

# PARKS PATON HOEPFL & BROWN

E N E R G Y I N V E S T M E N T B A N K I N G , L P

## MUSINGS FROM THE OIL PATCH

July 20, 2010

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Managing Director

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

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## Renewable Energy Investments Pale Versus Conservation

**The administration is also promoting clean energy investments as a way to boost the economy and create more jobs**

The Obama administration lately has been promoting renewable fuels and electric vehicles as part of a campaign to push their agenda for clean energy to replace dirty, fossil fuel power, especially oil. Part of this push is in response to the escalating public frustration over the BP plc (BP-NYSE) oil spill in the Gulf of Mexico, which has just been capped. The administration is also promoting clean energy investments as a way to boost the economy and create more jobs. The problem is that many of the Obama administration's policies and actions since assuming office have done a lot to curtail alternative energy investments.

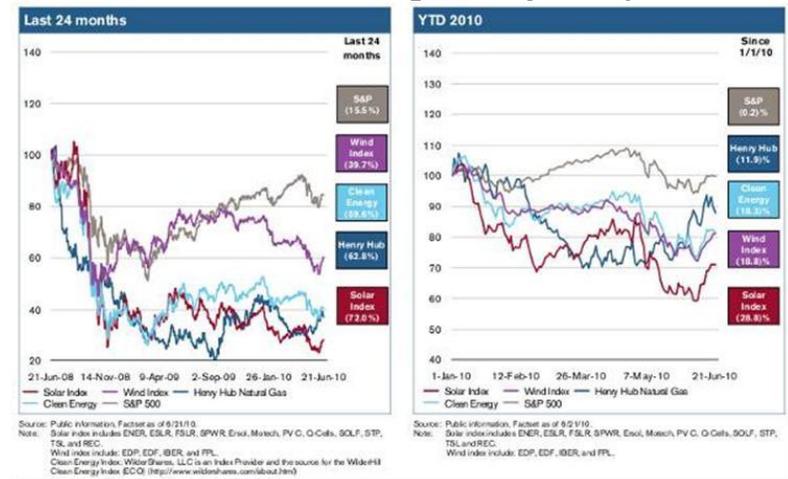
Based on data taken from the web site *Green Chip Stocks*, the poor performance of alternative energy stocks over the past 24 months, including so far this year, highlights the problem these companies are having. There are two charts in a nearby exhibit measuring stock price performance for various alternative energy sectors: wind; clean energy; natural gas; and solar versus the broad stock market, represented by the Standard & Poor's Index. The charts demonstrate just how much these clean energy sectors have underperformed the market during the last two years.

**Without an exit strategy, these providers of growth capital are reluctant to invest**

What's the significance of this extended underperformance? The greatest impact is that venture capitalists and private equity investors view the poor performance of clean energy stocks as a barrier to their ability to exit an investment. Without an exit strategy, these providers of growth capital are reluctant to invest. That makes it difficult for companies to attract the money they need to grow and become successful. The second impediment to the performance of clean energy stocks is the prospect that natural gas prices, due to

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**Exhibit 1. Renewable Stocks Significantly Underperformed**



Source: Credit Suisse

**Electricity generated by natural gas at these prices will only cost about \$0.05 per kilowatt-hour**

the significant new gas resources being developed in this country, will remain below \$8.00 per thousand cubic feet (Mcf) for the foreseeable future. Electricity generated by natural gas at these prices will only cost about \$0.05 per kilowatt-hour (kWh), which is below the cost of wind and solar power even with substantial government subsidies. The fact that the government has yet to enact a renewable energy standard (RES) or a carbon tax for the economy, the continuing volatility of energy prices and government policies toward clean energy subsidies makes bankers reluctant to lend money to fund the development of new clean energy supplies.

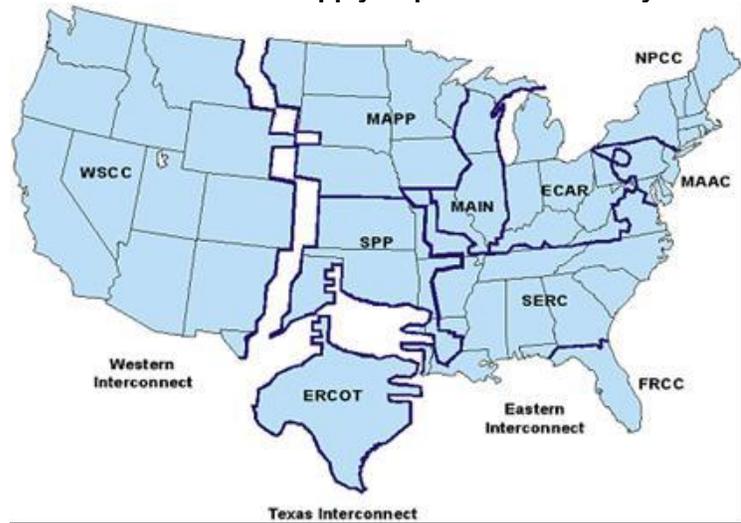
Despite this lack of capital inflow to the clean energy industry, there is one “clean energy” sector doing well – conservation. Any energy saved is profitable because the cost to produce it is avoided. A second electric power market doing reasonably well is investments in the power grid, again driven by the conservation focus. Steps to reduce electricity transmission congestion and inefficiencies on the grid can be profitable almost regardless of the price of electricity.

During the last week of June there was a clean energy conference in New York. At that conference, there was an interesting presentation by Parker Weil, an investment banker with Bank of America – Merrill Lynch (BOA-NYSE), on these two investment opportunities – conservation and grid investing. Mr. Weil’s presentation was predicated on his firm’s belief that transmission lines have life spans of about 40 years and many of them have outlived their expected lives.

**Since the electric power industry began to be deregulated in the first half of the 1980s, investment in transmission facilities has declined**

Since the electric power industry began to be deregulated in the first half of the 1980s, investment in transmission facilities has declined. This sets up a potential problem for the country since the North American power grid serves over 335 million customers, but is based on three pillars – the Eastern Interconnect, the Texas Interconnect (ERCOT) and the Western Interconnect (WSCC). Any

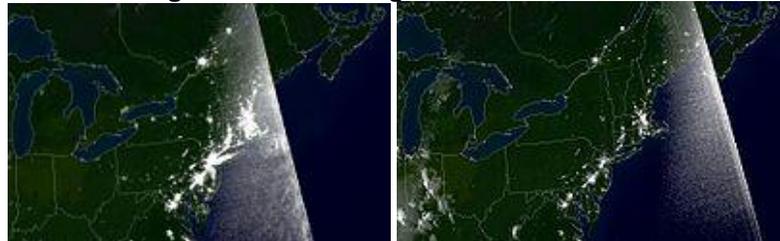
**Exhibit 2. Our Power Supply Depends On Three Systems**



Source: [www.xconomy.com](http://www.xconomy.com)

disruption in this 200,000-mile-long-lines network can escalate throughout the system leading potentially to a massive power outage such as experienced by the Northeast region in 2003 and at various times before that.

**Exhibit 3. Night Before and Night Of 2003 Northeast Blackout**

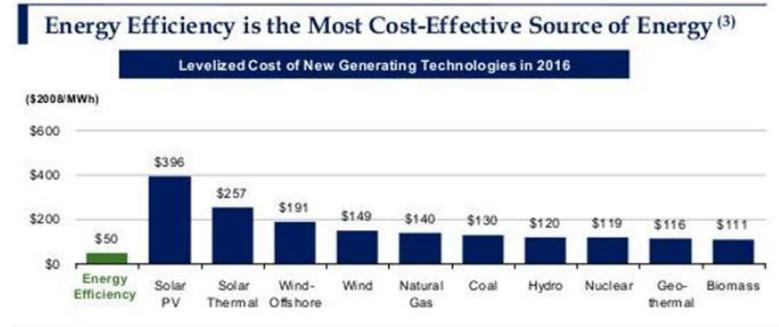


Source: NASA, Wikipedia

**50%-60% of electricity can be lost during its transmission due to faulty lines and obsolete infrastructure**

Another problem with the aging power grid is that 50%-60% of electricity can be lost during its transmission due to faulty lines and obsolete infrastructure. Since the generation of electricity accounts for 40% of all greenhouse gas emissions in the United States and is the largest contributor to the nation's emissions, eliminating this transmission loss would have a significant impact on our air pollution.

The transmission grid is being challenged to handle increased amounts of renewable power. Unfortunately, the system has few provisions to handle increased renewable power, especially given its variable nature. This is becoming a significant focal point for the system operators as state mandates for increased renewable power use means that more of it will be seeking access to the high-voltage lines. In 2000, electricity demand in this country was 14.16 trillion kWh, which has subsequently grown to 18.8 trillion kWh and is projected to increase further to 35.2 trillion kWh by 2035.

**Exhibit 4. Attractiveness Of Energy Efficiency Investments**

Source: Bank of America-Merrill Lynch

**According to his firm, efficiency investments can reduce annual energy consumption by 23% by 2020**

Mr. Weil believes that the most financially attractive investments in the power sector are those that promote electricity conservation. According to his firm, efficiency investments can reduce annual energy consumption by 23% by 2020. Importantly, investments to improve efficiency can be the easiest to finance because they have lower up-front costs and therefore offer quick paybacks. Efficiency gains can come from retrofitting homes, offices and factories with more efficient lighting, appliances and HVAC systems. There also can be efficiency gains from investments in upgrading our electricity distribution infrastructure and through the deployment of smart meters that allow for the development of a smart grid and advanced metering infrastructure.

Recently, we read about a contract between a California software company, EcoFactor, and Oncor, the North Texas electric power distributor, to install software that works with thermostats tied to smart meters that should enable homeowners to save as much as 15% of their annual energy use without changing the home's temperature. The software measures the outside temperature and the physical characteristics of the home along with the homeowner's manual input of the thermostat's desired temperature setting. The thermostat must be able to communicate over a broadband connection to EcoFactor's software in order to work. The software and smart meter allow for tweaking the thermostat every minute and then determining how best to regulate the air conditioning and heating systems utilizing weather and power demand forecasts to keep the temperature constant while using less power. For example, during the summer, the home might be cooled more than normal shortly before periods of high temperatures and high power demand.

**The plan envisions saving homeowners \$300 to \$400 per year in their electricity bills**

The plan envisions saving homeowners \$300 to \$400 per year in their electricity bills. The homeowner pays \$19.95 for the first six months of the service and then \$8.99 per month thereafter. That works out to a cost of \$73.89 in the first year and \$107.88 for each subsequent year. If the home uses 2,000 kWh of electricity each month, a 15% power savings at a retail cost of \$0.10/kWh equates to an annual savings of \$360 for the homeowner that represents a more than three-times savings-to-cost ratio. For Oncor, if EcoFactor

**Since Oncor is hoping that the power savings are all in its peak power demand period, we suspect the retailer's avoided-power cost is much more than \$0.08/kWh**

can reduce its peak power demand by 3,000 kWh of power during the three-year contract, it will pay the software provider \$240 per kWh saved, which suggests the utility's avoided-power cost is \$0.08/kWh. Since Oncor is hoping that the power savings are all in its peak power demand period, we suspect the retailer's avoided-power cost is much more than \$0.08/kWh. In fact, if Oncor has to purchase power off the grid during these peak demand period, the cost per kWh can soar to many multiples of \$0.08/kWh. For Oncor the power savings are part of the company's demand reduction program in which it offers customers discounts for agreeing to reduce their power consumption during peak power periods.

**Conservation may be one, if not the best, way for utilities to invest**

James Rogers, CEO of Duke Energy (DUK-NYSE), has preached for many years that the best investment his company can make is the power plant he doesn't have to build. He has been a proponent of demand reduction as one of the most attractive investment opportunities for Duke Energy. His biggest challenge has been convincing utility regulators to reward these efforts to conserve power since most utility rate regulation is based on increasing demand and growing investment in new facilities. How should regulators consider, and reward, investments in software and education that reduce electricity consumption and save both the consumer and the power company?

We anticipate seeing more of the EcoFactor/Oncor-type contracts in the future. Contracts such as these reinforce the view that conservation may be one, if not the best, way for utilities to invest. If saving energy can reach its maximum potential, we will not need as many expensive renewable energy supplies. That may not be the preferred investment of the Obama administration and its green energy supporters, but it would reflect how pricing signals can make the power market much more efficient.

## **Electric Vehicles: Flavor Of The Day Or Economics Driven?**

**Investors have to believe that with government backing for EVs there will be a market and Tesla will prosper at some point**

Electric vehicles (EV) continue to be the favored vehicle of the Obama administration. That love affair seems to have been extended to investors as the recent initial public offering of Tesla Motors (TSLA-NasdaqGS) was upsized and priced above the initial indicated price range. This for a company that has never made money, continues to lose money and builds the most expensive EV is the world. The message is that investors were hungry to own shares of this manufacturer of EVs regardless of whether the company will ever earn a profit. Investors have to believe that with government backing for EVs there will be a market and Tesla will prosper at some point. This observation would appear to be a harsh criticism of EVs, the pollution-free vehicles that are reshaping the automobile industry. But it is more a criticism of the policies of the federal government and politicians to want to rig markets in order to be omnipotent and pick and choose winners.

How can we doubt the success of the EV? Before year-end there

**Do buyers only want to be able to commute back and forth to work and are they willing to recharge the car each night?**

will be two new commercial EV entrants. The Nissan (NSANY.PK) Leaf all-electric car has already sold out its initial production run of 19,000 units with two-thirds targeted for the United States. Earlier this year buyers put up deposits of \$99 to secure one of the initial models suggesting the Leaf will be a big hit with consumers. That may or may not be true depending upon how well the vehicle meets buyers' expectations. Do buyers only want to be able to commute back and forth to work and are they willing to recharge the car each night? Or do they view the car as their main vehicle able to do commuting trips and take the family on its next vacation? Total electric vehicles may have a problem meeting the latter requirement.

About a month ago, *Automotive News* held its Green Car Conference/Exhibition. At that conference there were a number of presentations by the various auto manufacturers engaged in the EV market. A key topic of debate was whether EVs needed to have gasoline engines as part of the vehicle or be purely electric. A speaker from General Motors in charge of the company's global electrical systems, hybrids, electric vehicles and batteries told the audience that the "mass market EV has to be capable of being your primary vehicle." That means that EVs are not going to be niche vehicles, but they aren't going to be primary vehicles, either.

On the other hand, a spokesman representing BMW (BMW.F) said that most drivers of his company's Mini E electric vehicle test fleet say they can handle daily driving without a worry. He believes that after the consumers realize they are visiting the gasoline station only about three times a year, they will wonder why they bought a vehicle with a gasoline engine that isn't being used and merely added to the cost of the vehicle.

**Nissan's strategy with its Leaf model is to play on the "zero emissions" quality that should win buyers concerned about the environment**

On the other hand, Nissan's strategy with its Leaf model is to play on the "zero emissions" quality that should win buyers concerned about the environment. The Chevy Volt is GM's EV entrant driven by a desire to fulfill the government's goal of producing "green" vehicles in order to continue to receive financial support. So with two high-profile EVs about to be introduced this fall – one with and one without a gasoline engine – the question is which strategy will prove most successful?

**"Few people are willing to accept trade-offs in performance and price"**

The director of global electrification for Ford Motor Company (F-NYSE) says that by 2020, 10-25% of her company's global sales will be hybrids, plug-in-hybrids or pure-electric cars. Her view was that demand for these vehicles is uncertain since technology is changing rapidly. She pointed out that the range of EVs could improve dramatically with battery technology improvements and that consumer acceptance of hybrids and EVs is a "work in progress." When questioned about these observations, she stated that "few people are willing to accept trade-offs in performance and price. Ninety percent are willing to pay a bit more for an electric."

All these views are interesting because they reflect a wide divergence in auto manufacturers' approaches to the EV market.

**Consumers have yet to broadly embrace EVs, plug-in hybrids or even conventional hybrids**

Some of the views seem to be predicated on beliefs about what consumers will or will not buy, but there is little real understanding of the market. Consumers have yet to broadly embrace EVs, plug-in hybrids or even conventional hybrids. Therefore, a problem in assessing the unconventional vehicle marketplace is to understand the views and requirements of the mass market versus those of the early adopters.

**Toyota has been the most successful manufacturer of hybrid cars**

Maybe it would be of value to examine some recent observations by Toyota Motors (TM-NYSE) about its view of the EV market and especially battery technology that seems to be the key driving force in how the EV market develops. On the Toyota web site is a section called ESQ Communications that deals with the Prius, the company's leading hybrid vehicle and its soon-to-be-commercial plug-in hybrid (PHV) model. Toyota has been the most successful manufacturer of hybrid cars. Since 1997, it has sold over two million units. What many people don't realize is that Toyota is also the world's largest manufacturer of advance automotive battery packs. In 1996, Toyota bought 40% of a joint venture company, Panasonic EV Energy, which was formed to manufacture nickel-metal hydride (NiMH) batteries and battery packs for Prius vehicles. Over the years, Toyota has increased its ownership to 80.5% of the joint venture. Earlier this year it changed the joint venture's name to Primearth EV Energy to eliminate confusion that this company was producing batteries under the Panasonic brand while Panasonic (PC-NYSE) is supplying batteries under Sanyo's (SANYY.PK) name.

**Toyota believes that a smaller battery in the PHV will be better both from a total lifecycle assessment (carbon footprint) as well as a cost point of view**

In the Toyota disclosure, it says that the lithium-ion battery to be installed in the PHV Prius would power the car for approximately 13 miles of EV-only driving. As with all batteries, the range estimate will be influenced by a variety of weather conditions and driving styles. The PHV Prius can achieve highway speeds of up to approximately 60 miles per hour on electric power only. But Toyota believes that a smaller battery in the PHV will be better both from a total lifecycle assessment (carbon footprint) as well as a cost point of view. They point to a 2009 study conducted by Carnegie Mellon University showing that PHVs with smaller batteries, charged frequently with average U.S. electricity, produce fewer greenhouse gas emissions than conventional hybrids. Additionally, as battery size increases, so does the battery cost and ultimately the overall vehicle cost.

**In GM's view, batteries are engineered to use some, but not all, of its capacity because fully discharging a battery shortens its useable life**

This is in contrast to the view of GM that is planning to use larger batteries than required in the Volt because battery performance will deteriorate over the vehicle's life. In GM's view, batteries are engineered to use some, but not all, of its capacity because fully discharging a battery shortens its useable life. By broadening the useable portion of a battery's capacity it is possible to lower the battery cost. Chevy recently announced it will offer an 8-year, 100,000 mile battery life guarantee to buyers. While that may seem like a significant statement about GM's confidence in its battery, the terms of the guarantee is mandated under new clean energy legislation in California if buyers there are to be eligible for state purchase subsidies.

**In Toyota’s view, increasing the EV range will require larger batteries, which increases cost, recharging time and possibly the overall carbon footprint of the vehicle**

All EV manufacturers know that reducing the cost of the battery is critical for reducing the cost of EVs. Toyota, with its substantial hybrid experience, possibly grasps the EV technology challenges better than its competitors. In Toyota’s view, increasing the EV range will require larger batteries, which increases cost, recharging time and possibly the overall carbon footprint of the vehicle. Also, the vehicle requires additional space to house the larger battery. All of this will drive up the cost of EVs. Toyota states that it needs to determine what customers truly expect from their EVs and whether the cost-benefit relationship is competitive in the marketplace before moving forward with final designs.

The Toyota PHV Prius will be able to be charged at home. The car draws approximately one kilowatt per hour and takes about three hours to charge. Because electricity rates vary widely, the company has not assessed the cost of a recharge. Based on our home electricity contract, three hours of charging would cost about \$0.28. While the charging cost appears to be low, Toyota is approaching the EV market cautiously wanting to deliver a vehicle that meets customers’ needs and expectations. In their view, it is more important to be best-in-market rather than first-to-market.

**The company anticipates continuing to use NiMH batteries in its hybrids**

Toyota was questioned about why it is using lithium-ion batteries in the Prius and not in its other hybrids. It says the decision is based on the fact that lithium-ion batteries have greater energy density than NiMH batteries and it will allow the PHV Prius to travel greater distances under electrical power. The company anticipates continuing to use NiMH batteries in its hybrids but believes it will consider switching when, and if, lithium-ion battery prices decline.

**Exhibit 5. EV Battery Characteristics**

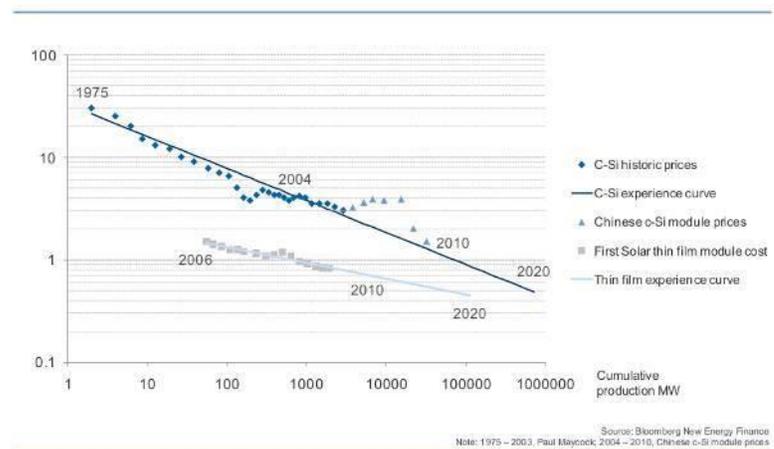
Battery Types - Overview				
Type	Lead Acid	Alkaline	Nickel Metal Hydride	Lithium-ion & Lithium Polymer
+	<ul style="list-style-type: none"> <li>Cheap</li> <li>Powerful</li> <li>Rechargeable</li> <li>High power capability</li> </ul>	<ul style="list-style-type: none"> <li>Popular</li> <li>Safe for users</li> <li>Long shelf life</li> <li>High amp-hours when compared to an equivalent rechargeable</li> </ul>	<ul style="list-style-type: none"> <li>Rechargeable</li> <li>High power density</li> <li>Higher power capability than alkaline</li> </ul>	<ul style="list-style-type: none"> <li>Rechargeable</li> <li>Ultra-light</li> <li>High cell voltage</li> <li>High power capability</li> <li>High power density</li> </ul>
--	<ul style="list-style-type: none"> <li>Heavy</li> <li>Large</li> <li>Toxic</li> </ul>	<ul style="list-style-type: none"> <li>Non-rechargeable</li> <li>Low capability</li> <li>Bad for the environment</li> </ul>	<ul style="list-style-type: none"> <li>Self-discharge quickly</li> <li>More expensive than NiCds and alkaline</li> </ul>	<ul style="list-style-type: none"> <li>Expensive</li> <li>Delicate</li> <li>Require special circuitry for charging</li> </ul>

Source: Toyota ESQ Communications

**“Efficiencies in scale alone will not create major cost reductions in the near term. Significant reductions in cost will require major technological breakthroughs”**

The Toyota web site provides an interesting chart of an overview of battery types with their pros and cons, which we have presented in Exhibit 5. Toyota also commented about the claims that advanced lithium-ion batteries for automotive applications will soon cost less than \$1,000 per kilowatt-hour (kWh). Many people have said that battery costs will fall to below \$500/kWh, which will make EVs highly competitive in the marketplace. In the company’s response, it quoted testimony by Toyota executives presented to a committee of the National Academy of Science last summer on the state of plug-in technology that included a discussion of batteries. In their very rough estimate, the cost of batteries was “approximately \$1,200 per kWh for a complete pack including instrumentation and ventilation systems.” The executives went on to say that “efficiencies in scale alone will not create major cost reductions in the near term. Significant reductions in cost will require major technological breakthroughs.” At the present time they are not sure when, or if, these breakthroughs will occur.

**Exhibit 6. Technology Drives Costs Lower Usually**  
Historical solar module prices \$/Wp

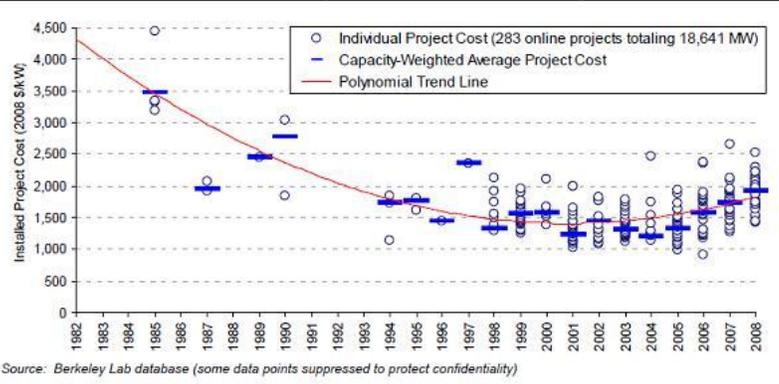


Source: New Energy Finance

**For virtually every new technology, there is a steep learning curve that translates into a reduction in the per-unit cost of a product over time**

For virtually every new technology, there is a steep learning curve that translates into a reduction in the per-unit cost of a product over time. This downward sloping cost curve is always held up by promoters of new technologies as support for the argument that every technology will soon cost less, which will enable unprofitable technologies to become profitable. In the “green” energy world this is a critical part of the argument for wind and solar energy. We recently read a paper about the improving economics for solar energy with a forecast projecting continued reductions in the cost of the product. While that has been the historical trend, we would point out that when applied to the cost of wind power, after years of declining costs, they are now starting to rise.

A recent editorial column by Froma Harrop in *The Providence Journal* discussed the “Electric Vehicle Deployment Act of 2010.”

**Exhibit 7. Wind Power Project Costs Are Rising**

Source: European Electric Energy

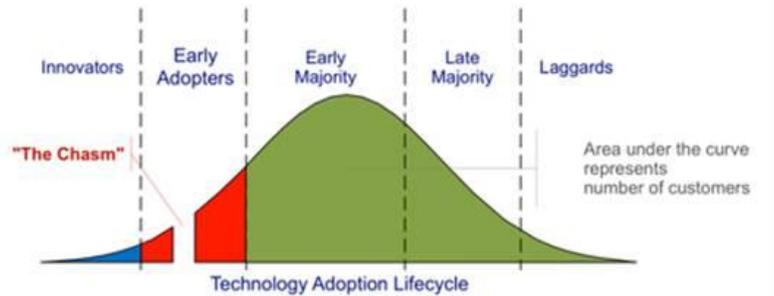
This legislation is being sponsored by Senators Byron Durgan (D-ND), Lamar Alexander (R-TN) and Jeff Merkley (D-OR). The goal of their bill is to electrify half of America's cars and trucks within 20 years. By achieving that goal, America's dependence on petroleum could be cut by a third. The thrust of the legislation is to designate a handful of American cities as model communities that would receive government funds to build battery recharging infrastructure. The law would also provide an additional subsidy to consumers to purchase EVs above the nationwide \$7,500 credit.

Ms. Harrop's view is that since more than 75% of Americans commute 40 miles or less each day, EVs will be ideal for them. In her view, most of them could finish their daily commute, plug in the car over-night and drive off to work in the morning. She ends her column saying: "So let the brawl over cap-and-trade proceed. Outside of the oil business, most everyone seems enthusiastic about accelerating a move toward electric cars. Nothing should stop Congress from revving up the process. Right?"

**Consumers want EVs that will go more like 300 miles on a single battery charge rather than 40 miles**

If this evangelist of EVs had done more research rather than merely buying in to the advertising from Nissan, GM and the Obama administration, she would be aware of consumer attitude challenges for EVs demonstrated in the Deloitte study. It showed that consumers want EVs that match their experience with gasoline cars, or vehicles that are not range-bound. Consumers want EVs that will go more like 300 miles on a single battery charge rather than 40 miles. Her research would also show the concerns and disappointments among owners of BMW mini-Cooper EVs that have been driving them for the past year. Many of these drivers have put deposits down for new Leaf cars, but are having serious second-thoughts about buying it based on their BMW experience.

Before endorsing EVs as this country's energy and greenhouse gas emissions savior as positioned by the Obama administration, one would also be wise to examine the experience of the Smart Car made by Daimler AG (DDAIF.PK). When the Smart Car was launched in 2008 there were a large number of early adopters. The

**Exhibit 8. Successful Technologies Must Reach Early Majority**

Source: Green Chip Stocks

**Through May of this year, Smart Car sales are down 63% from a year ago to 2,772 units**

company used the same \$99 advance-order marketing scheme as Nissan is using with the Leaf. Once the backlog of Smart Car orders began to wind down, some of the initial holders of orders began to retreat. Through May of this year, Smart Car sales are down 63% from a year ago to 2,772 units. The Smart Car is caught up on the wrong side of “The Chasm” as depicted in the above chart. The conventional wisdom is that the Smart Car attracted some Early Adopters but not enough to widen its appeal to the Early Majority. Does the same fate await the Leaf and/or the Volt? Maybe if the government provides sufficient subsidies and for an extended time period, or forces these cars into the market by restricting alternative vehicle choices, these models will avoid the Smart Car fate. Time will tell.

**Exhibit 9. Smart Car Is Small**

Source: ridelust.com

**The first EV was built by a Scotsman somewhere between 1832 and 1839**

But maybe the most interesting aspect of the EV discussion is the perception that EVs are new and offer radical changes for consumers. In doing some research, the first EV was built by a Scotsman somewhere between 1832 and 1839 – some 160+ years ago. Early EVs were also built in Holland. The first American EV was produced in 1842. The first commercial application of EVs was a taxi fleet for New York City built by a Philadelphia company in 1897.

**In 1899 and 1900, EVs outsold all other types of cars in the United States**

In fact, in 1899 and 1900, EVs outsold all other types of cars in the United States. EVs were favored over gasoline vehicles because they did not have the vibration, smell and noise. Because EVs did not have gears, they were much easier to drive as shifting gears was a major hassle. At the turn of that century, the only good roads were in cities that meant trips were short, which again favored EVs over

**Probably the most important contributor to the demise of EVs was Henry Ford's perfection of the assembly line for mass-producing automobiles and lowering their cost well below that of EVs**

gasoline vehicles. Lastly, EVs eliminated the manual exertion required to start gasoline-powered vehicles because they didn't need hand cranks.

EV production peaked in 1912, although EVs continued to enjoy commercial success until the 1920s. The age of EVs passed as the American road system improved in the 1920s requiring vehicles with greater range. The discovery of Texas crude oil led to cheap gasoline making internal combustion engines more affordable and the engine of choice. The development of the electric starter in 1912 eliminated the need for the hand crank further helping the appeal of gasoline-powered vehicles. Probably the most important contributor to the demise of EVs was Henry Ford's perfection of the assembly line for mass-producing automobiles and lowering their cost well below that of EVs. In 1912, the peak production year for EVs, they cost \$1,750, while Mr. Ford was producing gasoline-powered models for \$650. The market sorted out the winners and losers, not government subsidies.

## **An Honest Assessment: "Climategate and the big green lie"**

A blog on the *Financial Times* web site on July 14<sup>th</sup> written by the paper's U.S. correspondent, Clive Crook, discussed his position on the latest investigation of the Climategate email scandal that derailed the Copenhagen climate conference late last year. That investigation was conducted by a supposedly independent group of academics appointed by the University of East Anglia, the home of the Climate Research Unit and ground zero for some of the scientists whose emails were the subject of the scandal.

**Read the following article and weep as you better understand how the drive for the huge flow of research dollars has corrupted academic integrity**

While we have never published an extensive article by any writer, we felt this blog put into perspective how the academic climate research movement has manipulated the various investigations into the actions of the researchers to clear them without ever actually investigating the critical charges against them. Read the following article and weep as you better understand how the drive for the huge flow of research dollars has corrupted academic integrity.

**Clive Crook wrote:** "By way of preamble, let me remind you where I stand on [climate change](#). I think climate science points to a risk that the world needs to take seriously. I think energy policy should be intelligently directed towards mitigating this risk. I am for a carbon tax. I also believe that the Climategate emails revealed, to an extent that surprised even me (and I am not new to this milieu), an ethos of suffocating groupthink and intellectual corruption. The scandal attracted enormous attention in the US, and support for a new energy policy has fallen. In sum, the scientists concerned brought their own discipline into disrepute, and set back the prospects for a better energy policy.

"I had hoped, not very confidently, that the various Climategate inquiries would be severe. This would have been a first step towards

**Three of four allegations are dismissed out of hand at the outset: the inquiry announces that, for “lack of credible evidence”, it will not even investigate them**

restoring confidence in the scientific consensus. But no, the reports make things worse. At best they are mealy-mouthed apologies; at worst they are patently incompetent and even willfully wrong. The climate-science establishment, of which these inquiries have chosen to make themselves a part, seems entirely incapable of understanding, let alone repairing, the harm it has done to its own cause.

“The [Penn State inquiry](#) exonerating Michael Mann — the paleoclimatologist who came up with ‘the hockey stick’ — would be difficult to parody. Three of four allegations are dismissed out of hand at the outset: the inquiry announces that, for ‘lack of credible evidence’, it will not even investigate them. (At this, MIT’s Richard Lindzen tells the committee, ‘It’s thoroughly amazing. I mean these issues are explicitly stated in the emails. I’m wondering what’s going on?’ The report continues: ‘The Investigatory Committee did not respond to Dr Lindzen’s statement. Instead, [his] attention was directed to the fourth allegation.’) Moving on, the report then says, in effect, that Mann is a distinguished scholar, a successful raiser of research funding, a man admired by his peers — so any allegation of academic impropriety must be false.

“You think I exaggerate?”

*“This level of success in proposing research, and obtaining funding to conduct it, clearly places Dr. Mann among the most respected scientists in his field. Such success would not have been possible had he not met or exceeded the highest standards of his profession for proposing research...”*

*“Had Dr. Mann’s conduct of his research been outside the range of accepted practices, it would have been impossible for him to receive so many awards and recognitions, which typically involve intense scrutiny from scientists who may or may not agree with his scientific conclusions...”*

*“Clearly, Dr. Mann’s reporting of his research has been successful and judged to be outstanding by his peers. This would have been impossible had his activities in reporting his work been outside of accepted practices in his field.”*

**In short, the case for the prosecution is never heard**

“In short, the case for the prosecution is never heard. Mann is asked if the allegations (well, one of them) are true, and says no. His record is swooned over. Verdict: case dismissed, with apologies that Mann has been put to such trouble.

“Further ‘vindication’ of the Climategate emailers was to follow, of course, in [Muir Russell’s equally probing investigation](#). To be fair, Russell manages to issue a criticism or two. He says the scientists were sometimes ‘misleading’ — but without meaning to be (a plea which, in the case of the ‘trick to hide the decline’, is an insult to one’s intelligence). On the apparent conspiracy to subvert peer review, it found that the “allegations cannot be upheld” — but, as the

impressively even-handed [Fred Pearce](#) of the Guardian notes, this was partly on the grounds that “the roles of CRU scientists and others could not be distinguished from those of colleagues. There was ‘team responsibility’.” Edward Acton, vice-chancellor of the university which houses CRU, calls this “exoneration.”

“I am glad to see The Economist, which I criticised for making light of the initial scandal, taking a [balanced view](#) of these unsatisfactory proceedings. My only quarrels with [its report](#) are quibbles. For instance, in the second paragraph it says:

*“The reports conclude that the science of climate is sound...Actually, they don’t, as the article’s last paragraph makes clear.”*

*“An earlier report on climategate from the House of Commons assumed that a subsequent probe by a panel under Lord Oxburgh, a former academic and chairman of Shell, would deal with the science. The Oxburgh report, though, sought to show only that the science was not fraudulent or systematically flawed, not that it was actually reliable. And nor did Sir Muir, with this third report, think judging the science was his job.”*

**Well, the critics make such unreasonable demands! Look into the charges, they say. Hear from the other side. Ask the obvious questions. It never stops: you just can’t satisfy these people**

“Like Pearce, The Economist rightly draws attention to the failure of the Russell inquiry to ask Phil Jones of the CRU whether he actually deleted any emails to defeat FoI requests. It calls this omission ‘rather remarkable’. Pearce calls it ‘extraordinary’. Myself, I would prefer to call it ‘astonishing and indefensible’. I don’t see how, having spotted this, the magazine can conclude that the report, overall, was ‘thorough, but it will not satisfy all the critics.’ (Well, the critics make such unreasonable demands! Look into the charges, they say. Hear from the other side. Ask the obvious questions. It never stops: you just can’t satisfy these people.)

“However, The Economist is calling for the IPCC’s Rajendra Pachauri to go. That’s good. So where does this leave us? [Walter Russell Mead](#) is always worth reading on this subject, and I usually agree with him — but I think his summing up in this case is not quite right.

*“Greens who feared and climate skeptics who hoped that the rash of investigations following Climategate and Glaciergate and all the other problems would reveal some gaping obvious flaws in the science of climate change were watching the wrong thing. The Big Green Lie (or Delusion, to be charitable) isn’t so much that climate change is happening and that it is very likely caused or at least exacerbated by human activity.’ The Big Lie is that the green movement is a source of coherent or responsible counsel about what to do.*

“He’s right, of course, that the green movement is not trusted as an adviser on what to do. So what? Its counsel on policy is not required. Nor, for that matter, is a complex international treaty of the sort that

**It's the diminished credibility of the claim that we have a problem in the first place**

Copenhagen failed to produce. Congress and the administration can get to the right policy — an explicit or implicit carbon tax; subsidies for low-carbon energy — without the greens' input, so long as public opinion is convinced that the problem is real and needs to be addressed. It's not the extreme or otherwise ill-advised policy recommendations of the greens that have turned opinion against action of any kind, though I grant you they're no help. It's the diminished credibility of the claim that we have a problem in the first place. That is why Climategate mattered. And that is why these absurd 'vindications' of the climate scientists involved also matter.

"The economic burdens of mitigating climate change will not be shouldered until a sufficient number of voters believe the problem is real, serious, and pressing. Restoring confidence in climate science has to come first. That, in turn, means trusting voters with all of the doubts and unanswered questions — with inconvenient data as well as data that confirm the story — instead of misleading them (unintentionally, of course) into believing that everything is cut and dried. The inquiries could have started that process. They have further delayed it."

**Dr. Mann's letter accused the op-ed writer's problem with getting his research published due to its lack of "legitimate scholarship"**

With his recent vindication, Dr. Mann was recently writing a letter to the editor of *The Wall Street Journal* criticizing their publication of an op-ed article written by Patrick Michaels critical of the Climategate review. Dr. Mann's letter accused the op-ed writer's problem with getting his research published due to its lack of "legitimate scholarship." In the context of the investigations of Dr. Mann outlined by Clive Crook, one can be their own judge of the scandal.

## **E&P Spending To Rise, But Will Spill And Economy Hurt?**

**The industry's spending optimism can also be questioned in light of the growing signs of economic weakness around the world**

The leading global oil and gas exploration and production spending survey conducted at mid-year by Wall Street firm, Barclays Capital, shows industry spending in 2010 projected to rise by 12%, up from the 11% increase projected by the firm's December 2009 survey. Barclays surveyed 427 E&P companies in its latest assessment of E&P spending plans. They found that these companies are anticipating spending \$447.3 billion, up from the \$399.8 billion spent in 2009. While the survey results would suggest continued optimism among oil and gas company executives, buried within the survey are some troubling trends and current industry developments – the Gulf of Mexico oil spill and the federal government's reaction to it – also cast a shadow on the implied industry spending strength. The industry's spending optimism can also be questioned in light of the growing signs of economic weakness around the world.

### **Exhibit 10. Mid-year 2010 E & P Spending Survey**

(\$ in millions)	June 2010E	2009E	Year-to-Year % Change	Companies Surveyed
U.S. Spending	85,328	72,314	18.0%	220
Canadian Spending	26,851	20,895	28.5%	131
International Spending	335,134	306,543	9.3%	151
Worldwide Spending	447,314	399,752	11.9%	427

Source: Barclays Capital, PPHB

**The one sector planning to spend less is international where the survey shows a more modest increase of 9.3% rather than the 10.5% hike forecasted last December**

The results of the mid-year spending survey, a traditional method of judging how shifting oil and gas company executive attitudes toward commodity prices, economic activity and current business trends are impacting planned activity levels, show little change since late last year. We draw that observation by examining some of the information contained in the Barclays report on the survey results. Between the December 2009 survey and the June survey, projected U.S. spending is substantially greater – up 18.0% versus the earlier 11.7% projected increase. Canadian spending also shows a meaningful increase - +28.5% rather than +23.4%. The one sector planning to spend less is international where the survey shows a more modest increase of 9.3% rather than the 10.5% hike forecasted last December.

#### Exhibit 11. Initial 2010 E & P Spending Survey

(\$ in millions)	2010E	2009E	Year-to-Year % Change	Companies Surveyed
U.S. Spending	79,495	71,185	11.7%	197
Canadian Spending	22,847	18,514	23.4%	126
International Spending	337,039	305,072	10.5%	134
Worldwide Spending	439,381	394,771	11.3%	387

Source: Barclays Capital, PPHB

In addition to the mid-year survey results, we are also showing the results from the December survey for comparative purposes. When one looks at the two survey results (the same companies are compared in each of the surveys) there are meaningful differences in the dollar amounts of spending. For example, total spending for 2010 between the December 2009 survey and the June survey increased \$7.9 billion. Some of that difference may be due to currency fluctuation impacts, although some of that difference is probably do to the difference in the number of companies surveyed.

**Within the universe of surveyed companies, however, the greatest increase was shown by companies that spend less than \$100 million**

Looking closer at the respective sectors in the June survey, we see some interesting trends. In the U.S. sector, Barclays reported that companies of all sizes increased their spending budgets compared to the earlier survey. Within the universe of surveyed companies, however, the greatest increase was shown by companies that spend less than \$100 million. These companies are forecasting an 87% increase now versus the 48% increase projected in the December survey. The survey also showed that companies that spend over \$1 billion are also planning to increase their spending plans – up 12% versus the earlier 6% increase.

**There were 20 companies whose budgets were unchanged, but also there were 26 companies that actually reduced their spending plans over the past six months**

In Canada where spending is projected to be higher, Barclays attributed most of the gain to the strengthening in the value of the Canadian dollar versus the U.S. dollar, an important trend given the recent currency movements. They pointed out that 55 companies increased their budgets compared to the spending increase forecast last December. There were 20 companies whose budgets were unchanged, but also there were 26 companies that actually reduced their spending plans over the past six months. While this data is helpful there are 30 additional companies included in the survey whose spending trends were not commented upon.

**Russian spending will only increase 13% versus the earlier 20% gain projected**

Spending trends in the international sector represent a mixed bag, but since this group of companies accounts for three-quarters of all E & P spending we need to pay particular attention to its trends. For example, Russian spending will only increase 13% versus the earlier 20% gain projected. The explanation is the impact bad weather had on company activity during the first part of the year when a significant portion of exploration and development work is traditionally conducted. Much of this work, once lost due to bad weather, cannot be made up as the year goes on due to the need for frozen ground in order to work. Another region where there was a dramatic spending swing was Latin America. There, spending is projected to decline 5% rather than increasing by 9%. Since Venezuela's PDVSA state oil company will now reduce its spending by 25% rather than increase it by 1%, and Mexico's PEMEX oil company is forecasted to cut spending by 18% rather than the more modest 6% decline predicted earlier, it is not surprising the region's spending will be down.

The only other region where there was a meaningful difference in spending plans between the two surveys was Europe where spending is now projected to rise by 9% versus the earlier 2% gain. The Middle East/Africa region's spending is essentially unchanged at +16% versus +15%, while the Asia and Australia region has only been reduced modestly: +16% compared to +18%.

**Exhibit 12. More Surveyed Companies May Distort Spending**

(\$ in millions)	2010E			Cos. Surveyed			2009		
	Dec. 09	Jun. 10	% Chg.	Dec. 09	Jun. 10	% Chg.	Dec. 08	Jun. 09	% Chg.
U.S. Spending	79,495	85,328	7.3%	197	220	11.7%	71,185	72,314	1.6%
Canadian Spending	22,847	26,851	17.5%	126	131	4.0%	18,514	20,895	12.9%
International Spending	337,039	335,134	-0.6%	134	151	12.7%	305,072	306,543	0.5%
Worldwide Spending	439,381	447,314	1.8%	387	427	10.3%	394,771	399,752	1.3%

Source: Barclays Capital, PPHB

When we look at the two surveys and compare the absolute dollar differences in spending and compare that difference to the change in the number of companies included in each survey some interesting trends emerge. In Canada, the difference in the number of companies involved between the two surveys was just 4%, or five companies, but the spending differences were much larger - either +17.5% or +12.9%. The much smaller percentage increase in the number of companies compared to the changes in projected spending tend to support Barclays' observation that the stronger Canadian dollar between the two survey periods had a lot to do with the budget increases.

**There were 17 additional international companies included in the latest survey, an increase of 12.7%**

On the other hand, there were 17 additional international companies included in the latest survey, an increase of 12.7%. One has to wonder whether the reduced international spending rate in the June survey would have been greater without the additional companies being included. As the spending amounts show, unadjusted for the number of companies in the surveys, there was barely any difference (\$337.0 million versus \$335.1 million) due to the larger number of survey participants. This suggests that the additional

**With the deepwater drilling moratorium in place, how much spending is, or might be, deferred because companies either weren't able to drill and complete wells or were not prepared to shift spending elsewhere will be virtually impossible to know except through antidotal observations**

companies included in the survey did help offset the greater spending declines coming from the Russian and Latin American companies. Likewise, the additional 23 U.S. companies included in the survey, an 11.7% increase, have to partially explain the larger projected spending increase between the two surveys. As the unadjusted spending amounts signal, the increase in the recent survey is 7.3%, while the increase in the 2009 survey shows only a 1.6% gain. These figures suggest that the recent additions to the spending survey have contributed to the greater planned spending increase.

The purpose in looking at the survey data slightly differently is not to call into question the spending forecast, but to point out that maybe the increases will not prove to be quite as large as projected. If that occurs, it will be hard to know whether the shortfall was due to additional companies being included in the surveys versus executive concerns about the pace of the global economic recovery and/or the BP oil spill fallout. The latter is a huge wildcard for companies operating in the Gulf of Mexico. With the deepwater drilling moratorium in place, how much spending is, or might be, deferred because companies either weren't able to drill and complete wells or were not prepared to shift spending elsewhere will be virtually impossible to know except through antidotal observations. Even with the BP oil well capped as we write this, the ongoing drilling moratorium battle continues and industry investigations will also disrupt industry activity. The unanswerable question is how long the deepwater drilling moratorium will last and how much spending will be prevented?

BP's spending this year will have an impact on overall 2010 spending. According to the June Barclays' spending survey, BP was planning to increase its spending by \$1.3 billion over 2009 to \$8.5 billion. BP's projected spending is expected to account for about 12.5% of the total spending of the six "super major" international oil companies, the second smallest dollar amount but the largest percentage increase within the group. In the case of BP, it will be spending money on offshore activity – drilling two relief wells in the Gulf of Mexico. Unfortunately, this spending will not contribute to the company's goal of growing its offshore reserves and its oil and gas production.

**Are the stocks telling us that global economic growth, and with it energy consumption, is slowing more than anticipated?**

We would like to believe that the spending forecasts will come to pass, but the price action of energy and oilfield service stocks suggests some disappointments may be forthcoming. Are the stocks telling us that global economic growth, and with it energy consumption, is slowing more than anticipated? Maybe the latest Federal Reserve outlook calling for a weaker U.S. economy for the next several years coupled with China's projection of significantly slower economic growth is beginning to weigh on energy stock prices. Hopefully the energy stock price action will be another example of the stock market forecasting bad times that turns out to be wrong.

## Gasoline And Distillate Demand Figures: Better Economy?

**The IMF raised its outlook for 2010 global growth to 4.6% from its April estimate for a 4.2% increase**

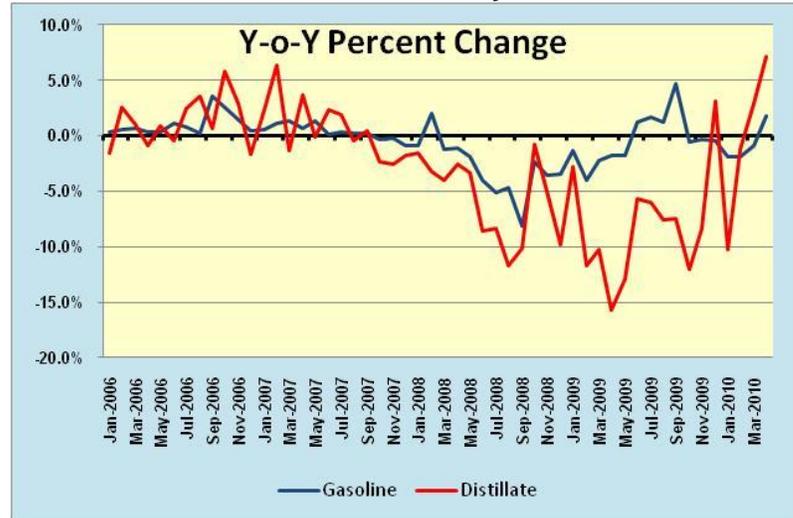
Even though the latest U.S. economic statistics suggest an increased risk of a double-dip for the economy, the most recent figures for gasoline and distillate demand suggest the economy is improving. The issue, however, is whether these demand pickups mark just another in a long series of highly volatile economic data points, or reflect solid improvement. We know that gasoline demand is highly sensitive to the season, to holidays and to the price of gasoline. Leading up to the Fourth of July holiday, gasoline demand increased – not a surprise. The big question is whether the supposed demand improvement follows through. At the same time demand was rising, gasoline prices were dropping along with a weakening crude oil price. In recent weeks that trend has reversed as crude oil prices seem to be rising in sympathy with the recently increased global economic outlook by the International Monetary Fund (IMF) until dashed by Friday's weak economic statistics. The IMF raised its outlook for 2010 global growth to 4.6% from its April estimate for a 4.2% increase. The revised forecast reflects the IMF's view that economic activity was stronger than anticipated in the first half and that developing Asian economies are doing better led by China (+10.5%) and India (+9.4%). They see these trends continuing, thus the upward growth rate revision.

**The IIF is calling for global economic growth of only 3.4% in 2010, over one percentage point lower than the IMF, but more importantly the IIF sees growth in 2011 substantially lower at only 2.7%**

The IMF forecast sees the U.S. economy growing 3.3% in 2010 while the Eurozone should grow 1.1%. Latin America is expected to do well led by Brazil (+7.1%) and Mexico (+4.5%). A big potential problem is that the IMF left its 2011 economic forecast unchanged at +4.3% suggesting a slowdown in the growth in economic activity next year. The IMF's 0.3% growth reduction in 2011 is less severe than the cut in growth made recently by the Institute of International Finance (IIF) published in its recent monthly report, *Global Economic Monitor*. The IIF is calling for global economic growth of only 3.4% in 2010, over one percentage point lower than the IMF, but more importantly the IIF sees growth in 2011 substantially lower at only 2.7%. In its report, the IIF says it expects the 2010 second quarter will "probably be the high-water mark for growth over the next 18-24 months." In commenting on its 2011 outlook, the IIF says it will be a year of "significant, synchronized fiscal tightening. This tightening will not be one-off. 2011 will be year one in an extended phase of fiscal tightening in mature economies."

If the IIF's and IMF's views of slower economic growth in 2011 prove correct, there will be an impact on global oil and gas demand. How much of the growth slowdown will occur in the United States? The answer to that question will tell us whether the current strength we are seeing in gasoline and distillate demand is likely to be sustained. On a monthly basis, the year over year change in April for distillate demand is greater than experienced during the pre-recession period of late 2006 and early 2007. Gasoline growth turned positive in April but it is not as strong as experienced last summer when gasoline prices were lower.

**Exhibit 13. Distillate Demand Recovery Above Boom Past**

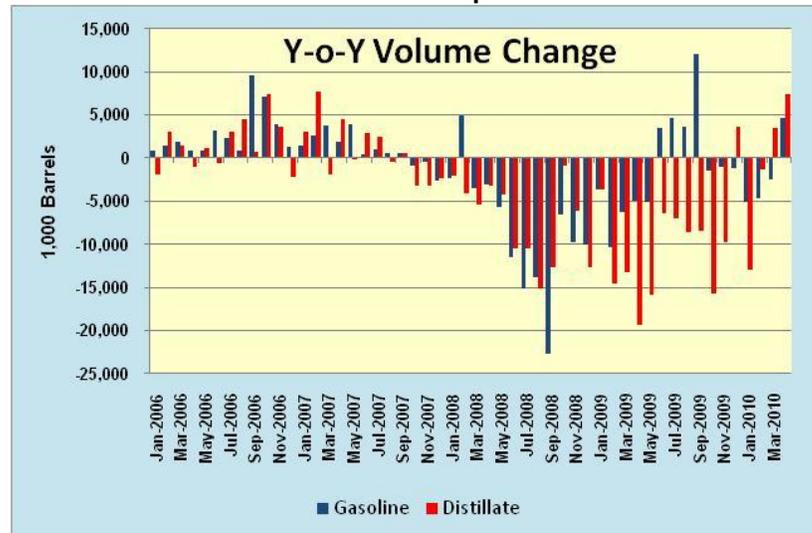


Source: EIA, PPHB

**If product demand continues to improve, we can probably look for higher oil prices in the future**

If we look at the absolute volume changes for gasoline and distillate demand, the data supports the view displayed in the percentage change chart. For the first time since May 2007 both gasoline and distillate volumes were higher. Before that, there were a couple of months with positive volume changes for distillates and gasoline, but those positive months were few and far between over the past three years. Clearly, the economy welcomes improved gasoline and distillate demand as does the petroleum industry. Petroleum product demand changes often pull crude oil prices in the same direction. If product demand continues to improve, we can probably look for higher oil prices in the future.

**Exhibit 14. Gasoline And Distillate Up First Time Since '07**

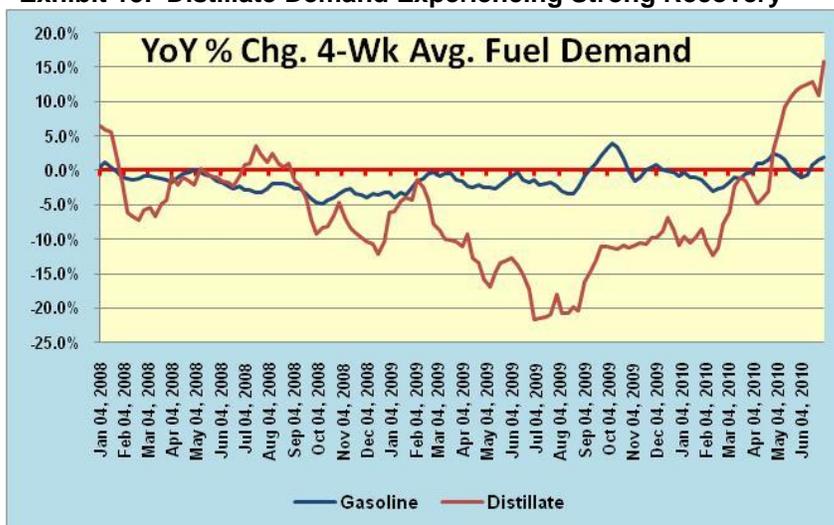


Source: EIA, PPHB

**Gasoline demand was negatively impacted between January 2008 and the fall of 2009 by the recession and high gasoline pump prices**

A more telling chart is the year over year change in the 4-week average volume of gasoline and distillate supplied. The chart shows that gasoline demand is positive in the past few weeks as it was in the spring. The last time gasoline demand was positive year-over-year was in December 2009 and in the September/October period. Gasoline demand was negatively impacted between January 2008 and the fall of 2009 by the recession and high gasoline pump prices.

**Exhibit 15. Distillate Demand Experiencing Strong Recovery**



Source: EIA, PPHB

**The dramatic changes being experienced now are not surprising given the magnitude of last year's demand collapse**

When we look at distillate demand there has been much more volatile pattern in year-over-year demand although the overall pattern of change follows that of gasoline. According to the data, since April of this year, distillate supplied to the market has been positive compared to the prior year, although as the chart shows, distillate demand had collapsed last year. As a result, the dramatic changes being experienced now are not surprising given the magnitude of last year's demand collapse.

Looking at the absolute volume changes, however, there is an interesting divergence in gasoline and distillate demand noted in the first half of the summer. Since the last week in May when the Memorial Day holiday traditionally occurs kicking off the summer driving season to the week prior to the July 4<sup>th</sup> holiday, the peak in summer driving demand, the 4-week average for gasoline demand increased 233,000 barrels per day to 9.373 million barrels per day. On the other hand, distillate demand during the same period fell by 225,000 barrels per day to 3.782 million barrels per day.

While the recent patterns in gasoline and distillate demand present interesting trends, looking at the changes in the weekly and 4-week average demand figures between now and July 2007 show even more divergent trends. In terms of gasoline demand, the three-year change in the latest week and 4-week average demand volumes

**Either our automobile stock is shrinking or people are driving less**

show losses of 214,000 and 224,000 barrels per day, respectively. Distillate demand shows quite a different story. There was an increase of 160,000 barrels per day in the weekly demand, but a 355,000 decline in the 4-week average. This change in distillate demand suggests that weekly demand is growing in the latest week, but hasn't been able to pull the 4-week average higher.

What all this analysis suggests to us is that for all the improvement in gasoline demand suggested by the latest weekly supply figures, we are still below the level of demand experienced shortly before the start of the recession and the credit crisis. This is not particularly good news because the conclusion means that either our automobile stock is shrinking or people are driving less. Either conclusion signifies continued headwinds for the petroleum industry and the economy. In terms of distillate demand, while the latest percentage figures suggest healthy improvement over last year, the comparison is helped by just how bad that historical period was. Importantly, distillate demand is down from pre-recession demand levels by almost 10%. More significantly, if one goes back to early 2007, distillate demand now is down somewhere between 700,000-900,000 barrels per day – a truly large drop. To us this signals an unhealthy economy despite the perceived recovery underway. We would therefore be cautious in putting too much faith in the latest fuel-demand figures suggesting that a healthy economic recovery is underway.

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