our point is not to detail how these countries' actions compare or contrast with our government's current actions in dealing with the BP oil spill. It appears, however, that the Obama administration believes any populist action is acceptable regardless of the rule of law. This is in keeping with its view that every crisis should be used to advance its political agenda and that it is best accomplished by targeting subjects and then demonizing them. In this case, BP has not helped itself with certain comments by its leaders – Tony Hayward and Carl-Henric Svanberg. Watching Tony Hayward testify before the House subcommittee was frustrating and disappointing, even recognizing the “lawyering up” he underwent. For example, he should have been provided with statistics that BP knew would have addressed areas of inquiry. For example, knowing how many deepwater wells BP has drilled in the Gulf of Mexico or how many it

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drills each year should have been easy answers that would have avoided Mr. Hayward's "I'm afraid I don't know that number" answer. But then again, anyone being questioned during a congressional hearing knows he is destined to be a punching bag and was not summoned to participate in a debate.

Can BP survive? As a company? Yes. In the United States? Questionable. BP earned \$5 billion in the first quarter of 2010 with \$7.5 billion in cash flow. Financially, BP can survive virtually all the cleanup and legal damage scenarios put forward so far, but those assume an orderly expenditure pattern. One condition of the compensation fund, however, was that the company pledge assets equal to the full \$20 billion value of the fund. Those pledges are to be released as the company deposits cash equal to their value into the fund. Could a situation develop where the government forecloses on these assets and we create "US Oil" like we have "US Motors"? Maybe some of these assets will be sold and BP becomes a shell of its former self in the U.S.

The stock market talk shows on Friday devoted segments to speculating on who BP should hire as its new CEO

As a company, BP will need new leadership. The question is when the change should be made. The news on Friday was focused on BP's decision to remove Tony Hayward from the position of overseeing the Gulf cleanup and replacing him with an American BP executive. The stock market talk shows on Friday devoted segments to speculating on who BP should hire as its new CEO. Suggestions included Jack Welch, former chairman and CEO of GE (GE-NYSE), and retired Lieutenant General Russel L. Honoré, who led the Gulf Coast cleanup after Hurricane Katrina. In our view, BP already has the right candidate on board – Paul Anderson. Mr. Anderson was appointed a BP director on Feb. 1, 2010. He is the former head of BHP Billiton (BHP-NYSE), Duke Energy (DUK-NYSE) and Spectra Energy (SE-NYSE). We have watched his career since we first met him 30 years ago at Texas Eastern and have invested successfully in the companies he has led. He has the international and energy experience necessary to lead BP and install a new culture that the company appears to need badly.

There will be new operating and safety rules imposed in the Gulf, and they will spread to other international offshore markets

The big challenge is how the BP spill will reshape the U.S. and global oil industry. There will be new operating and safety rules imposed in the Gulf, and they will spread to other international offshore markets. Liability limits for energy companies operating offshore will be increased. This will have the same effect as industry mergers as small companies elect or are forced to vacate the Gulf as it becomes too financially risky. This will force the sale of joint venture interests and the realignment of new offshore partnerships.

Fallout from these changes will result in onshore crude oil and natural gas assets becoming more valuable. The small companies forced from the Gulf will direct their money onshore, which could boost property and asset values, or drive drilling on highly marginal prospects. This could create future industry problems. Some small companies may elect to go abroad if they can afford the infrastructure cost and risk.

The biggest winner in this whole affair will be the renewables industry. Not only can it claim “We’re not oil,” it will gain increased sponsorship from politicians and bureaucrats who see them as preferred energy alternatives and desirable social programs, regardless of whether they make economic sense. Oil and gas company executives are always concerned about the future prices for these commodities, but they may want to worry about their demand, at least in the U.S. Higher operating costs may push up oil prices, but then again the history of the oil industry has never shown a real link between prices and costs.

The offshore oilfield service industry is likely looking at becoming more international in the future, which will create a challenge for those companies totally dependent on the Gulf of Mexico

The offshore oilfield service industry is likely looking at becoming more international in the future, which will create a challenge for those companies totally dependent on the Gulf of Mexico. We understand that the offshore oil and gas industry there will not disappear, but the growth-dynamic investors and oilfield service company executives assumed was imbedded in it will be lacking. The oil industry has reached a tipping point and will never again operate as it did before the April 20 Deepwater Horizon blowout.

Never Underestimate RI Greenies and Wind Power

After a contentious political battle, the Rhode Island House and Senate passed and the governor signed legislation ensuring the approval of the Deepwater Wind demonstration offshore Block Island wind power project. The legislative route became the preferred solution once the state’s Public Utilities Commission (PUC) disapproved the power purchase agreement (PPA) for the surplus power to be generated by the project.

Exhibit 1. Wind Farm Is South Of Block Island



Source: Block Island Tourist Bureau

The PUC determined that the agreement was not “commercially reasonable,” the standard all renewable power contracts are required to meet

The PPA had been negotiated between the project’s developer, Deepwater Wind, a subsidiary of Bluewater Wind, and the state’s primary utility, National Grid (NGG-NYSE). The negotiated PPA had established a 24.4¢ per kilowatt-hour (kWh) price with a guaranteed 3.5% annual escalation in each year of the 20-year contract. The beginning power price was below what Deepwater Wind had originally demanded (30.5¢/kWh) in its negotiations. After an extensive review of the economics of the PPA with its possible impact on power prices for both residential and industrial customers in Rhode Island, the PUC determined that the agreement was not “commercially reasonable,” the standard all renewable power contracts are required to meet. That standard was established a little over a year ago when the state instituted a renewable power standard (RPS) for National Grid.

The PUC’s evaluation process included extensive written and oral testimony from National Grid and Deepwater officials along with various technical and economic experts. In addition, the staff of the PUC submitted testimony and economic analyses of the information provided by the parties to the PPA. In addition, the PUC held a series of public hearings to solicit the opinions of residential and industrial consumers who would be paying the increased electricity cost of the offshore wind project.

Gov. Carcieri believes renewable power, especially wind, represents a huge opportunity for the state and its labor force

As was expected, Governor Donald L. Carcieri (Rep.-RI) and many of the state’s legislators were outraged by the PUC’s ruling. The governor has spearheaded an effort to develop wind power projects offshore Rhode Island with the expectation that it will spur the growth of a renewable energy industry based in the state. Rhode Island was about the first state to enter the recession and, although local economists claim it has ended, seems still to be mired in it. Unemployment in Rhode Island is at 12.3% based on the latest statistics (May) and with long-term unemployed workers (out of work for nine months or more) representing more than one-third of the total of unemployed citizens. As a result, Gov. Carcieri believes renewable power, especially wind, represents a huge opportunity for the state and its labor force. He remains convinced that Rhode Island can become the hub for manufacturing and installation facilities especially for offshore wind that he and other coastal state governors see as a growth industry.

This board of four officials would only need one official to approve a power contract, even if the other three rejected it, for the project to move forward

The initial political fix was the governor’s idea to create a super-board that would supersede the legal authority of the PUC for determining the feasibility of offshore wind power projects. The board would have been composed of four heads of state agencies, appointed by and subject to removal by the governor. This board of four officials would only need one official to approve a power contract, even if the other three rejected it, for the project to move forward. There would have been no review of the PPA by the PUC. This is in contrast to the structure of the PUC, which is an appointed board whose members are not subject to removal by the governor unless they commit certain illegal act.

Deepwater Wind's own analysis showed that the project would only create six permanent jobs and between 35-50 temporary jobs with many of them being people located in the Gulf of Mexico

We wrote in the May 25, 2010, issue of the Musings about the political battle enjoined by supporters of the PUC and the governor and his supporters. We quoted from the 28-page letter written to the House Committee on Environment and Natural Resource by PUC Commissioner Mary E. Bray suggesting that based on the testimony, facts and analyses there was a significant cost to Rhode Island electricity consumers that was not proportionate to the potential economic benefit to the state. While offshore wind power supporters claimed a \$200 million benefit to Rhode Island's economy, Commissioner Bray pointed to the fact this information was not presented during the hearings and that Deepwater Wind's own analysis showed that the project would only create six permanent jobs and between 35-50 temporary jobs with many of them being people located in the Gulf of Mexico where the wind turbines would be constructed. For this employment gain, Rhode Island consumers would spend an incremental \$390 million above the cost of alternative power sources over the 20-years of the contract. Additionally, there was no information showing the cost of having to rebuild wind turbines after their economic life of 20-years is reached.

The PUC is allowed to hold one public hearing within five days after the PPA is submitted for approval and its evidentiary hearings must start within 30 days

After numerous attempts to pass the governor's super-board idea, the proposal was modified to force the PUC to have to approve the project. The final bill was hotly debated at hearings on June 9th and was finally passed by the House in the early hours of June 10th. The House approval vote was by a 56-15 margin following the Senate's 25-10 approval. The bill was approved by the respective House and Senate environment committees by 9-6 and 5-2 votes, respectively. Following Gov. Carcieri's signing the bill into law, Deepwater Wind and National Grid returned to the negotiation table to agree on a new PPA that must be resubmitted to the PUC and evaluated and approved within 45 days. The PUC is allowed to hold one public hearing within five days after the PPA is submitted for approval and its evidentiary hearings must start within 30 days.

To realize the perverse nature of the new law, one needs to only understand how corrupt the bill's language has become. It is virtually a legislated special interest law designed to guarantee Deepwater Wind's project approval. Under the prior legislation regarding the appropriate measure for reviewing and evaluating PPA's for renewable power, the standard was "commercially reasonable." Under the new legislation, the PUC must approve the contract if it is deemed to be "commercially reasonable for a small offshore wind-demonstration project that is limited to eight wind turbines, even if there may be other energy alternatives in the region that could produce electricity at a lower unit cost."

"They're essentially asking the PUC to compare the cost of this proposed project against itself"

Tricia Jedele, director of the Conservation Law Foundation's Rhode Island Advocacy Center, was quoted in a *Providence Journal* article as saying, "It's designed to make it difficult for the Public Utilities Commission to come up with a decision other than what the General Assembly wants it to decide. They're essentially asking the PUC to compare the cost of this proposed project against itself." The Conservation Law Foundation participated in the original PUC

hearings on the PPA and in support of offshore wind, but has now withdrawn its support of Deepwater Wind.

In addition, the law mandates that “The [PUC] shall give substantial deference to the factual and policy conclusions set forth in the advisory opinions in making the required findings.” The state Economic Development Corporation will submit an advisory opinion on the economic benefits while the state Department of Environmental Management will do the same for environmental benefits including the impact of possibly reducing carbon emissions.

This entire episode is based on Gov. Carcieri’s belief that “if you build it, they will come” approach to offshore wind power

This entire episode is based on Gov. Carcieri’s belief that “if you build it, they will come” approach to offshore wind power. He believes, and has publicly stated, that Rhode Island needs to seize the first-mover advantage of wind power, but this experiment will be carried on the backs of the state’s electric power customers. Hopefully Gov. Carcieri’s approach works.

Energy Demand At Risk With Weakening Economy

Despite the sovereign debt crisis in Europe and weak economic statistics in the United States, global oil demand estimates remain strong

The Energy Information Administration (EIA) and the International Energy Agency (IEA) are continuing to fine-tune their oil and energy demand forecasts for this year and next, but in general they are barely changing them. Despite the sovereign debt crisis in Europe and weak economic statistics in the United States, global oil demand estimates remain strong driven by assumptions of continued high economic activity in the Pacific/Asia and Middle East regions. One wonders whether those two regions can carry global economic activity given the world’s growing interdependence.

In the United States, the EIA forecast calls for oil demand growth of 230 thousand barrels per day (kb/d) in 2010 followed by 200 kb/d in 2011

In its latest forecast, the EIA calls for world crude oil consumption to grow by 1.5 million barrels per day (mmb/d) in 2010 to be followed by an additional 1.6 mmb/d demand growth in 2011. The EIA cites Asia and the Middle East as the strongest sources of oil demand. In the United States, the EIA forecast calls for oil demand growth of 230 thousand barrels per day (kb/d) in 2010 followed by 200 kb/d in 2011. According to the IEA in its latest monthly oil report, the agency sees global crude oil demand growth of 1.7 mmb/d for 2010 after having increased its growth forecast by 60 kb/d last month.

On a broader scale, the EIA’s recent short-term outlook for energy consumption in the U.S. suggests that while oil use will increase marginally, natural gas consumption will grow by 2.4 billion cubic feet per day (Bcf/d) due to a 1.0 Bcf/d increase in consumption related to more electric power demand and a 1.0 Bcf/d increase in industrial sector use. The EIA sees natural gas consumption falling in 2011 by 0.3 Bcf/d as they see industrial use falling more than the increase in the electric generation sector. In the coal market, the EIA is more bullish calling for a 3.9% increase in use in 2010 and a further 2.3% gain in 2011. The gain in coal consumption in 2011 would suggest lower coal pricing will help blunt further gains by natural gas in the electric power generating sector as gas prices rise

toward \$6 per thousand cubic feet. The EIA's outlook for energy is based on a continued, healthy recovery for the U.S. economy – but will it?

Exhibit 2. Housing Starts Fell In Latest Month

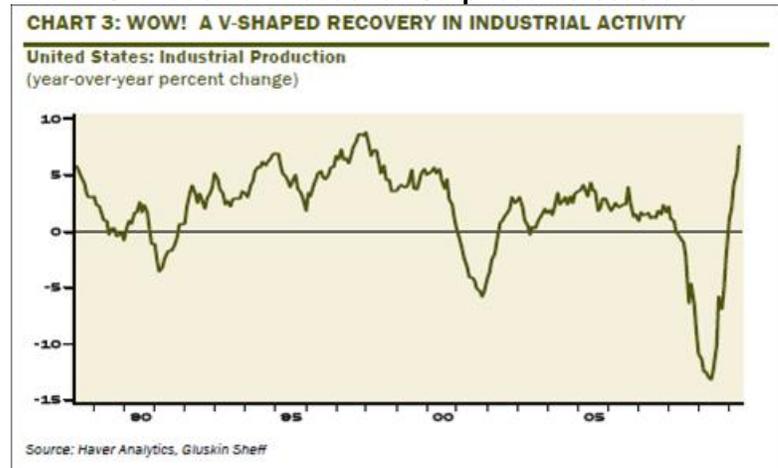


Source: Gluskin Sheff

Within the housing statistics was a 17.2% decline month-over-month for single family starts, the largest monthly decline since January 1991

The most recent data for the economy suggests greater (and surprising for the bulls) weakness than expected. The weakness being pointed up by the statistics have bearing on the outlook for energy demand. The first data series was housing starts, which were down by 10.0% month-over-month in May with the decline being nearly three-times worse than expected by the economists. Also, the April housing start statistics were revised lower. Within the housing statistics was a 17.2% decline month-over-month for single family starts, the largest monthly decline since January 1991. They are now running at a 486,000 unit annualized rate, the lowest since May 2009 when the nation was emerging from the credit crisis of

Exhibit 3. Industrial Production Surprised Forecasters



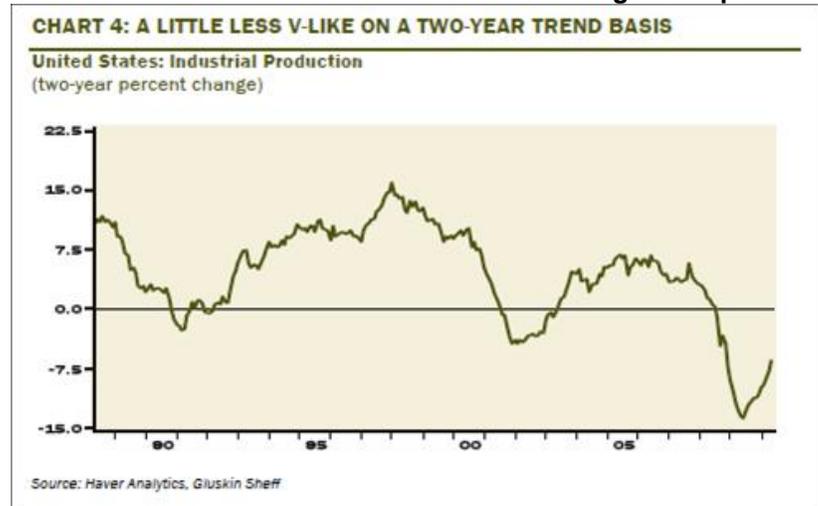
Source: Gluskin Sheff

The improvement was helped by manufacturing increasing 0.9% that was driven by a 5.0% increase in motor vehicle production

2008. The fall in starts was supported by comments from nationwide homebuilder Toll Brothers (TOL-NYSE) that said its customer traffic and deposits on new homes had collapsed in the last few weeks, maybe due to the April 30 expiration of the new homebuyers tax credit. Congress has just taken steps to extend the credit for people who completed their paperwork before the expiration on April 30th but were unable to complete the transaction by that date. Further supporting the weakening housing sector, building permits were down 5.9% month-over-month in May following the 10.9% decline recorded in April.

Good economic news came with the report that U.S. industrial production increased 1.2% month-over-month in May versus the analysts' expectation of a 0.9% gain. The improvement was helped by manufacturing increasing 0.9% that was driven by a 5.0% increase in motor vehicle production. The improvement in industrial production reflects a V-shaped economic recovery, at least when measured against last year's data. But if the change in industrial production is measured over longer time periods – two years or five years, for example.

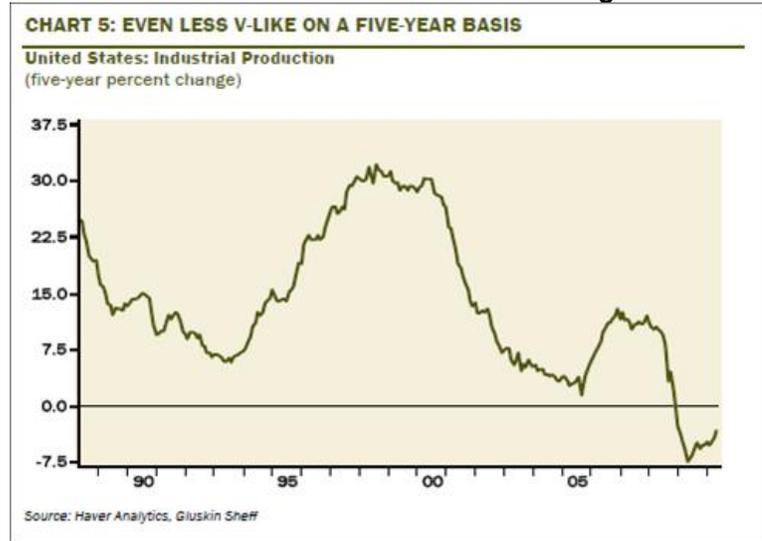
Exhibit 4. Industrial Production Weaker On Longer Comparison



Source: Gluskin Sheff

While the V-shaped recovery is still evident when the change in industrial production is measured over two years, the strength of the recovery is more muted. That becomes even more evident when the change is measured over five years.

Exhibit 5. Industrial Production Weaker In Long-term



Source: Gluskin Sheff

The U.S. economy still has significant headwinds impacting the pace of the recovery

The point of this exercise is to attempt to put into perspective the pace of the industrial recovery. It is healthy, but the U.S. economy still has significant headwinds impacting the pace of the recovery. The recovery has been consistent with a typical inventory led cyclical recovery, but not as strong as historically experienced. The message seems to be it will take several years of this type of recovery before we impact the high unemployment rate.

Exhibit 6. Industrial Production Gain Looks Positive



Source: Gluskin Sheff

The nation's capacity utilization index rose to 74.7% in May, but it remains nearly five percentage points below its long-term average. The manufacturing capacity index rose to 71.5%, but it remains

When one examines the capacity utilization index for all sectors, only two are above their long-term average as shown in the nearby chart

seven percentage points below its long-term average. When one examines the capacity utilization index for all sectors, only two - mining and petroleum and coal products - are above their long-term average as shown in the nearby chart. The chart also shows how much the capacity utilization indices for each sector have climbed significantly from the June low.

Exhibit 7. Sector Capacity Utilization Remains Weak

TABLE 1: CAPACITY UTILIZATION – MAY 2010

United States (percent, unless otherwise noted)

	Current reading	Long-Term Average	Above/Below Long-Term Average (percentage point difference)	Percentage point difference from June 2009 low
Mining	90.6	86.9	3.7	9.9
Petroleum and Coal Products	86.1	85.3	0.8	1.6
Food, Beverage, & Tobacco Products	79.9	80.9	-1.0	4.0
Aerospace	72.6	73.8	-1.2	-1.4
Chemicals	73.7	77.3	-3.6	3.0
Total	74.7	79.8	-5.1	6.4
Electric and Gas Utilities	81.0	86.1	-5.1	2.3
Apparel and Leather	73.7	78.9	-5.2	10.5
Plastics and Rubber Products	77.1	82.7	-5.6	12.0
Elec Eqpt, Appliances & Components	75.9	81.8	-5.9	6.6
Fabricated Metal Product	69.8	75.8	-6.0	7.7
Computer and Peripheral Equipment	71.1	77.3	-6.2	8.1
Manufacturing	71.5	78.3	-6.8	6.4
Miscellaneous Durable Goods	69.3	76.2	-6.9	2.7
Communications Equipment	69.8	76.7	-6.9	0.4
Computer and Electronic Products	69.5	77.5	-8.0	6.7
Machinery	66.1	75.8	-9.7	10.0
Paper	76.0	86.1	-10.1	3.6
Semiconductors and Related Equipment	69.3	79.6	-10.3	12.9
Primary Metal	67.2	78.3	-11.1	21.5
Printing & Related Support Activities	70.2	81.7	-11.5	2.9
Textile and Product Mills	68.6	80.2	-11.6	9.5
Furniture and Related Products	62.7	76.3	-13.6	4.9
Motor Vehicles and Parts	56.8	73.7	-16.9	20.0
Nonmetallic Mineral Products	56.7	75.7	-19.0	1.6
Wood Products	54.5	77.0	-22.5	5.0

Source: Haver Analytics, Gluskin Sheff

Source: Gluskin Sheff

While we are experiencing a cyclical recovery, we have a long way to go to merely return to the levels of economic activity that existed before the emergence of the housing and international credit crisis

All these statistics suggest that one should not get too carried away with the recent performance of the economy. Most statistics are pointing to the fact that we are recovering, but the U.S. economy still remains significantly below its long-term performance. Thus, while we are experiencing a cyclical recovery, we have a long way to go to merely return to the levels of economic activity that existed before the emergence of the housing and international credit crisis. Energy demand will be challenged to grow meaningfully unless economic activity ramps up faster, soon.

BP Oil Spill Supports Obama Call For EVs, But Really?

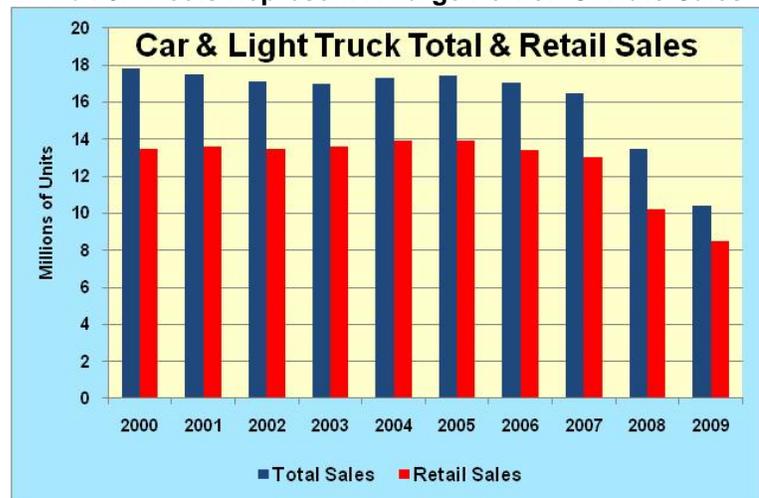
An article in the business section of *The New York Times* last Friday was titled "Bullish Signals From G.M. And Toyota" (TM-NYSE) and reported on decisions by each company that will boost their production of cars. Upon reading the article, it appeared the headline was more optimistic than the facts supported. G.M. is planning to skip its normal two-week summer shutdown at nine of its

Toyota will shift its manufacturing of Corollas from a unionized plant in California to the non-union plant in Mississippi

11 assembly plants. In the article it acknowledged that the two-week shutdown is more of a negotiated union perk than a company manufacturing policy. Additionally, the company said it is ramping up its car production by 42% in the second quarter and 16% in the third quarter compared to last year after its sales have increased 30% so far this year. Since the two-week shutdown usually occurs in the third quarter, one wonders how a 16% planned production increase signals a significant increase in future car demand.

The Toyota news is even more convoluted. The company announced it was going to restart the construction of a new auto assembly plant in Mississippi that had been stopped for the past 18 months. Toyota will shift its manufacturing of Corollas from a unionized plant in California to the non-union plant in Mississippi. Additionally, the output of the new plant will not be as much as it produced in California, which should leave it additional space for more capacity should demand for the car exceed its expectations or demand for hybrid Prius ramp up. The plant was initially planned to build Prius cars until gasoline prices dropped reducing hybrid vehicle demand significantly.

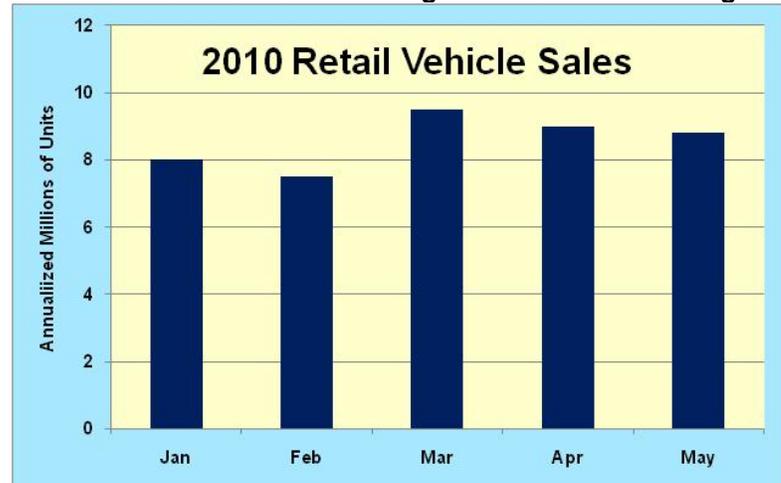
Exhibit 8. Fleets Represent A Large Portion Of Auto Sales



Source: JD Powers, AlixPartners, PPPHB

According to the analysis, the rise in auto sales in the first five months of 2010 has been driven to a greater degree by sales to rental-car companies and other commercial fleets than to consumers

So while a casual reader of *The New York Times* story might think there is a growing recovery in auto sales, a recent study by AlixPartners reported in *The Wall Street Journal* said that vehicle sales were failing to meet the optimism of earlier in the year about the pace of the auto industry recovery. According to the analysis, the rise in auto sales in the first five months of 2010 has been driven to a greater degree by sales to rental-car companies and other commercial fleets than to consumers. Total sales of cars and light trucks are up 17% year-to-date with fleet sales up 32% and retail customer sales up only 13%.

Exhibit 9. Retail Sales Are Falling With Incentives Ending

Source: AlixPartners, PPHB

The impact of fleet sales on overall vehicle sales earlier in the year was not clear because manufacturers didn't break them out separately

Countering the supposed optimism of G.M. and Toyota, George Pipas, a sales analyst at Ford Motor Co. (F-NYSE), says they are seeing evidence of consumers delaying decisions on major purchases because home values and income growth have not rebounded as they had anticipated. According to the AlixPartners study, the impact of fleet sales on overall vehicle sales earlier in the year was not clear because manufacturers didn't break them out separately. The impact of the government's cash for clunkers incentive program coupled with Toyota's aggressive incentives to counter its vehicle recall mess also stimulated demand. AlixPartners's study says that only 6% of consumers plan to buy a car during the next six months down from the historical average of 7%. This lower level of new car demand is not sufficient to drive a robust rebound in auto sales. If this forecast comes true, then another necessary prop for stronger energy demand is eliminated.

Renewables are destined to become the core of America's future energy supply, regardless of whether the public accepts it and can afford it

But maybe we shouldn't worry as it appears the Obama administration's energy policy will be to push Americans into electric vehicles (EVs). The speech President Obama delivered last Tuesday night on the BP oil spill and our need to embrace a new, post-oil energy future means that renewables are destined to become the core of America's future energy supply, regardless of whether the public accepts it and can afford it. A prominent role in this visionary future will be assumed by EVs.

The primary target of renewables is fossil fuels used to produce electricity

Increased corporate average fuel efficiency (CAFE) standards for the nation's vehicle fleet will help slow or reduce gasoline demand. Increased energy efficiency in appliances and new buildings and the use of new supply sources such as wind and solar power will also impact the need for petroleum products. The primary target of renewables is fossil fuels used to produce electricity and the competitive landscape there can be impacted by imposing a price on carbon emissions or limits on the amount of carbon that can be released into the atmosphere. The challenge is how to replace the

“Early adopters” who are young, have high incomes, already own one or more cars and are centered in southern California where weather and infrastructure make owning EVs easier

U.S. customers are accustomed to a certain type of automotive experience and for EVs to become accepted, they must mimic this experience and performance

While EVs that can travel 50-100 miles on a single charge would meet the driving needs of most customers, research shows that they are not comfortable with that range

highly efficient petroleum fuels that power our transportation system – gasoline, diesel, bunker and jet fuels. So far we haven’t developed any alternative fuel that is as efficient as petroleum and emissions-limiting ethanol is woefully inefficient relative to its cost.

Deloitte Consulting LLP recently issued a report on the mass acceptance of EVs in the U.S. automotive market. The report was based on original primary and secondary research, interviews with CEOs of auto, clean-tech and energy companies and a survey of nearly 2,000 current vehicle owners – an interesting and illuminating mix of data sources. According to the study, target customers for EVs fall into “early adopters” who are young, have high incomes, already own one or more cars and are centered in southern California where weather and infrastructure make owning EVs easier. The proportion of this population that could become the early majority for EVs is about 1.3 million people, which is too small to alone assure profitability for these vehicles.

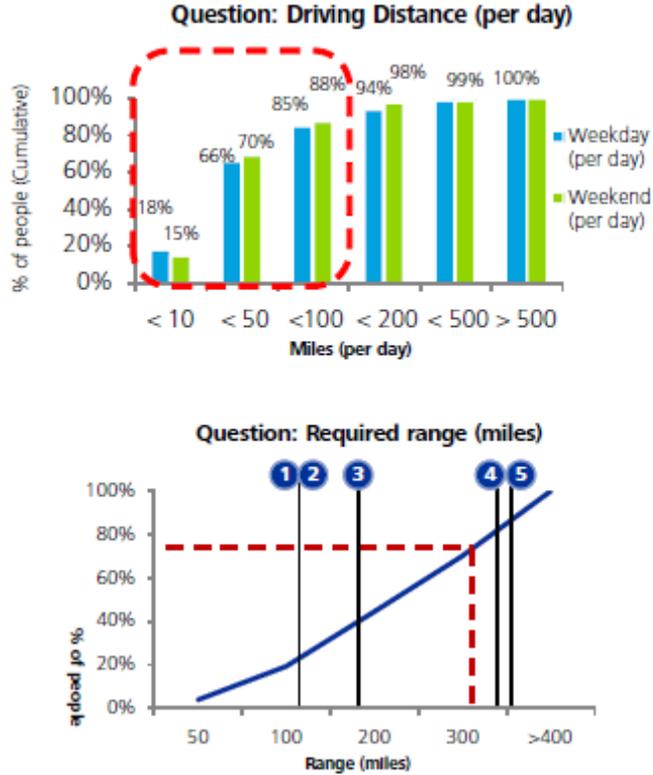
In contrast, “non-adopters” are highly insensitive to environmental matters, rarely politically active, live predominantly in suburban and rural areas, drive a significant distance every week, are price sensitive and have low household incomes and view EVs as expensive. Because most of these non-adopters do not have garages, the difficulty of recharging EVs is a major barrier to their acceptance.

The study pointed out that auto company CEOs understand one thing that clean-tech startup-company CEOs seem not to appreciate, which is that U.S. customers are accustomed to a certain type of automotive experience and for EVs to become accepted, they must mimic this experience and performance. The study identified six barriers to mass adoption of EVs: familiarity, brand, range, charging, infrastructure and price/ cost of ownership. Since EVs represent an even more radical departure from internal combustion engine (ICE) powered vehicles than did hybrids, public acceptance will require a greater educational effort that will have to be supported by EV manufacturers.

Range anxiety is a significant barrier that EVs must overcome. While EVs that can travel 50-100 miles on a single charge would meet the driving needs of most customers, research shows that they are not comfortable with that range. Most customers demand a minimum range of 300 miles before they would consider EVs, or the equivalent of the distance an ICE vehicle could travel on a single tank of gasoline. Battery charging is another significant barrier. Only 17% of customers are willing to have EVs if they require eight hours to recharge, but the percentage doubles if the recharging-time can be cut in half. The most desirable solution is to have the ability to recharge in the time it normally takes to fill up a vehicle’s gasoline tank – or about five to ten minutes. This experience is behind the idea of battery switching facilities such as being pioneered by Better Place, but that will require battery standardization, a strategy auto manufacturers do not seem to be embracing, yet.

Exhibit 10. EVs Can Meet Most Driver Needs

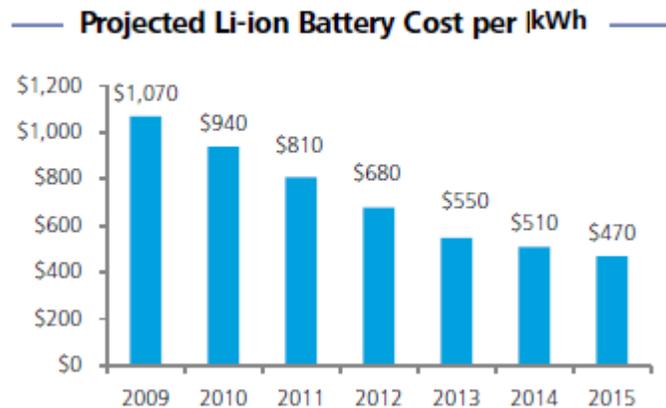
Figure 11. Survey Respondent's Driving distance, per day and required



Source: Deloitte Consulting

Based on current battery costs and gasoline prices, there will need to be significant progress on both fronts before EVs are broadly adopted by consumers, or manufacturers will need to provide subsidies for a long time

The study showed that 69% of customers surveyed consider price the most important factor in their EV purchase decision. They expect to pay less than \$30,000 for an EV, which explains the pricing of Nissan's (NSANY.PK) Leaf and Chevy's Volt after taking into account the federal EV tax credit. Based on current battery costs and gasoline prices, there will need to be significant progress on both fronts before EVs are broadly adopted by consumers, or manufacturers will need to provide subsidies for a long time. One threshold is \$600 per kilowatt-hour for lithium-ion batteries, assuming that gasoline prices remain below \$3 per gallon. Based on the projection in the study, battery costs should fall below this threshold by 2013 making EVs more competitive as we approach the middle of this decade. Of course, should gasoline prices soar or be hiked by government-imposed taxes, the economic threshold for EVs might be reached sooner.

Exhibit 11. \$600/kWh Threshold Key To EV Success**Figure 19. Li-ion Battery Cost/kWh**

Source: Deloitte Consulting

In 2020 EVs will account for 3.1% of total automobile sales in the U.S. market, or about 465,000 units

The 1969 Santa Barbara oil spill led to the first ever Earth Day in 1970 and the creation of the Environmental Protection Agency, the passage of the Clean Air Act, clean water legislation and marine mammal protection

The conclusion of the study is that in 2020 EVs will account for 3.1% of total automobile sales in the U.S. market, or about 465,000 units. Assuming that there will be five manufacturers selling three models each in 2020, then each model will only sell about 30,000 units per year making it difficult to recover the cost of their infrastructure investment. Those economic parameters might be changed if the government legislates increased incentives for EVs or greater costs for people buying and operating ICE-vehicles. Along those lines, a bipartisan bill has recently been introduced into the U.S. Senate that would designate five to 15 cities or towns to become model communities to prove EVs can work. The bill would provide funds for building more charging stations and residents would get an increase in the existing tax credit for buying EVs from \$7,500 to \$10,000 per unit. The bill would also provide \$1.5 billion for additional research in battery technology and establish a \$10 million prize for whoever can develop a battery with a 500-mile range. The total cost of the legislation is estimated at \$10 billion over five years.

The environmental movement clearly has gained greater traction in fighting any expansion in offshore drilling as long as the BP oil spill continues. Whether the spill actually becomes a catalyst for new significant environmental policy changes remains to be seen. The 1969 Santa Barbara oil spill led to the first ever Earth Day in 1970 and the creation of the Environmental Protection Agency, the passage of the Clean Air Act, clean water legislation and marine mammal protection. If one considers the seismic shift in U.S. government policies with regards to the environment that followed the 1969 oil spill, it is not hard to image a similar, and maybe more dramatic and/or quicker, shift in energy and environmental policies following the BP spill. As we have said before, the BP oil spill and Deepwater Horizon accident marks a tipping point for the traditional energy industry. The energy industry will never again do business as it did before the Gulf oil spill.

Will Offshore Wind Power Ever Become Economic?

They will have to cough up somewhere between \$700 million and \$1 billion extra, even after allowing for “suppression-price savings” provided by National Grid

After the Cape Wind offshore wind power project in Nantucket Sound was approved by Secretary of the Interior Ken Salazar in April, Massachusetts electricity consumers held their breath to see how much the clean energy would cost them. National Grid, who will buy half the power to be produced by this project, announced recently its detailed projections on how much extra its ratepayers will have to pay. They will have to cough up somewhere between \$700 million and \$1 billion extra, even after allowing for “suppression-price savings” provided by National Grid. Just to remind readers, suppression-pricing comes from the assumption that with the existence of wind power with its virtual zero-marginal cost there will be downward pressure on New England regional electricity prices. That downward pressure comes because electricity in the region is priced on an hourly basis. The hourly-pricing is established by the highest cost power source, so as cheap wind power satisfies a share of the region’s electricity demand, it will eliminate demand that would otherwise be satisfied by high-cost energy. As a result, overall electricity prices will decline from what they would have been if wind-power were not part of the region’s energy supply mix.

Since National Grid is only purchasing half the power from the Cape Wind project, the cost to Massachusetts electricity customers, assuming someone else buys the balance on the same terms, will total roughly \$1.4 to \$2.0 billion over the 15-year term of the contract. If the suppression-pricing assumption does not prove correct, then the cost will exceed even that estimated total. Consumers are justifiably shocked by this disclosure. Consumers had been led to believe that low-cost wind energy would reduce power bills in the future, not raise them and certainly not raise them as much as National Grid is suggesting.

In 30 years, the company plans on reversing its fuel supply profile as it must have 85% of its power production CO2 neutral

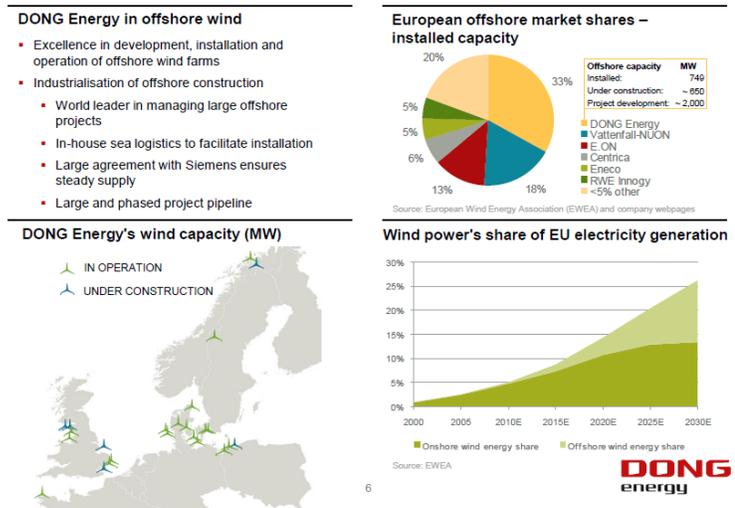
In this regard, it was interesting reading an interview with Dong Energy’s CEO, Anders Eldrup, conducted by the *European Energy Review*. Dong Energy is the Danish state-owned energy company that is transforming itself from a primarily fossil-fuel dominated company to a renewable energy company. Today, Dong Energy’s electricity production is 85% powered by coal and 15% by renewables. In 30 years, the company plans on reversing its fuel supply profile as it must have 85% of its power production CO2 neutral. Dong Energy plans to accomplish the transformation by closing coal-fired power plants, converting other coal-fired plants to biofuels, building natural gas-fired power plants and expanding its wind power portfolio. Mr. Eldrup’s observations about wind power, its cost and challenges offer insights into problems with the U.S. push to increase winds role in the nation’s energy supply mix.

Dong Energy’s current wind energy plans are to have 815 megawatts (MW) operating in 2020 with 915 MW of wind power under construction and a project pipeline that will lead to a total wind power capacity of some 3,000 MW. In response to a question about

“Clean technologies cannot yet compete in the marketplace on their own”

the business case for offshore wind, Mr. Eldrup answered, “I won’t deny that we can only make this transformation thanks to subsidies. If there were no subsidies we would not be able to do it. Clean technologies cannot yet compete in the marketplace on their own.” He went on to state that Dong Energy is a market leader in wind power and is spending 50% of its capital investment on additional wind farms.

Exhibit 12. Dong Energy Is Leader In Offshore Wind
Offshore wind development



Source: Dong Energy

The interviewer went on to ask about the sustainability of the company’s business model if subsidies are cut. Mr. Eldrup acknowledged that future rules might change, but he said that he would be surprised if rules were changed given that companies had based their investment plans on the current rules. In that regard he commented that he had received a letter from then-British Prime Minister Gordon Brown stating that the subsidies for offshore wind turbines has been allocated for 20 years.

“For offshore wind it is not possible in the near or mid-term future”

Mr. Eldrup was then asked whether Dong Energy’s wind power ambitions could be realized if subsidies were cut. Mr. Eldrup’s response was that “maybe you can make a business case for onshore wind without subsidies.” He went on, however, to say, “For offshore wind it is not possible in the near or mid-term future.” He acknowledged that constructing offshore wind projects is not easy or cheap. The reason the company is building offshore is because politicians want more wind power and high population density prevents more wind turbines onshore. He commented that “We know people like wind, but not in their backyard.”

In order to confront the high cost of offshore wind power, Dong Energy is taking steps to cut costs. One action was to sign a framework agreement with Siemens (SI-NYSE) for the supply of 500

“I would say that production costs for offshore wind are roughly double compared to that of traditional sources”

To prevent the overloading of the electrical system, which might happen if a large number of drivers elect to recharge their batteries at a certain time of the day, Dong Energy and Better Place are developing intelligent systems that automatically prevent overloading

The company believes that making ethanol from corn is not appropriate given the fact that there are people starving in the world

of their large 3.6 MW turbines. It is believed that by buying such a large number of a specific type of turbine would enable Siemens to establish an assembly-line manufacturing process that should reduce the per-unit cost. Dong Energy also has bought a specialist vessel company, A2SEA, which is a market-leader in installing wind turbines and their foundations.

When asked about offshore wind production costs, Mr. Eldrup said, “I would say that production costs for offshore wind are roughly double compared to that of traditional sources. But if we can make offshore wind more efficient, and I am sure we can, and if a price is put on CO₂, we will be able to narrow the gap.” This statement suggests that offshore wind power may never be economic without continued and significant government subsidies and that a price for carbon emissions is established.

Another consideration about wind power that Mr. Eldrup discussed was what happens when it reaches a certain level. At that level the electricity system can become unstable. As a result, a solution the company is adopting is to promote the development of electric vehicles. EVs can counter this unstable condition because they can provide large-scale storage of electricity. Dong Energy is partnering with Better Place to set up an organization in Denmark to introduce electric vehicles with a goal to reach 100,000 EVs sold after the start-up stage. Better Place will develop battery switching stations in which EVs can have them changed in the time an internal combustion engine model fills up its gasoline tank. Drivers of EVs can also opt to recharge the battery at home. To prevent the overloading of the electrical system, which might happen if a large number of drivers elect to recharge their batteries at a certain time of the day, Dong Energy and Better Place are developing intelligent systems that automatically prevent overloading. At the end of the day, however, Mr. Eldrup says that the purchase and use of EVs will be cheaper than gasoline-powered vehicles in Denmark. “But this is because we have gotten a special tax relief from the government. I don’t expect that this will last forever.” Once again, Mr. Eldrup points to the importance of government subsidies for improving the economics of alternative power technologies.

Mr. Eldrup further highlighted these challenges when he discussed Dong Energy’s use of biofuels and carbon capture and storage (CCS). Last December, the company began operating the world’s first and largest demonstration plant for second-generation bio-ethanol in Denmark. The company believes that making ethanol from corn is not appropriate given the fact that there are people starving in the world. In addition, Dong Energy does not use sugar, either. They use straw, which is a waste product. The production process is more complicated, and presumably more costly. Dong Energy believes it has gotten to a commercial stage in this process, but only further time will prove whether their belief is correct.

With respect to CCS technology, Dong Energy has a demonstration plan that has been running for three or four years. It reports that

We have a government that believes renewables are the solution to all the nation's energy problems but a public that neither understands the technological challenges of renewables nor wants to pay the high price they now command, and may require for a long time

their experience shows carbon can be captured and sequestered, but the loss of energy efficiency is quite high. It sounds to us that CCS technology still has a long way to go.

We found the information about the economics and politics of renewables contained in this long and detailed interview with Mr. Eldrup to be quite fascinating given the view prevailing in this country that renewables are merely a hair's distance away from profitability. We have a government that believes renewables are the solution to all the nation's energy problems but a public that neither understands the technological challenges of renewables nor wants to pay the high price they now command, and may require for a long time. Either public attitudes need to change or technological breakthroughs must occur. Until then, expect more problems with renewables as they achieve less than the energy "silver bullet" President Obama proclaims them to be, and as a result, consumers rebel.

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