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## MUSINGS FROM THE OIL PATCH

August 20, 2013

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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 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

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**This issue of *Musings From the Oil Patch* is shorter than normal as we are traveling through the Baltic region of Europe.**

### **Electric Vehicle Success Could Impact Oil Market**

**Now we may be witnessing the first ever price war over EVs**

Two weeks ago, General Motors (GM-NYSE) announced a cut of \$5,000 in its suggested price for a 2014 Chevy Volt. The price reduction for this iconic electric vehicle (EV) reflects the challenge GM, along with other auto manufacturers, faces in selling sufficient EV units for the cars to be profitable. Nissan (NSANY-Nasdaq) has also reduced the cost of leases for its Leaf EV in an attempt to boost consumer demand. The moves by GM and Nissan come at the same time luxury EV manufacturer Tesla Motors (TSLA-Nasdaq) appears to be scoring big among wealthy customers and investors. The turmoil in the automobile battery market for EVs hasn't helped prospects for these vehicles as A Better Place, the battery exchange business in Europe and Israel, has shut down while other battery manufacturers are struggling. Possibly the most interesting development in the EV world is that since the bankruptcy of the domestic automobile industry in 2009 – or at least when GM and Chrysler went bust – car companies have avoided price wars to bolster sales. Now we may be witnessing the first ever price war over EVs. One has to wonder why; and why now?

**Better fuel-economy for the American vehicle fleet, leading to reduced gasoline and diesel fuel consumption, is seen as a significant environmental benefit to our economy**

The alternative vehicle market is rapidly changing as more auto companies introduce EV models and new hybrid vehicles in response to the federal government's mandate to improve overall light-duty vehicle fleet fuel efficiency as a way to reduce carbon emissions. Better fuel-economy for the American vehicle fleet, leading to reduced gasoline and diesel fuel consumption, is seen as a significant environmental benefit to our economy. Several years ago, EVs became the "vehicle of choice" for the Obama administration in its efforts to reduce the nation's oil imports and the

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**EV sales are doing better than in prior years, but some of that improvement is the result of increased business and government vehicle purchases**

**The monthly sales data has shown steady increases over time, but the percentage of overall new vehicle sales EVs represent remains small**

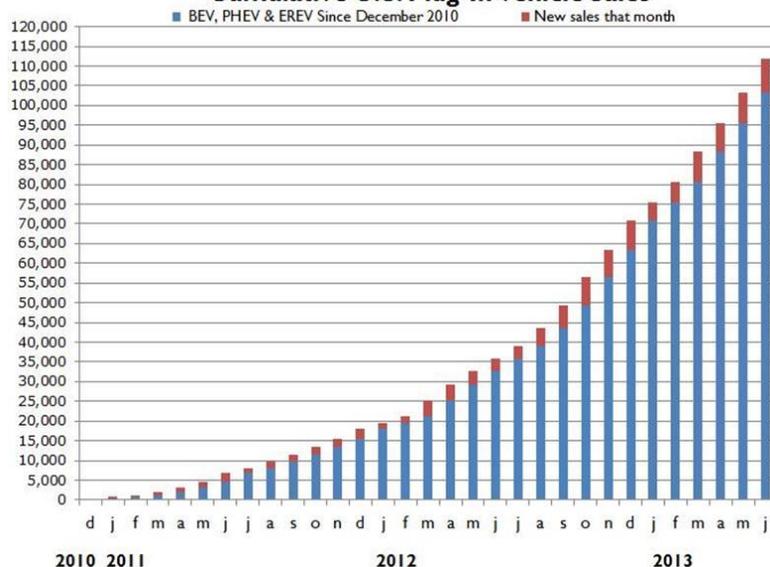
pollution caused by burning these fossil fuels. EVs also offered the opportunity to reward environmentally-conscious entrepreneurs with large government loans and monetary grants to build new companies and manufacturing facilities. Many of these grantees turned out to be new, rich Obama benefactors.

After touting a goal of one million EVs on the road by 2015, the failure of the EV industry to produce vehicles Americans wanted to buy and drive forced the Administration to back away from that target. In fact, after the federal government took the lead in buying EVs in 2010 and encouraging its corporate supporters such as General Electric (GE-NYSE) to get on board by buying EVs, federal government new EV purchases have declined. Instead, the federal government has opted to buy Flex-Fuel vehicles, cars that can use conventional gasoline or E85, fuel that contains 85% ethanol by volume, partly because these vehicles help in meeting the government's emissions and fuel-efficiency targets. For the past three years, as the government has been buying Flex-Fuel vehicles, fuel data has shown that they are being powered with conventional gasoline, and seldom with the ethanol blend, although the government gets credit for being environmentally-responsible.

Across the nation, gasoline pump prices remain in the \$4-\$4.50 per gallon range, sufficiently close to the price-point that triggers a reduction in driving and fuel purchases. Despite the high pump price, consumers are still not flocking to dealerships seeking EVs, suggesting that range anxiety (a fear about how far a car can go before its battery charge runs out) remains a significant hurdle. Admittedly, EV sales are doing better than in prior years, but some of that improvement is the result of increased business and government vehicle purchases. We recently read comments that the rapid rollout of public electric charging stations would kick-start the sale of EVs, but while sales are up over the past year and a half, price and distance concerns still seem to be holding EVs back amongst consumers in the marketplace. An article in *Energy and Capital* touted how well EV sales were going when compared to the early sales of hybrid vehicles, but that may prove misleading.

The Electric Drive Transportation Association (EDTA) tracks the sales of hybrid, plug-in hybrid and all-battery electric cars. With some minor discrepancies, this is the same data that the Department of Energy reports. The monthly sales data has shown steady increases over time, but the percentage of overall new vehicle sales EVs represent remains small. From a marketing perspective, the EDTA chart of cumulative sales of EVs is impressive. (See Exhibit 1.) What we can't tell from the aggregate data is the impact of EVs sold to federal, state and local governments and the handful of large corporations such as GE.

**Exhibit 1. EV Sales Would Appear To Be Taking Off**  
**Cumulative U.S. Plug-In Vehicle Sales**



Source: Electric Drive Transportation Association web site

**EV sales are doing very well against the sales record of Prius despite the fact EVs must confront “range anxiety”**

**In the United States, it took nearly 11 years for Toyota to sell one million Prii, but that included the two worst years in decades, 2008 and 2009, for domestic auto sales**

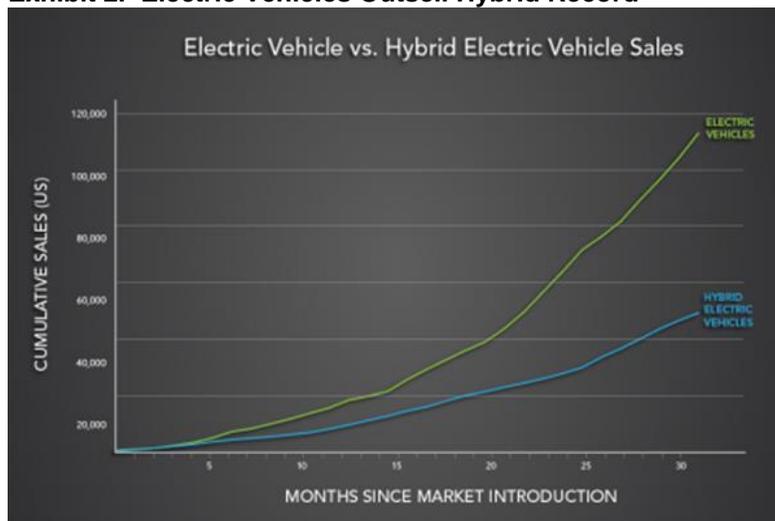
We believe it is instructive to examine the hype behind the view of outstanding EV sales versus the initial monthly sales for hybrid cars. Over the past 31 months, there has been a total of about 112,000 EVs sold. (Two primary data sources show a slight discrepancy, but the difference is less than 1%.) A chart comparing the sales performance of the two types of vehicles accompanied an *Energy and Capital* article and shows a dramatic outperformance by EVs. We would caution about reading too much into the chart, however, because of the difference in market conditions, environmental enthusiasm and the role of government subsidies in the respective time periods. The article made the point that EV sales are doing very well against the sales record of Prius despite the fact EVs must confront “range anxiety.” Therefore, *Energy and Capital* considers EVs to be the more successful alternative vehicle choice.

The sales of today’s EVs were compared to those of the Toyota Prius car, the first commercial hybrid vehicle sold in the world. The first Prius was introduced at the Tokyo Motor Show in 1995 and was introduced commercially in Japan in 1997 and globally in 2000. The name Prius means “before” and was chosen by Toyota Motor Company (TM-NYSE) because the car was launched before environmental awareness became a mainstream social issue. Globally, the first million Prii (the plural of Prius was selected through a consumer online competition) was sold by May 2008, the second million by September 2010 and the third million by June 2013. In the United States, it took nearly 11 years for Toyota to sell one million Prii, but that included the two worst years in decades, 2008 and 2009, for domestic auto sales. In the early years of Prius sales, the model had a suggested list price of \$19,999 and a buyer was

**In the case of California, a resident can get a \$2,500 state tax credit along with the \$7,500 federal tax credit, for a \$10,000 reduction in the vehicle's cost**

entitled to a \$2,000 federal income tax credit. Today, the federal government offers a \$7,500 tax credit against EVs priced in the \$36,000-\$41,000 range plus many states, especially California, offer additional tax credits. In the case of California, a resident can get a \$2,500 state tax credit along with the \$7,500 federal tax credit, for a \$10,000 reduction in the vehicle's cost. In addition, various states offer additional concessions for EVs such as favored highway treatment, i.e., no-cost access to high-occupancy vehicle lanes, preferential parking spaces and free use of charging stations.

**Exhibit 2. Electric Vehicles Outsell Hybrid Record**



Source: *Energy and Capital*

**The history of EV sales projections is fraught with over optimism**

Besides EVs, environmentalists and natural gas producers are aggressively pushing for the sale of more natural gas powered vehicles – either compressed natural gas (CNG) or liquefied natural gas (LNG) powered – as a way to help meet the auto industry's emissions target. At the current time, natural gas is cheap, but so is electricity due to the market share gains cheap natural gas has made in the power generating sphere. The cost to install EV charging stations is a mere fraction of the cost for new CNG or LNG filling stations. Numbers we have seen are in the range of \$5,000 for a traditional EV charging station compared to \$25,000+ for CNG pumps, or a 5-1 advantage for EVs. Given the lower cost for EV recharging stations, the inability of EVs to gain greater market share among new car sales suggests these alternative vehicles are, and are likely to remain, a niche market. The history of EV sales projections is fraught with over-optimism as demonstrated by the data in Exhibit 3. One wonders about the marketing skill of auto companies who have significantly overestimated the number of alternative vehicles they would sell other than to wealthy and environmentally demonstrative buyers who view vehicle choices as more of a political and social statement than a mode of transportation.

**Exhibit 3. Forecasts For EVs Have Been Too Optimistic**

**The Bumpy Road to One Million Electric Vehicles**

Estimated U.S. Supply of Electric Vehicles from 2011 through 2015

		2011	2012	2013	2014	2015	Total
Fisker Karma	DOE	1,000	5,000	10,000	10,000	10,000	36,000
	CBS	0	3,000	5,000	5,000	5,000	18,000
Ford Focus	DOE	0	10,000	20,000	20,000	20,000	70,000
	CBS	0	0	10,000	20,000	20,000	50,000
GM Chevy Volt	DOE	15,000	120,000	120,000	120,000	120,000	505,000
	CBS	7,700	10,000	15,000	15,000	15,000	62,700
Navistar eStar	DOE	200	800	1,000	1,000	1,000	4,000
	CBS		100				950*
Nissan Leaf	DOE	25,000	25,000	50,000	100,000	100,000	300,000
	CBS	6,000	20,000	25,000	25,000	25,000	101,000
Smith Newton	DOE	1,000	1,000	1,000	1,000	1,000	5,000
	CBS	0	500	250	250	250	1,250
Tesla Model S	DOE	0	5,000	10,000	20,000	20,000	55,000
	CBS	0	5,000	20,000	20,000	20,000	55,000
Tesla Roadster	DOE	1,000	0	0	0	0	1,000
	CBS	1,000	0	0	0	0	1,000
Think City	DOE	2,000	5,000	10,000	20,000	20,000	57,000
	CBS	263	0	0	0	0	263
Ford Transit Connect	DOE	400	800	1,000	1,000	1,000	4,200
	CBS		500**	0	0	0	500
Fisker*** Nina/Atlantic	DOE	0	5,000	40,000	75,000	75,000	195,000
	CBS	0	0	0	10,000	10,000	20,000
<b>Total</b>	DOE						<b>1,222,200</b>
	CBS						<b>310,663</b>

DOE (U.S. Department of Energy) estimates were made in February 2011. CBS News obtained actual production numbers where available, and consulted with automakers and industry analysts for projections through 2015.

\*Navistar has ceased production after 100 vehicles, but told CBS News it still plans to make a total of 950. Currently the company has no production schedule.

\*\*Ford Transit Connect had build approximately 500 total vehicles before filing for bankruptcy in March, 2012.

\*\*\*Producing any vehicles at all is contingent upon Fisker obtaining funding, which had not yet happened as of this report.

Source: Navigant

**While EVs today are having only a minor impact on United States gasoline and diesel fuel consumption, what happens to petroleum product demand if EV sales take off?**

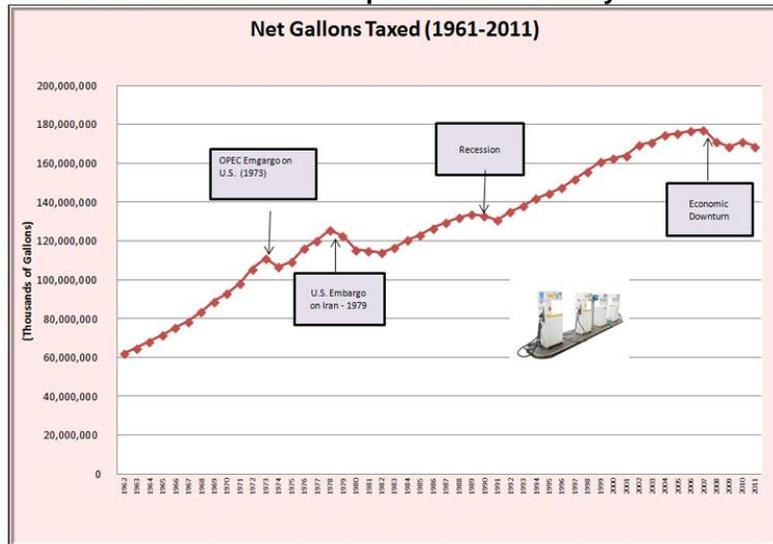
**Preliminary gasoline consumption data for 2012 shows essentially a flat comparison against 2011's total volume consumed**

We were recently queried, in response to a barrage of Houston ads from luxury EV manufacturers such as Tesla Motors and BMW (BMW-NYSE), about the impact the growth of EV sales could have on oil demand in the U.S. Behind the question was a concern that while EVs today are having only a minor impact on United States gasoline and diesel fuel consumption, what happens to petroleum product demand if EV sales take off and transportation fuel use begins to decline faster? In the balance of this article we have attempted to quantify what the impact on U.S. transportation fuel consumption might be with different levels of EV market penetration.

In order to start a conversation about domestic transportation fuel consumption, we need to review the more prominent factors currently impacting fuel demand. Exhibit 4 shows a history of gasoline volumes sold annually in the U.S. during the 50-year period of 1961-2011. Preliminary gasoline data for 2012 shows essentially level consumption against 2011's total volume consumed. We liked the chart because it puts into perspective some of the events that have influenced gasoline consumption in the past such as the OPEC embargo of the United States and other European countries for supporting Israel during the Six Day War, the Iranian embargo of the West following the installation of an Islamic regime in

the country, and the two most significant economic recessions in the post-World War II era. Those events mark the only times during the 50-year period when gasoline consumption declined.

**Exhibit 4. Gasoline Consumption Rises Steadily**



Source: FHTSA

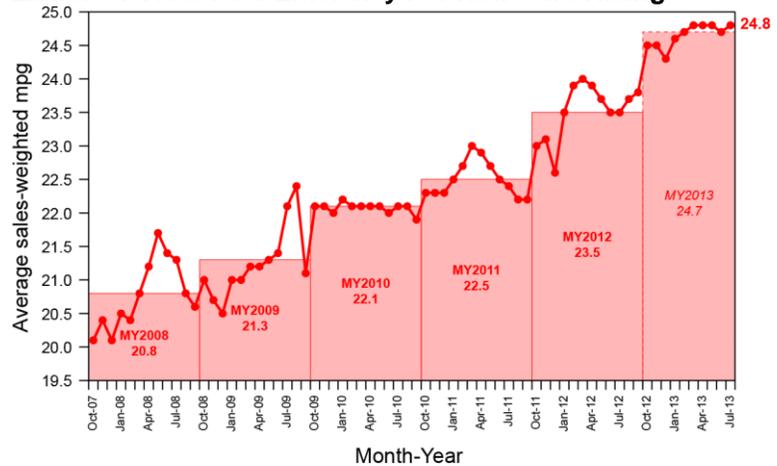
**The Obama administration will allow auto companies to count one EV sold as the equivalent of two conventional cars while hybrids will be rated the equal of 1½ conventional vehicles**

Following the 1973 Oil Embargo, the federal government pushed auto manufacturers to improve the fuel-efficiency of their vehicles, while at the same time it worked to bolster the safety performance of automobiles. Fuel-efficiency improvements have been dictated by legislation that established an overall fleet average miles-per-gallon rating target that has been raised in subsequent legislation and executive orders. This agreement is referred to as the CAFE standard, Corporate Average Fuel Economy. The most recent agreement between the Obama administration and the auto companies targets an average 54.5 miles per gallon by 2025, up from the current target of 35 mpg by 2016. For auto manufacturers the easiest way to achieve the CAFE goal is to sell more alternative-fueled vehicles, which carry substantially higher than average fuel-efficiency ratings, in some cases as much as 85-100 mpg ratings. To assist the companies in meeting this highly elevated target, the Obama administration will allow auto companies to count one EV sold as the equivalent of two conventional cars while hybrids will be rated the equal of 1½ conventional vehicles. By adding in the phantom units of highly-rated mpg alternative-fuel vehicles, auto manufacturers will have an easier time achieving the new CAFE standards. Our guess is that the emerging EV price war represents auto company strategies to woo customers into buying these alternative-fueled cars and become convinced about their value through use so that the buyers will become repeat EV customers during the next five years, helping to make attaining the CAFE standard more achievable.

**One fact about the fuel-efficiency trend of recent years has been the dramatic improvement in the mpg rating of new cars being sold**

One fact about the fuel-efficiency trend of recent years has been the dramatic improvement in the mpg rating of new cars being sold. This trend is captured by a monthly report issued by the University of Michigan Transportation Research Institute. They track the average fuel-efficiency rating of all new cars sold each month based on window sticker ratings. The improvement in the average fuel-efficiency of new vehicle sales is demonstrated in Exhibit 5, but the data also shows how far the automobile industry still has to go to reach the 35.5 mpg CAFE standard now in place for 2016.

**Exhibit 5. Auto Fuel-Efficiency For New Cars Rising**



Michael Sivak and Brandon Schoettle  
University of Michigan Transportation Research Institute

Source: University of Michigan Transportation Research Institute

**For many reasons, the youth of America appear to be falling out of love with automobiles, maybe primarily due to social reasons**

Improving fuel-efficiency is one side of the equation for reducing transportation fuel volumes and carbon emissions. The other considerations are the size of the total domestic fleet and their use. These considerations are impacted by demographic, economic and social trends. In the demographic area, the aging of the American population is reducing the number of younger drivers who tend to drive more miles in a calendar year than older drivers. Additionally, we are finding that the desire of our youth to secure a drivers' license has waned in recent years. For many reasons, the youth of America appear to be falling out of love with automobiles, maybe primarily due to social reasons. Today's youths are tending to want to live in more urban areas where there are multiple transportation options. They are also more likely to be willing to avail themselves of auto sharing services or short-term rentals. Younger Americans are also interacting with their friends via social media rather than face-to-face encounters. Other social trends impacting the use of cars include greater Internet shopping as opposed to driving around doing comparative shopping, and increased telecommunicating for work reducing the need to go to the office every day.

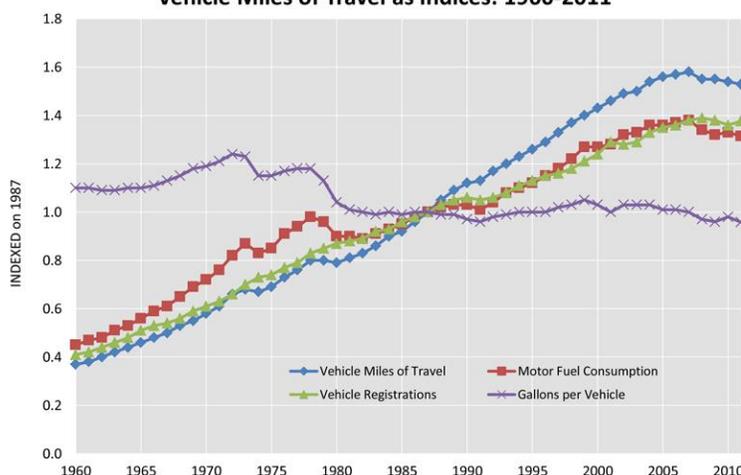
When we considered all these factors, we found the following chart of trends in vehicle registrations, fuel consumption and vehicle miles

**Despite high annual new car sales in the past few years, the average age of America’s auto fleet remains at 11.5 years old, a historical high**

traveled for the 50-years of 1960-2011, all converted to indices. What we see in Exhibit 6 is vehicle miles traveled, vehicle registrations and motor fuel consumption have all been in decline in recent years. Vehicle registrations actually increased in 2011 as consumers began a campaign to replace their older cars with new ones. However, despite high annual new car sales in the past few years, the average age of America’s auto fleet remains at 11.5 years old, a historical high. The high average age of the vehicle fleet suggests the likelihood of the present high new car sales rate being maintained for the foreseeable future. But due to demographic factors, the stock of total vehicles is likely to decline further in the future as a greater number of older drivers cease driving and are replaced by fewer young drivers. There will also be a negative impact on the size of the fleet of vehicles from the social trends that reduce the need for people to own cars as in the past.

**Exhibit 6. Fleet Growth And Gas Use Have Peaked**

**Vehicle Registrations, Fuel Consumption, and Vehicle Miles of Travel as Indices: 1960-2011**



Source: FHTSA

**It would appear that the gasoline business is in a nonreversible decline**

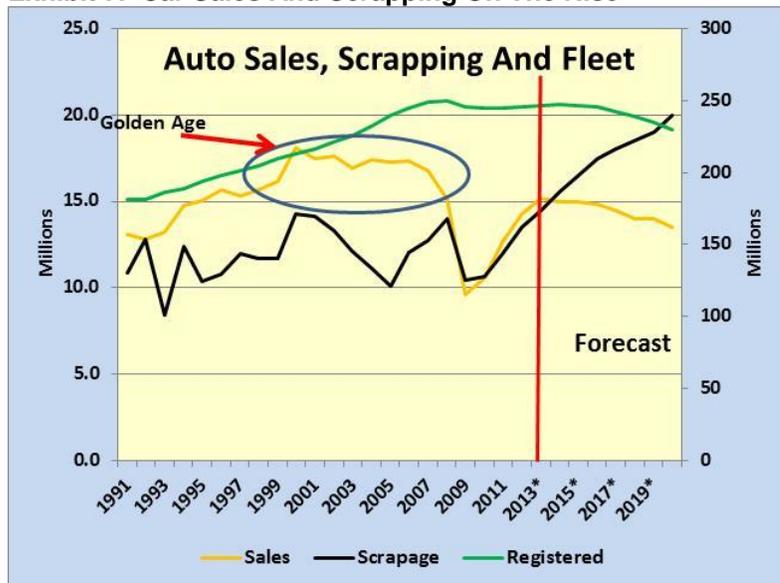
The petroleum industry will not only be concerned about the total number of cars in the American fleet but also how much fuel they consume. With an established trend for fewer miles being driven coupled with improved fuel-efficiency of new vehicles entering the fleet, it would appear that the gasoline business is in a nonreversible decline. Despite the declining trend of gasoline consumption, we can also consider what impact alternative-fuel vehicles will have on the rate of decline in fuel consumption. To arrive at this estimate we have examined the trends in auto sales, scrapping of vehicles and the resulting growth or contraction of the vehicle fleet.

Exhibit 7, on the next page, shows the history of these trends since 1991 with a forecast through 2020. We have put a circle around the new car sales from the late 1990s and early 2000s, which we labeled the Golden Age of car sales when the annual rate was in the

**The growing average age of American vehicles, combined with demographic and social factors, suggests we should see a higher scrapping rate than new car sales in future years**

high teens of millions of units. It is also interesting to note during this period how substantially new car sales outperformed scrapping. That trend lasted until the Great Recession of 2008 when new car sales began tracking scrapping. While new car sales have slightly outperformed scrapping since then, the growing average age of American vehicles, combined with demographic and social factors, suggests we should see a higher scrapping rate than new car sales in future years. The question becomes what will be the rates of new car sales and car scrapping? We have forecasted the current rate of car sales continuing for the next few years, but we then expect to see the rate trailing off as demographics and social factors reduce the need for as many cars as now. Secondly, we see car scrapping rising sharply given the high average age of vehicles and the need for fewer cars in the future. In effect, our scrapping forecast reflects an offset to the earlier Golden Age of auto sales. After 2020, we expect to see scrapping and new car sales falling closer in line.

**Exhibit 7. Car Sales And Scrapping On The Rise**



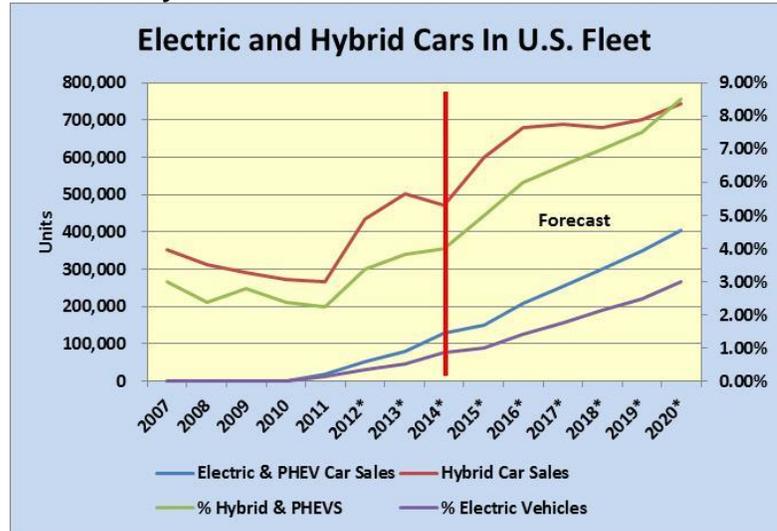
Source: FHTSA

**We have projected the percentage of total vehicle sales represented by hybrid and electric vehicles rising from slightly under 4% in 2013 to 8.5% by 2020**

When we attempt to estimate the number of alternative-fuel vehicles and their impact on overall vehicle fuel consumption, we need to forecast the growth in the number of hybrid and electric vehicles sold. The EDTA provides data for the monthly sales of each type of vehicles since 2007. That data is presented in Exhibit 8, on the next page, with 2013's data representing sales for the first six months annualized. We have forecasted these two trends at what we consider to be aggressive rates. We have projected the percentage of total vehicle sales represented by hybrid and electric vehicles rising from slightly under 4% in 2013 to 8.5% by 2020. The electric vehicle percentage increases from 0.5% of sales in 2013 to 3% in 2020. These rates translate into 583,000 hybrid and electric

vehicles in 2013 increasing to 1.147 million in 2020, with the electric vehicle share going from nearly 81,000 vehicles in 2013 to 405,000 in 2020.

**Exhibit 8. Hybrids & EVs Are On The Rise**

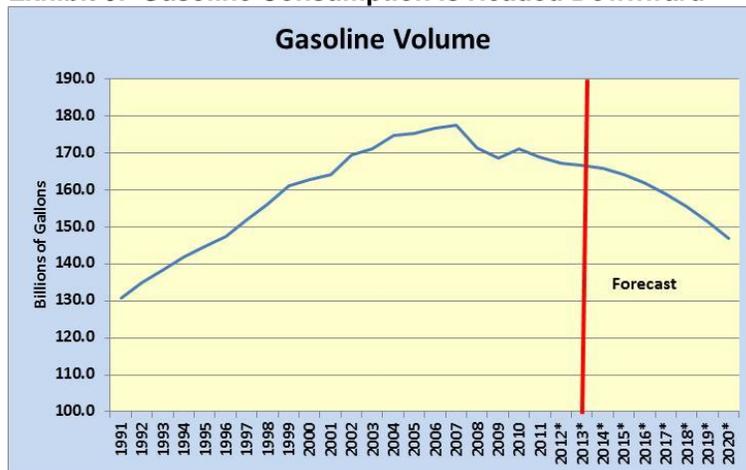


Source: EDTA

**The overall conclusion is that the volume of gasoline consumed by 2020 will be down roughly twice the amount of decline experienced between its 2007 peak and now**

Taking our forecast for alternative-fuel vehicles and total vehicle sales and scrapping, we can then begin to address the impact on total gasoline consumption. As we have shown above, there has been a steady increase in the average fuel consumption of new vehicles sold. We have assumed that this trend continues given the new CAFE standard and the growing share of hybrids and electric vehicles in the fleet as a result. Combining those trends with the faster scrapping of older, less fuel-efficient cars and the demographic trends supporting fewer vehicle miles traveled in the future leads us to the conclusion that gasoline consumption will continue to slide through 2015 at a rate similar to the decline rate experienced since 2009. After 2015, we expect the change in fleet composition and demographic trends to have a greater impact on gasoline consumption, and therefore, we expect a significantly faster decline in total volumes consumed. The overall conclusion is that the volume of gasoline consumed by 2020 will be down roughly twice the amount of decline experienced between its 2007 peak and now.

**Exhibit 9. Gasoline Consumption Is Headed Downward**



Source: FHTSA

**It is possible that we will see less oil needed, but there is also the possibility that petroleum companies will opt to keep crude oil volumes high in order to feed their refineries**

Gasoline currently represents about 50% of total weekly oil use in America. If our projections were to prove correct (probably not likely) then the resulting 6% decline in gasoline volumes we anticipate could impact the amount of oil needed by the nation in the future. It is possible that we will see less oil needed, but there is also the possibility that petroleum companies will opt to keep crude oil volumes high in order to feed their refineries. If that strategy were to be followed, then the country would be producing surplus gasoline volumes to be exported. Those exports would help the nation's trade balance. We anticipate exploring this topic further in order to better understand the sensitivity of gasoline demand and its impact on overall crude oil use along with gaining a better understanding of the role of tight and shale oil on the nation's domestic supply. If domestic oil output were to rise to the levels suggested by recent forecasts, then the declining gasoline consumption will have a much greater impact on U.S. petroleum product exports and the country's trade balances. On the other hand, if domestic production flattens or even begins declining again at some point in the future, the expected economic benefits could disappear. At the moment, all signs point to further dynamic changes for the domestic oil industry such that we can envision an industry in 5-10 years in the future that looks considerably different from today's industry structure. That's a topic for a future *Musings*. What we do know is the EV price war is becoming a reality due to the need for the auto companies to meet the future CAFE standards.

## Refuge For Those Worried About Rising Sea Levels

Fear over the fate of 18 million people living in hundreds of America's cities along the nation's coast from rising sea levels is high among certain politicians and environmentalists. In fact, some are proposing multi-billion dollar structures to prevent storms from

**There are some computer models suggesting that if climate change is unchecked, sea levels could rise as much as 23 feet in the United States**

inflicting as much damage as imagined from computer projections. There are some computer models suggesting that if climate change is unchecked, sea levels could rise as much as 23 feet in the United States. The nonprofit climate research group Climate Central suggests that some of the nation's largest urban areas could be almost entirely submerged by the rising sea levels caused by global warming. In New Orleans, the group found there is at least a 50% chance that water levels will rise by five feet by 2030, submerging 90% of the area's homes and displacing more than 300,000 residents.

**The conclusion of the analysis was that Metairie and New Orleans are at high risk of near term impact from small increases in water levels while other cities such as Hollywood and St. Petersburg, Florida and Huntington Beach and Stockton, California won't be hurt until closer to the end of the century**

Here is a list of the top seven urban areas that would be victimized by rising sea levels as selected by *24/7 Wall Street* from the Climate Central report on 200 cities at risk. The newsletter selected the top seven cities at risk by searching for those that had odds of one in six that water would rise by a sufficient amount to impact more than 20% of its population. The water impact includes rising sea levels, higher tides and storm surges. The seven cities in order are: Metairie, La.; Hollywood, Fla.; Huntington Beach, Calif.; Hialeah, Fla.; Stockton, Calif.; New Orleans, La.; and St. Petersburg, Fla. The conclusion of the analysis was that Metairie and New Orleans are at high risk of near term impact from small increases in water levels while other cities such as Hollywood and St. Petersburg, Florida and Huntington Beach and Stockton, California won't be hurt until closer to the end of the century.

**Flooding may be more related to the decision of people to live in areas at high risk of flooding than just the impact of weather conditions**

Stockton, California is an interesting case because it is a considerable distance from the coast. However, the city lies along the Sacramento-San Joaquin River Delta that is in many cases below the level of the river when it is swelled by winter snow melts. This condition highlights the fact that flooding may be more related to the decision of people to live in areas at high risk of flooding than just the impact of weather conditions. Those lifestyle decisions can be altered or steps can be taken to protect the city and its population or at least to minimize the potential risk from high water.

**We have just visited Stockholm, Sweden and were amazed to find that this city is rising above sea level and not falling**

We have just visited Stockholm, Sweden and were amazed to find that this city is rising above sea level and not falling. Stockholm is built across 14 distinct islands, linked by boats and bridges. These islands are a part of an archipelago of an estimated 25,000 islands based on the latest count. The islands the city is built on are composed of mud and according to multiple tour guides and research sources that mud level is rising. Much like the damage done from shifting soils and foundations experienced by Texas coastal residents and the subsidence problems in South Louisiana, rising mud levels are causing buildings in the downtown portion of Stockholm to crack and tilt.

Our tour guide suggested that because of these tilting and cracking buildings, citizens are advised to look up and not down to assess danger when walking. The rising mud, however, is increasing the

**They should immigrate to Sweden!**

number of islands in the archipelago providing new land for future expansion or at least for the construction of new homes. Because rising sea levels are not a threat in Sweden, guess what we suggest for those Americans scared of being submerged by global climate change? They should immigrate to Sweden! Could it be that shifting plate tectonics has something to do with rising sea levels in certain parts of the world and not in others?

## **Global Oil Prices Propped Up By Political Tensions**

**The reason prices are high is related to the production outages among oil exporting countries**

For much of the past three years, there has been constant debate over why global oil prices have remained high given the weak economic environment. Explanations have pointed to the faster growth of developing countries such as China, but as its growth has slowed recently to a rate well below that experienced in prior years, concerns are increasing that oil demand might not be as strong in the future as previously anticipated. That should have put downward pressure on global oil prices, but other than very short-term volatility, oil prices remain stubbornly high. The reason prices are high is related to the production outages among oil exporting countries, primarily in North Africa and the Middle East, that have contributed to a tight supply/demand balance.

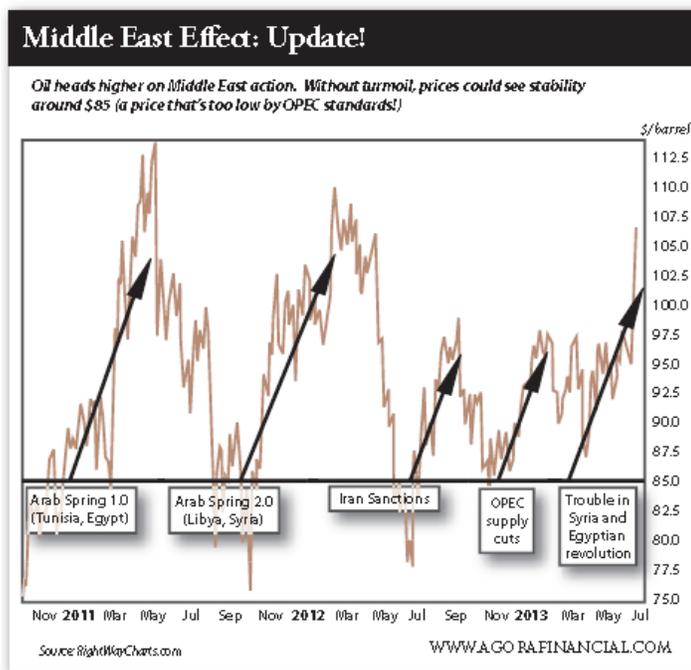
**Of the five oil price rebounds during this period, only one was driven by an active restriction of oil output by the members of OPEC**

We recently saw a chart of oil prices that showed how since late 2011, every time oil prices headed down toward about \$85 a barrel, some political event sparked concern about oil's availability that sent prices back up, such as the latest outbreak of violence in Egypt. Of the five oil price rebounds during this period, only one was driven by an active restriction of oil output by the members of the Organization of Petroleum Exporting Countries (OPEC). All other price rebounds have been related to political tensions, but certainly not to the financial dismay of those countries that need high oil prices to lubricate their economies, such as Saudi Arabia.

**Stronger demand will be needed to support prices, especially given the growth in U.S. oil output that has reduced our need for Middle East oil imports**

The OPEC members have to be feeling better about the outlook for global oil markets as they see increased signs of economic growth in some of the more depressed regions of the world that are large consumers of petroleum products such as the United States and European Union. The latest quarterly economic reading for both these regions were stronger than expected by economic forecasters. That stronger performance suggests there is growing confidence that the pace of future economic activity in these regions is accelerating, which should lead to increased oil consumption. Increased oil demand, meaning the need for more OPEC oil can't come soon enough for the organization's members because they are fearing the end to oil production outages that will boost available supplies. Stronger demand will be needed to support prices, especially given the growth in U.S. oil output that has reduced our need for Middle East oil imports. Maybe the petroleum industry is facing a reduction in the risk of oil prices collapsing in the near term despite the various studies suggesting that oil demand has peaked

Exhibit 10. Oil Prices Held Up By Political Events



Source: *Agora Financial*

(a topic to be visited in the future) just when oil supplies appear to be growing.

### The *Browning Newsletter's* Analysis Of The “New Normal”

Evelyn Browning Garriss, the daughter of Ibn Browning, one of the early and well-regarded climatologists, has continued her father’s legacy of publishing the *Browning Newsletter*. The newsletter covers climate, individual behavior and global commodity trends. Her father was well known for helping people understand how trends and patterns in our climate and the resulting behavior of individuals would impact the value of commodities. He was a highly-anticipated speaker at investor conferences.

**In reality much of what we are seeing are climate patterns that existed 60-80 years ago and are not necessarily heralding a new cataclysmic era**

A recent issue of the *Browning Newsletter* contained an article discussing the “New Normal” of climate patterns and how individuals need to consider their current events over a much longer time frame of analysis in order to correctly understand the potential environmental and investment risks associated with these events. Mrs. Garriss discusses many of the weather trends and events receiving high media attention for being out of the ordinary (recent pattern). These events are being pointed to in order to demonstrate the global peril due to climate change. In reality much of what we are seeing are climate patterns that existed 60-80 years ago and are not necessarily heralding a new cataclysmic era. In the

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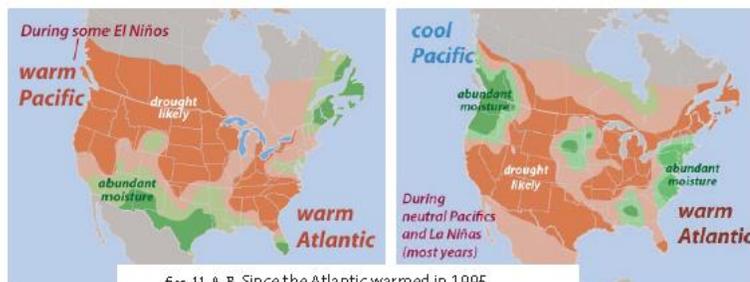
**The lack of adequate historical perspective from the media, coupled with the pressure of filling the 24/7 news cycle, has made any abnormal weather event a monumental and impactful exhibit of new and disastrous climate trends, even if they actually show a lessening in their importance**

conclusion to her article, she wrote: “The ‘New Normal,’ with a warm Atlantic and a Pacific that tends to be cool (interrupted by El Niños) is changing US temperature and precipitation patterns. This in turn has had a major impact on sectors of the US economy. Remember, companies doing long-term planning often use records that are only 25 to 30 years in duration. The PDO [Pacific Decadal Oscillation] tipped only 7 years ago. Most of the records that are used by policy-makers are biased towards times when the PDO was wetter than it is today. This has resulted in mistaken ideas of how rare a weather event may be. We saw what a potential disaster this 25-30 year approach could be when NOAA tropical storm concerns were brushed aside by New York and New Jersey because there had been no landfalls since the 1950s.

“We are dealing with the same Atlantic and Pacific configurations that shaped the 1950s. Our economy and society will have to learn to cope with this New Normal.”

Her final point is something we have focused on in previous articles dealing with climate events and weather trends and how the media has misinterpreted them. Her conclusion also plays into the discussion by climate change proponents who continue to marvel at how dramatically different current weather events are from the weather of recent years and how scary the world’s climate outlook has become. We have pointed out, based on our personal knowledge of hurricane landfalls along the East Coast, and in particular in the New England states in the 1940s, 1950s and early 1960s, that this is not necessarily the case. The lack of adequate historical perspective from the media, coupled with the pressure of filling the 24/7 news cycle, has made any abnormal weather event a monumental and impactful exhibit of new and disastrous climate trends, even if they actually show a lessening in their importance. Take both hurricanes and tornadoes as an example. We have had one of the longest stretches of time without a major (Category 3, 4 or 5) hurricane making landfall along the U.S. coastline. However, the recent pattern of storm paths is now more likely to take storms up the East Coast than into the Gulf of Mexico due to the cyclical warming pattern of the Northern Atlantic basin. So after decades with little or no hurricane activity in the Mid-Atlantic and New England states, they will experience a frequency more similar to that of the period some 60 years earlier. New memories of hurricane events and the resulting storm damage will be formed, and not necessarily the entrance into a new climate era.

Despite the devastating tornadoes experienced during recent years, the trend in their frequency has been steadily downward over the past decade. There appears to be a relationship between the warm climate currently being experienced in the mid-West region of the nation and the decline in tornado frequency just as was observed during 1920s and 1930s. Mrs. Garriss also focused on the impact of changes in precipitation and temperatures on the number and

**Exhibit 11. Historical Weather Patterns Are Different**

figs 11 A-B Since the Atlantic warmed in 1995, North America faces a greater risk of drought.  
 US data: USGS Obeilyn Garrison Browning

Source: *Browning Newsletter*

**While climate patterns have been altered, continuing to adhere to unchanged policies allowing increased building of homes in high risk zones, it is not surprising that forest fire damage has escalated**

magnitude of forest fires. As she pointed out, “When the PDO [Pacific Decadal Oscillation] changed, starting in 1999, it reduced rain and snowfall throughout most of the western United States. This affected not only cultivated and urban lands, but also wilderness areas.” She went on to write, “Since the 1970s (when the PDO turned warm and wet) we have seen a national surge in home-building in what is known as the Wildland/Urban Interface, or WUI. According to a 2005 report cited by the Forest Service, some 32 percent of US housing units and 10 percent of all land with housing are situated in the WUI.” Thus, while climate patterns have been altered, continuing to adhere to unchanged policies allowing increased building of homes in high risk zones, it is not surprising that forest fire damage has escalated. There is a need for greater policy focus that encompasses long-term historical climate patterns in order to better understand the risks people and governments have assumed from more benign climate patterns of the past 20-30 years. The long-term climate trend perspective may suggest policies that appear to be completely at odds with existing government policies and individual beliefs and experiences of recent weather patterns. Recognition of the need to alter current policies will prove very upsetting to those who have particular climate agendas that lack true historical perspective.

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