
MUSINGS FROM THE OIL PATCH

December 15, 2015

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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

Developing An OFS Business Model For Today's World

He was trying to assess what he could, should or would have to do for his business to compete in 2016 and the years afterwards

Sipping his morning coffee, the oilfield service company CEO contemplated the dire business headlines that reflected the current environment his business was confronting. More important than thinking about next week's jobs and payroll, he was trying to assess what he could, should or would have to do for his business to compete in 2016 and the years afterwards. The big news that morning was Kinder Morgan Inc.'s (KMI-NYSE) announcement it was slashing its dividend by 75%. The move reflected the challenging business environment the 84,000-mile pipeline operator was facing after financing significant new pipeline and energy infrastructure investments with debt that had now become an albatross on the balance sheet. The prospect of the cut was signaled by investors dumping the company's shares and driving its price down by a third in the prior week.

Investment broker ISI's E&P spending survey for 2016 signaling another 11% cut on top of the 20% reduction this year

No sooner had KMI disclosed its distribution cut, when another troubled energy/natural resource company, Freeport McMoRan (FCX-NYSE), suspended its annual dividend and slashed its capital spending plans for 2016 by 20% and by 40% for 2017. As the CEO read his paper, he reflected on the fact that this move wasn't totally unanticipated given the capital saving actions of other large natural resource firms such as Anglo American (AAUKY-OTC), Glencore Plc (GLNCY-Nasdaq) and BHP Billiton Ltd. (BHP-NYSE). More troubling, however, were the headlines announcing the 18th exploration and production company filing for bankruptcy, investment broker ISI's E&P spending survey for 2016 signaling another 11% cut on top of the 20% reduction this year, investment broker TPH pointing to their proprietary survey of major oil industry capital projects showing 150, or nearly a quarter of those they track, have been postponed or delayed due to weak oil and gas prices. That was not surprising given that oil prices had just fallen to a 7-

The attorney general of New York was investigating ExxonMobil

year low after OPEC couldn't get its act together in Vienna the prior week.

Add to all this bad news, there was the ongoing show in Paris where tens of thousands of climate change fanatics were huddling trying to forge a legally-binding agreement on the nations of the world to cut their use of fossil fuels dramatically. If that wasn't enough, the attorney general of New York was investigating ExxonMobil (XOM-NYSE) for supposedly misleading investors about its knowledge of the climate harm from using the company's oil and gas products.

What this means is that the U.S. is condemned to economic growth of 2.2% per year, on average, well below the long-term growth rate of 3%

Lastly, there was a small article buried inside *The Wall Street Journal* reporting on the latest projections from the U.S. Department of Labor showing that America will generate 9.8 million new jobs, a 6.5% increase, from 2014 to 2024. That's good news – but wait, the article said that rate is historically low. During 2001-2007, new job creation grew by 14% and it grew by 17% during the 1990s. According to the Labor Department, this slower job growth means the labor force participation rate will fall by two percentage points to 60.9%, the lowest it has been since the days of President Richard Nixon. What this means is that the U.S. is condemned to economic growth of 2.2% per year, on average, well below the long-term growth rate of 3%. Even though we are selling 18 million new cars and trucks this year and Americans appear to be driving them more, their better fuel-economy has limited the growth in gasoline use, and that's in a period of very low gasoline pump prices. What happens when prices rise? We know they always do. So will that kill demand growth? And don't forget what the Obama administration wants to do to our use of energy – kill it with taxes, regulations and shame!

My customers have always been supportive and loyal – often giving me a push to expand to meet their needs, but lately they've become somewhat cranky about our prices

"Let's see where I stand," thought the CEO. "I have a good product that the E&P companies need to drill and complete their wells. My customers have always been supportive and loyal – often giving me a push to expand to meet their needs, but lately they've become somewhat cranky about our prices. I guess I better go talk to them and explain why I need to charge so much. Oh wait, I did hear from our salesman that our competitor in West Texas was cutting his price to try to lure my customers away. I guess I better go talk to those customers. You know – that up close and personal thing. But if those guys were part of the capital spending survey, I better find out quick how much money they do expect to spend next year and what that means for my business. I may have to make some really tough decisions about staffing next year – especially if I want to be ready for the next upturn, which we know is just around the corner.

"I better make a point of dropping by my banker, too, to make sure he's ok with our finances. I've heard rumors around town that old Joe has become somewhat of a hard-ass, but I've dealt with him for twenty years. Even went through that Asian currency crisis period in the late 1990s together when oil prices crashed and drilling activity seemed to drop off the table. Heck, we even weathered the 2008

What does it take for me to run this business at breakeven?

financial crisis with his help. But I did notice that Joe looked more stressed the last time I saw him, and he muttered something about the bank regulators pressuring him to reduce his energy loans.

“Maybe it’s time for some bold steps. I wonder what I could sell that would let me pay off the bank? Yes, my business would be smaller, but it sure would feel good not having to write that check to the bank every month. After I visit with all my clients, I need to try to figure out who was sincere about his plans and who was just trying to make me feel good until they could get me out of their office. What does it take for me to run this business at breakeven? That’s a scary number. I didn’t realize it was that high. I wonder how it got there, but more importantly, what I can do about it.

Do I let that promising, young new engineer go, or am I better off letting my older, knowledgeable, but more expensive guys go?

“You know, if those Wall Street guys are anywhere close to being right, it’s going to be pretty slow next year. It will be pretty quiet around here, too, as I will have to let a number of people go. Those are the toughest calls. Do I let that promising, young new engineer go, or am I better off letting my older, knowledgeable, but more expensive guys go? Hey, wait a minute. I bet they could all be trained to do some other tasks in those business lines we always thought about expanding into, but dismissed because our existing business was so good. Maybe I should go across town and visit with old Fred. He and I often joked about how it might make some sense for us to get together so we could offer to do more for each of our customers than we can do alone. Yes, an expansion strategy would certainly be bold.

They sure threw around some big numbers when we talked in early 2014

“Before I call Fred, I think I’ll dig out the business cards from those business development guys with Big Red and Big Blue. I wonder if they would be interested in my business. They sure threw around some big numbers when we talked in early 2014, of course that was when oil was \$100 a barrel. I remember my Daddy telling me that he never believed that oil would sell for a three-digit price, but then he grew up when oil sold for a low single-digit price. What the heck, if they’ll pay me the value of my company based on my latest earnings, I think I might just take it and head to the house. I would sure enjoy spending more time hunting and fishing and playing with the grandkids. I just need to make sure I don’t get in Momma’s hair too much.

I’ve got to be prepared for a lot less business next year, so I better figure out how skinny I can make this organization

“So let’s see, what’s my plan? Pay off my banker. Stay close to my customers – know what they are planning, but definitely make sure I know as soon as possible if they aren’t going to do what they said they were. I’ve got to be prepared for a lot less business next year, so I better figure out how skinny I can make this organization. Unfortunately, there’s no room for luxuries or deadwood any more. In fact, being understaffed and overworked probably isn’t the worst plan given today’s environment. It might also help my waist line. What I need to make sure is that no matter what next year brings, I want to be able to keep my doors open.

The one thing I've learned after all these years is that depending on just one business line – no matter how good it gets in the good times – means I will struggle when the oil business turns down as it seems to do on a regular basis

What I don't know yet is whether I'll be growing by combining with some of my friends and possibly competitors, or if it means I sell out to a bigger company

“Surviving, while critical, isn't necessarily a game plan for the long term. I know the world, and certainly America, will need more oil and gas for decades, unless those climate change people convince governments to outlaw the stuff. I'm not sure you can live depending on the wind blowing all night and the sun shining all day. More importantly, if I still want to leave something for my children and grandchildren to prosper from then I better figure out a business plan for the next few years, at least, and quick. I really do need to see whether Fred is available and what his pulse is about maybe teaming up. The one thing I've learned after all these years is that depending on just one business line – no matter how good it gets in the good times – means I will struggle when the oil business turns down as it seems to do on a regular basis. I ought to get out the Petroleum Club roster and see who else I might want to visit with. Maybe I should ask some of my key field people to tell me who they see out there that provides a good service, has good equipment, a solid safety program and who commands the respect of our good customers. There's no better way to survive than to be able to provide more products and services to your good customers.

“However, I also can't forget to make those phone calls to Bid Red's and Big Blue's business development guys. Gee, I wonder if maybe there isn't someone else who might be interested in my company. I wonder how I go about figuring that out. Maybe old Joe at the bank has some contacts, or at least ideas about where to start looking for that help. Yes, 2016 is going to be an interesting year. But if I have my debt paid down, some cash in the bank, plan to operate in a barebones manner, even though it is going to be painful getting there, and stay close to my customers to see what they are going to do, I should be able to survive. Making sure that happens is the hard part, but I know I can do it. What excites me, though, is that I've now begun to develop a plan to grow when activity turns up, as I'm sure it will, even if we don't go back to the high oil prices of the last few years. What I don't know yet is whether I'll be growing by combining with some of my friends and possibly competitors, or if it means I sell out to a bigger company. Even if I have to become an employee with a number other than one, at least I will have put some money in the bank for my old age, my kids' education and maybe even a little left over for the grandkids. What's that old expression – it's darkest before the dawn? I think I do see the light to a better future.”

Bad News For Energy Demand Growth In United States

The Labor Department sees the U.S. economy creating 6.8 million new jobs between 2014 and 2024

The U.S. Department of Labor released its latest projections for the nation's employment growth. The Labor Department sees the U.S. economy creating 6.8 million new jobs between 2014 and 2024, or a 6.5% increase. While economists and government officials are hailing that growth as a sign of the steady recovery of the U.S. economy from the Great Recession of 2008-2009, the projected

The labor force participation rate is projected to decline from 62.9% in 2014 to 60.9% in 2024

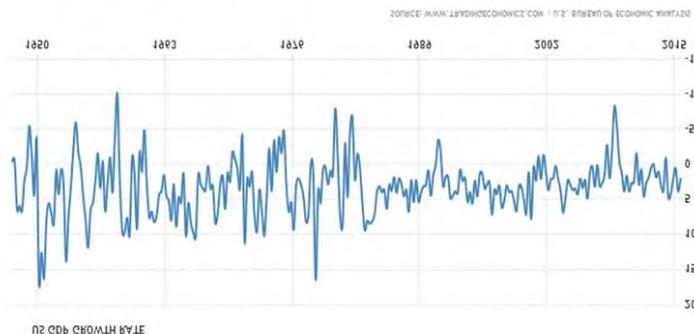
Without more workers, however, the U.S. economy is condemned to a slow-growth era

growth rate is the slowest since the economically-challenged eras of the 1970s and 1980s. During 2001-2007’s economic expansion, the U.S. created nearly 14% more jobs, which followed on the decade of the 1990s when the economy created 17% more new jobs.

What’s behind this historically slow new job creation? It is highlighted by declining participation of the population as baby boomers retire and younger Americans decide to opt out of the workforce. Because of these two trends, the labor force participation rate is projected to decline from 62.9% in 2014 to 60.9% in 2024. If that low rate is realized, then the labor force participation rate will be the lowest since 1973 when Richard Nixon was president and the country was struggling with stagnant economic conditions and high inflation rates.

Janet Yellen, the chairwomen of the Federal Reserve Bank, has testified before Congress that she didn’t expect that we would see much upward movement in the labor force participation rate. She was pointed in stating, “If it [the participation rate] were simply stable over time, rather than on that declining trend, I think we would be absorbing people who were perhaps discouraged.” A faster growth in job creation would certainly contribute to a larger economy, something the federal government is desirous of creating. Without more workers, however, the U.S. economy is condemned to a slow-growth era. The Labor Department’s prediction is that based on its forecast for new job creation, the U.S. economy will grow at an average of 2.2% per year during the decade of 2014-2024. That growth rate would be nearly one full percentage point slower than experienced during 1947-2015. As shown in Exhibit 1, the U.S. economy experienced much wider swings in its growth rate from 1947 until the 1970s. In the late 1980s and 1990s, the U.S. economy was able to grow at a more stable annual rate, but still much faster than experienced in recent years.

Exhibit 1. GDP Growth Rates 1947 to 2015



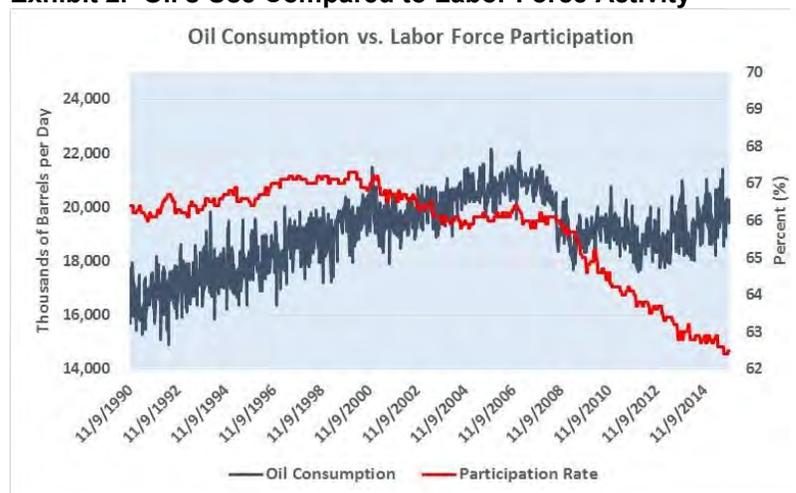
Source: *Tradingeconomics.com*

One of the other significant changes for the U.S. economy and our employment picture is the continued shift toward services and away from manufacturing. The top five employment segments according

The strongest relationship seems to be with the labor-force participation rate and energy demand

to the forecast include health-care support, health-care practitioner, personal care, computer and math, and community and social services. A service oriented economy will push employment higher but it becomes less energy-intensive. The strongest relationship seems to be with the labor-force participation rate and energy demand as demonstrated in Exhibit 2. We have plotted the weekly oil consumption figures issued by the Energy Information Administration (EIA) against the Labor Department's estimate for participation. Because the latter is a monthly series, we have elected to report the data as the average for each week.

Exhibit 2. Oil's Use Compared to Labor Force Activity



Source: EIA, St. Louis Federal Reserve, PPHB

With the Labor Department's projection calling for a further meaningful decline in the labor force participation rate over the next ten years, without low oil and gasoline prices, it is hard to see how energy consumption grows in any meaningful amount

What seems evident from the chart is that when the labor force participation rate fell below 66%, the rate of increase in oil consumption slowed and eventually declined. That decline was partially triggered by the fall in labor force participation, but there was also a small event known as the Great Recession, aka the Financial Crisis. While the oil consumption decline bottomed out and has actually shown a small increase since, driven largely by an increase in gasoline use, the participation rate has sunk lower. With the Labor Department's projection calling for a further meaningful decline in the labor force participation rate over the next ten years, without low oil and gasoline prices, it is hard to see how energy consumption grows in any meaningful amount. That is the bad news from the Labor Department's supposedly upbeat job creation forecast. The low U.S. economic growth outlook this forecast calls for unfortunately is being repeated in another major oil consuming region – Europe - where the combination of weak economic activity is combining with unfavorable demographic trends to drag down that region's future economic growth rate. This is merely one of numerous headwinds for the global oil and gas business, and a factor that will make the industry's recovery that much more challenging and likely requiring more time.

RI Governor's Plan For Climate Change Hurts Citizens

The developed countries believe that the developing economies should not be allowed to follow the same energy path they followed as they developed their economies

The United Nations COP21 conference in Paris is winding down amid optimism that the delegates will reach an agreement. The original 48-page agreement was reworked into a 20-page document that has further been reworked into reportedly a 27-page document. The problem is that many of the core issues that have divided the developed from the developing world are unresolved. The developed countries believe that the developing economies should not be allowed to follow the same energy path they followed as they developed their economies. The developing economies must be constrained in their use of fossil fuels because of the carbon emission damage to the planet. The developing economies suggest they should be allowed to use fossil fuels to aid their development since those remain the cheapest energy sources available.

She also pledged that the state will procure by 2025 all its electricity for its buildings from renewables

We have been following the goings on in Paris out of curiosity rather than rapt attention as we know that much of what has been going on can be characterized as “melodrama.” The best outcome from the meeting will be an agreement among all the attending parties that speaks of the noble cause of cutting carbon emissions to save the world from a future cataclysmic outcome, but will lack an enforcement mechanism and therefore not be legally binding on the governments. As part of the melodrama, there have been lots of comments by climate activists and politicians promoting actions to address the seriousness of the need for climate change. One such politician is Rhode Island Governor Gina Raimondo (D) who, although not in Paris, signed an executive order last week directing state agencies to cut their energy consumption by at least 10% from fiscal year 2014 levels by 2019. She also pledged that the state will procure by 2025 all its electricity for its buildings from renewables.

The executive order framed the commitment to acquire power from renewable sources such as wind turbines, solar panels and other clean energy sources

In a news conference before she signed the executive order, Gov. Raimondo invoked the threat of rising seas and other changes due to the Earth warming in justifying her action. The executive order framed the commitment to acquire power from renewable sources such as wind turbines, solar panels and other clean energy sources and to step up the state's investment in energy efficiency in terms of climate change. The executive order refers to warming temperatures, international targets to reduce greenhouse gas emissions and the Resilient Rhode Island Act, which last year set a state target of reducing carbon emissions by 80 percent from 1990 levels by 2050.

While the rhetoric is positive, the reality is terrible. Shortly before Gov. Raimondo signed her executive order, we received information in our electric bill for our Rhode Island summer home from National Grid (NNG-NYSE), the primary power supplier in the state. Included in the information was a flyer titled Electricity Facts, which showed power sources for the electricity supplied during the 12 months of April 1, 2014 to March 31, 2015. We have reproduced the table in

Exhibit 3, but the important thing to note is that wind, solar and biomass, the key renewables promoted in the climate change debate, supplied just 1.7% of the total energy consumed.

Exhibit 3. Rhode Island’s Electric Power Sources

Power Source	Resource Mix
Biomass	0.4%
Coal	3.1%
Diesel	1.0%
Hydroelectric/Hydropower	3.2%
Landfill Gas	4.4%
Municipal Solid Waste	0.2%
Natural Gas	32.3%
Nuclear	28.6%
Oil	7.0%
Solar Photovoltaic	0.3%
Imported Power	17.6%
Trash-to-Energy	0.5%
Wind	1.0%
Wood	0.4%
	100%
Renewables:	
Wind, Solar & Biomass	1.7%
add Wood	2.1%
add Hydroelectric/Hydropower	5.3%

Source: National Grid, PPHB

Surprisingly, oil supplied 7.0% of the state’s power, which reflects the lack of natural gas pipeline and storage capacity in the region as fuel oil has to be used to generate electricity during the winter

Dirty coal supplied 3.1% of the power, but the two primary power sources were natural gas (32.3%) and nuclear (28.6%). Surprisingly, oil supplied 7.0% of the state’s power, which reflects the lack of natural gas pipeline and storage capacity in the region as fuel oil has to be used to generate electricity during the winter. There was one category that drew our attention – imported power. Due to the lack of adequate power generating capacity, National Grid imports power from outside the region, primarily from Maine and Eastern Canada. Gov. Raimondo made a point about possibly importing clean power from outside the region as she talked about how to meet the demands of her executive order. The ability to import clean power was a significant issue at the time of the battle over the approval of the Power Purchase Agreement (PPA) between National Grid and Deepwater Wind for the surplus power from its offshore wind farm off Block Island. As readers may remember, the Rhode Island Public Utility Commission (PUC) rejected the initial PPA because it determined, under the tests the PUC is required to rely upon in setting electricity rates in the state, that the initial

Draft legislation was enacted mandating that the PUC could only consider wind power contracts from indigenous wind farms, even though National Grid could have purchased cheaper wind-generated electricity from other suppliers

contracted rate of 24.5 cents per kilowatt-hour plus the guaranteed annual 3.5% escalation was too costly for customers. Following that rejection, the then-governor and the leaders of the legislature cooperated in a plan to legislate the PPA's approval. In order to meet the requirement for electricity utility companies in the state to fulfill their obligation for generating the required percentage of their power from renewables, wind power was identified as the preferred source. Draft legislation was enacted mandating that the PUC could only consider wind power contracts from indigenous wind farms, even though National Grid could have purchased cheaper wind-generated electricity from other suppliers, although outside the state. National Grid not only showed contracts it had secured for wind-generated power to supply its Massachusetts customers, but the providers from Maine and Canada actually presented their case for supplying cheaper power in front of Rhode Island's legislators.

Residents shouldn't be surprised about this development as a recent analysis of the best and worst states conducted by 24/7 Wall Street showed Rhode Island to be the 4th worst state

A ratepayer can only shake his head at the cronyism of Rhode Island's public officials. Residents shouldn't be surprised about this development as a recent analysis of the best and worst states conducted by 24/7 Wall Street showed Rhode Island to be the 4th worst state. The criteria for measuring state performance began with debt per capita where Rhode Island was 2nd after Massachusetts with an average of \$9,068 per person versus a national average of \$3,567. Over 2010-2014, the state was one of 12 that lost population due to out-migration (-0.3% of its 2010 population). During that same period, property values in Rhode Island fell by 7.3%, the 4th steepest decline recorded. The state's 5.3% unemployment rate is the 17th highest while the 14.3% poverty rate is the 24th lowest. In addition, Rhode Island has the 8th highest automobile insurance premiums, the 8th lowest family income and ranks as the least charitable state – no surprise given the economy.

This is from a state that has one government building for every 1,200 residents and 1.9 square feet of government office space for every citizen

As 24/7 Wall Street wrote in its analysis, "Budget allocation in Rhode Island may not be efficient. While the state spends much more on government than is typical, at 5.4% of its annual budget, the government sector actually detracted 0.2 percentage points from the state's 2014 GDP growth, a larger drag than in all but six other states." That performance does not deter the governor from inflicting on the state's tax payers a renewables' energy plan for state government that openly acknowledges it will carry a higher cost for the power to be purchased. This is from a state that has one government building for every 1,200 residents and 1.9 square feet of government office space for every citizen. Maybe that old political expression should be modified to "Never let a feel-good opportunity go to waste, even if it inflicts economic pain on the people."

Will Lake Erie's Wind Farm Really Be First Offshore Project?

A week ago we received an email article from an investment newsletter we subscribe to telling us about the first offshore wind

The race for the first offshore wind farm started in the mid-2000s and resulted in numerous projects being proposed ranging from several to be placed in the Gulf of Mexico to a handful strung out all along the U.S. East Coast

The “potential first offshore wind farm in the U.S.” is to be located in Lake Erie, about seven miles northwest of downtown Cleveland, Ohio.

project and the perceived investment significance of this development. The article opened with the following sentence: “The potential first offshore wind farm in the U.S. has found a financial backer.” Obviously great news. However, we were surprised to read that claim given that for many years we have followed the struggles of the wind energy industry in attempting to build the first American offshore wind farm, and are familiar with nearly every project underway. The race for the first offshore wind farm started in the mid-2000s and resulted in numerous projects being proposed ranging from several to be placed in the Gulf of Mexico to a handful strung out all along the U.S. East Coast. The battle eventually narrowed down to the Cape Wind project in Nantucket Sound off the coast of Cape Cod, Massachusetts, and the Deepwater Wind project off Block Island near Rhode Island. While not truly a race, the projects were battling for federal support both in terms of permits and finances. In the case of Cape Wind and Deepwater Wind, the difficulties for and the pace at which each project progressed made for an interesting study, often highlighted by the extent to which supportive parties were willing to go to tip the scales in favor of their project. We reported on these developments so we will not retell their stories here.

Returning to the investment newsletter, one cannot imagine how shocked we were after reading the article’s first sentence to discover that the “potential first offshore wind farm in the U.S.” is to be located in Lake Erie, about seven miles northwest of downtown Cleveland, Ohio. The project is being developed by Lake Erie Energy Development Corporation (LEEDCo), which was created in 2009 to capitalize on and husband the development of wind farms following multiple favorable wind energy studies of the Great Lakes coupled with a push by the State of Ohio to foster a renewable energy industry.

Exhibit 4. Home Of First U.S. Offshore Wind Farm?



Source: 365thingstodoin365days.com

The reality is that LEEDCo is planning to sell its “research assets” to the Swedish company and then enter into a contract for the project’s construction

LEEDCo’s project involves six wind turbines, each capable of generating three megawatts (MW) of power, or a total output of 18 MW

What we found troubling about the article was that it was based entirely on a press release from LEEDCo trumpeting that it had received a financial commitment from Fred. Olsen, a Swedish energy conglomerate. The investment article failed to make clear what that support was, so by reading the article one was left with the impression that Fred Olsen was injecting capital into the project. The reality is that LEEDCo is planning to sell its “research assets” to the Swedish company and then enter into a contract for the project’s construction. Fred Olsen is working with local banks to arrange loans for the estimated \$80 million needed to construct the project. We do not know the scope of the construction contract. Based on our research, there is about a \$50 million gap between the most recent cost estimate for the turbines plus offshore power cable project we have seen from LEEDCo and the \$80 million construction cost estimate.

LEEDCo’s project involves six wind turbines, each capable of generating three megawatts (MW) of power, or a total output of 18 MW. The media continues to list the project at 20 MW of output. Originally, General Electric Company (GE-NYSE) was to supply the turbines as a founding partner in LEEDCo, but they are now no longer listed as a partner, presumably having been replaced by German wind turbine manufacturer Siemens (SIEGY-OTC) who will now supply the turbines.

Exhibit 5. Building Wind Turbines In Lake Erie



Source: LEEDCo

The offshore power will be transported through a submarine cable to Cleveland Public Power’s substation near the Burke Lakefront Airport where it will then enter the regional power grid and be available for purchase by any electric company. CPP has agreed to purchase five MWs of the electricity produced, but we haven’t seen any news that a Power Purchase Agreement (PPA) has been

LEEDCo stated that the bulk of the project's output remains to be sold

negotiated, which will determine the price to be paid for the power. Additionally, more of the projected power output has been spoken for, but no agreements have been signed. In fact, LEEDCo stated that the bulk of the project's output remains to be sold. Therefore, the claim that the average Cleveland electricity customer's bill will only increase by 87 cents per month seems a stretch, even though Lake Erie is the shallowest of the Great Lakes, which should hold down construction costs.

LEEDCo also stated that the cost of power for the first 16 years of the project's operation will be above the current cost of power for customers

LEEDCo also stated that the cost of power for the first 16 years of the project's operation will be above the current cost of power for customers. The cost estimate reflects the need to pay off the loans incurred for building Icebreaker, as the LEEDCo demonstration project is known. Without PPAs in place for the full output, it is hard to estimate the final power cost for consumers without making many assumptions. For example, does the cost estimate assume that LEEDCo will secure \$50 million in U.S. Department of Energy grants next year that is likely to become available due to the failure of several East Coast offshore projects that were recipients earlier this year? That would certainly help Icebreaker's economics. Is the \$130 million estimate project cost a solid estimate? It has increased from \$100 million in just the past two years, and the current project timetable calls for construction in 2018. Another troubling aspect of the cost estimate is that wind turbine performance deteriorates markedly after about 15 years, often necessitating that they be replaced, which would certainly alter the economic payout analysis.

Buried in the last paragraph of the press release was the statement that Icebreaker would be the first "freshwater" offshore wind project

For us, the greatest laugh came when reading the press release trumpeting LEEDCo as the first offshore wind project. Buried in the last paragraph of the press release was the statement that Icebreaker would be the first "freshwater" offshore wind project. That is quite different from claiming to be the first offshore wind project, a title that will be claimed by Deepwater Wind when its project offshore Block Island starts generating power in the fall of 2016. It recently announced that all five foundation structures have been positioned on the seabed ready to receive the turbines early next year, so it is well on its way to being the first offshore wind farm operating in the United States.

All the other Great Lakes' offshore wind proposals in neighboring states have died due to a lack of interest, local opposition or inferior economics

As far as other freshwater wind projects are concerned, all the other Great Lakes' offshore wind proposals in neighboring states have died due to a lack of interest, local opposition or inferior economics. The takeaway from the investment newsletter's article about LEEDCo's Icebreaker project is to be skeptical of claims not backed up by contractual agreements. That is true for fossil fuel projects, also. Too many owners/promoters of new energy projects are often looking for public relations leverage, especially when the projects require governmental favors, which depend heavily on the support of local residents. Therefore, many claims are often overly optimistic.

No Surprise: Climate Change Conference Saga Continues Until The End

The first deadline for approving the Paris agreement was missed

We thought the United Nations COP21 climate change conference in Paris would be more spectacular. Maybe the terrorist attacks on Parisians enjoying a glass of wine at a sidewalk café, people attending an international soccer match or enjoying a rock concert, would disrupt the resolve of the leaders of the world, their ministers and the crowds of climate change activists and media for forging a legally-binding carbon emissions restriction treaty. It didn't. However, the first deadline for approving the Paris agreement was missed. But never fear, as a *Reuters* news story headline proclaimed, "Fabius [French Foreign Minister Laurent Fabius, the host of the conference] optimistic after extending climate talks to Saturday." Ah, what could be better for Paris than for everyone to have to enjoy an additional night in the City of Lights, especially while fighting for such a good cause!

The problem was that idealism about climate change ran into reality

As often is the case, the headline writers don't read the articles. The opening paragraph of the *Reuters* story said, "Efforts to craft a global accord to combat climate change stumbled on Friday with China and many other nations refusing to yield ground, forcing host France to extend the U.S. summit a day to overcome stubborn divisions." The problem was that idealism about climate change ran into reality. That problem was highlighted by the comments of one of the leading movers of COP21, U.S. Secretary of State John Kerry, at a press conference on Thursday in which he said, "... The fact is that even if every American citizen biked to work, carpooled to school, used only solar panels to power their homes, if we each planted a dozen trees, if we somehow eliminated all of our domestic greenhouse gas emissions, guess what – that still wouldn't be enough to offset the carbon pollution coming from the rest of the world."

The moral case for fossil fuels is not something climate change activists wish to either acknowledge or deal with because their solutions inflict significant costs on the well-being of everyone

Sec. Kerry went on to say, "If all the industrial nations went down to zero emissions — remember what I just said, all the industrial emissions went down to zero emissions — it wouldn't be enough, not when more than 65% of the world's carbon pollution comes from the developing world." Sec. Kerry is getting to the heart of the issue for fossil fuels, which is that the benefit they provide for hundreds of millions of people who lack access to electricity, the most basic power source for improving their lives even though it is produced by burning fossil fuels, is greater than the fears over the potential harm the associated emissions might cause 85 years in the future. The moral case for fossil fuels is not something climate change activists wish to either acknowledge or deal with because their solutions inflict significant costs on the well-being of everyone.

We did find Sec. Kerry's comments interesting since the editorial cartoonist at Canada's *Globe and Mail* had captured the idea for everyone riding bicycles when he produced his cartoon commentary at the start of the COP21 conference, mimicking the introduction of the nations at the Olympics.

Exhibit 6. Demonstrating How To Fight Global Warming

Source: *Globe and Mail*

Climate change regulation has been, is now and will in the future be a permanent threat to the operation of the oil and gas industry

We will obviously have weeks following the Paris climate change conference to assess its outcome. Our anticipation is that for all the cheers and hoopla that will ring out worldwide about the agreement the 195 nations in attendance accept, it will lack enforceability making its impact symbolic at best. Unfortunately, the existence of the agreement will empower the current administration in Washington to double-down on its green agenda for the remaining year of President Barack Obama's term in office. Climate change regulation has been, is now and will in the future be a permanent threat to the operation of the oil and gas industry. There will be a cost paid, we just don't know how great it will be.

Houston's 2016 Job Market: Bent But Not Broken, Yet

The report was presented on Monday, December 7th, the same day that crude oil prices collapsed in a freefall

After discussing the dismal economy and labor markets of Houston and Calgary in our last *Musings*, we received further confirmation of just how tough it will be next year. The Greater Houston Partnership (GHP) has just unveiled its 2016 employment outlook for the Houston region, but in hindsight maybe it wished it had waited a few days. The report was presented on Monday, December 7th, the same day that crude oil prices collapsed in a freefall response to the chaotic outcome of the Organization of Petroleum Exporting Countries (OPEC) meeting in Vienna, Austria the previous Friday.

From the time of OPEC's announcement, the January 2016 oil futures contract on Friday fell 4.6% from \$41.79 to \$39.86 per barrel. The price recovered a little that afternoon to close at \$40.14 a barrel. The following Monday, the January futures price opened at \$39.56,

So after \$4 was shaved off the price of a barrel of oil following the OPEC ministers' statement, the energy world found itself in a freefall

rose slightly to \$39.71 a barrel before collapsing to a low of \$37.54, or a drop of 5.5%, before recovering to finish the day at \$37.75 a barrel. So after \$4 was shaved off the price of a barrel of oil following the OPEC ministers' statement, the energy world found itself in a freefall. Collapsing oil prices raised all sorts of fears: further declines for energy company revenues, profits and cash flows; cuts in 2016 capital spending, hurting the already struggling oilfield service sector; increases in credit defaults forcing industry consolidation – not positive for employment; more dividend eliminations or cuts, hurting income-dependent investors; and creating economic distortions as commodity deflation fears possibly paralyze the Federal Reserve's effort to raise interest rates, and cutting the nation's corporate profits that would negatively impact the stock market's valuation. All in all, it is not a pretty picture.

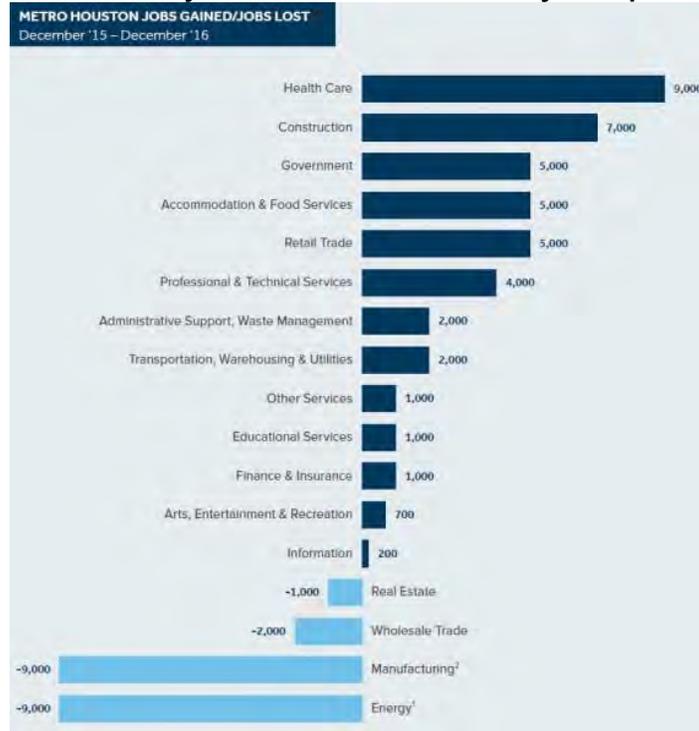
That statement supported GHP's estimate that Houston will add 21,900 jobs next year, despite the energy sector having shed as many as 19,000 jobs

In light of the recent crude oil pricing developments, we have to think the GHP analysts probably wished they had a do-over opportunity with one of their conclusions. They had written: "The outlook for next year isn't as dire as it seemed a few months ago when oil slipped below \$40 per barrel and layoffs made headlines every day. Houston will continue to lose jobs in sectors closely tied to energy, but employment will grow." That statement supported GHP's estimate that Houston will add 21,900 jobs next year, despite the energy sector having shed as many as 19,000 jobs. The strength of the Houston job market next year will rest on the health care industry that is projected to add 9,000 jobs along with construction that should add 7,000 new jobs. The government, hospitality and retail trade sectors are forecast to add 5,000 jobs each, followed closely by professional and technical services that should add 4,000 jobs. Not only will energy lose employment, but so will the manufacturing, wholesale trade and real estate sectors.

Long-time residents of Houston often marvel at the commercial developments that have replaced former oilfield manufacturing sites

Despite the current gloom in the energy sector, the more diversified Houston economy shows why this energy downturn will not inflict as much pain on the region as earlier oil price downturns. Part of the explanation rests on the fact that Houston's concentration of energy businesses is different now. In other words, compared to the 1980s, today's Houston energy sector has considerably less manufacturing than in that earlier era. Long-time residents of Houston often marvel at the commercial developments that have replaced former oilfield manufacturing sites. For example, immediately to the west of the I-10 and Loop 610 interchange, where a large shopping center and movie complex sits, was the site of Cameron Iron Works ball valve and oil tools manufacturing plants and foundry. During the 1970s oil boom, people traveling on I-10 (Katy Freeway) would see high levels of activity and blasts of red flames 24-hours a day as the foundry and plants ran three shifts. Closer to downtown were other oilfield manufacturing sites including Brown Oil Tools and Bowen Tools. The former site is now holds a church while the latter site has been replaced by apartments and a shopping center. Manufacturing facilities have mostly moved outside of the Houston metropolitan

Exhibit 7. Projected Houston Job Gains By Occupation



Source: *Houston Chronicle*

area to other states or even abroad. Therefore, the cutbacks in oilfield manufacturing have been felt elsewhere, minimizing the downturn's impact on Houston's energy employment.

During the mid-1980s downturn when oil prices fell and the rig count dropped by 85%, Houston lost 53,600 energy jobs

This oil downturn has not hurt either the U.S. or the Houston employment picture as much as in the 1980s, but it has had a greater impact than experienced during either the 2008-2009 Great Recession or the 1990s energy downturns. During the mid-1980s downturn when oil prices fell and the rig count dropped by 85%, Houston lost 53,600 energy jobs. Across all of Houston, 221,000 jobs were lost, or nearly 13% of the workforce. Overall, the energy industry was estimated to have lost 400,000 jobs during that downturn, whereas in this downturn the estimate is that about 220,000-250,000 energy jobs have been lost. Houston, so far, has lost 10,200 energy jobs, or nearly one in ten local energy positions.

Houston real estate brokers report another monthly drop in home sales for the most severe back-to-back monthly declines experienced in the area in four years

Very recent economic statistics point further to the fallout from the energy downturn. Houston real estate brokers report another monthly drop in home sales for the most severe back-to-back monthly declines experienced in the area in four years. Additionally, the Texas Comptroller's office reported a statewide drop in sales tax revenue for November, which was marked by prominent declines in regions dominated by energy activity. These are harbingers of the growing suffering now being experienced by Texas and localities

While this isn't the same as the bad-old 1980s, this downturn is hurting

within the state with high energy concentrations such as Houston. This pain and suffering will continue to be felt into 2016 and possibly beyond if oil and gas prices fail to recover next year as currently anticipated. While this isn't the same as the bad-old 1980s, this downturn is hurting what was the economic miracle of Texas, which was a major reason why the nation's economic recovery was better than it might have otherwise been.

Bernie Sanders And His Socialist Green Energy Plan

His plan is all-in for green energy and for punishing climate change skeptics and those who actually use fossil fuels

In an attempt to capitalize on the emotion and momentum generated by the politically-motivated climate activists who are focused on the daily news feeds from the UN COP21 climate change conference about progress for restricting the burning of fossil fuels globally, Democratic presidential candidate Senator Bernie Sanders (D-VT) unveiled his energy plan designed to save the Planet. His plan is all-in for green energy and for punishing climate change skeptics and those who actually use fossil fuels. Sen. Sanders' plan would cut U.S. carbon pollution by 40% by 2030 and by over 80% by 2050. That would be accomplished by instituting a tax on carbon pollution, repealing fossil fuel subsidies and making "massive" investments in energy efficiency and clean energy such as wind and solar. As a warning, there were no cost estimates attached to the plan.

Sen. Sanders would "bring climate deniers to justice so we can aggressively tackle climate change."

His plan speech introducing the energy plan hit all the politically-correct, climate change policies. Sen. Sanders would "bring climate deniers to justice so we can aggressively tackle climate change." In that regard, he has called on Attorney General Loretta Lynch to launch an investigation of Exxon Mobil Corp. (XOM-NYSE) for lying about its knowledge of the danger from climate change.

All of this will be accomplished while also reducing consumers' energy bills and creating millions of clean energy, high-paying jobs

Sen. Sanders also advocates keeping fossil fuel resources on federal lands in the ground. At the same time, he would ban Arctic oil drilling, ban offshore drilling, stop dirty pipeline projects, prevent the export of crude oil and liquefied natural gas, ban fracking for natural gas, stop mountaintop removal coal mining, increase vehicle fuel-efficiency from the current target of 54.5 miles per gallon in 2025 to 65 miles per gallon, transition our vehicle fleet to electric power by building charging stations all over the nation, invest in affordable energy storage solutions and build geothermal power plants. He would also begin a moratorium on nuclear power plant license renewal, while at the same time upgrading the nations' power grid, and investing in interstate and intercity high-speed rail systems. All of this will be accomplished while also reducing consumers' energy bills and creating millions of clean energy, high-paying jobs.

There was one part of the speech we thought was misguided. However, the language suggested that either Sen. Sanders or his speech writer understand the weakness of their argument. Early in the speech, Sen. Sanders talked about the difference support of the

Maybe if climate change wasn't one of the lowest concerns of average Americans according to multiple surveys over many years, lofty government-inspired goals might gain greater traction

American people can make in achieving national goals. He referenced President John Kennedy establishing a goal for "landing a man on the moon and returning him safely in this decade." Yes, that was a noble (and an achievable) goal, but it was partly driven by the realization of how far behind the U.S. space effort had fallen after the Russians put the first satellite into orbit around the Earth. In Sen. Sanders' mind, the problem with our climate change response is merely that our government hasn't thought "big enough" like President Kennedy. Sen. Sanders closed his thought with the line: "The solutions are within our reach – we just need average Americans to come together to make it happen." Maybe if climate change wasn't one of the lowest concerns of average Americans according to multiple surveys over many years, lofty government-inspired goals might gain greater traction. The chances of that are pretty slim at the moment as Americans instead are rushing out to buy guns for protection convinced that their government cannot protect them from jihad attacks here at home.

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PPHB is an independent investment banking firm providing financial advisory services, including merger and acquisition and capital raising assistance, exclusively to clients in the energy service industry.