Vehicle Price Versus Fuel Price and Availability

What people don't understand about electric cars is that their principle advantage is that these cars don't use gas. People pretend or hope that gas will always be available and affordable. As long as gas is cheap & available people will prefer gas cars over electric cars. When gas is no longer affordable or not available people will understand.

When the choice is driving a 100 miles or less on the one hand or walking and waiting for gas to get cheap or available on the other, an electric car will suddenly be appreciated. All those people who were waiting for an electric car with 400 mile range that they could fully recharge in less than five minutes will come to grips with their real daily driving needs. The annual trip to Grandmas will be left to public transportation.

They will ask those of us with foresight enough to buy an electric car, first to drive them to a doctors appointment. After they have broken the ice, they will ask us to take them to the supermarket and later to the bank or the post office.

We will hear them say "How did you know? I thought cheap gas would be available forever." All the signs are there indicating the future price and availability of oil. One only needs to look at the facts and embrace them.

These are the signs.

1. Cost of oil production is rising
2. Global oil consumption is rising
3. Global oil discovery rates are in decline
4. The size of newly discovered oil reserves are small.
5. Global production is flat and may soon fall

1. Cost of oil production is rising
[EROEI (Energy Return On Energy Investment) is decreasing]

The cost to produce a barrel of oil at Gharwar in Saudi Arabia is a $1.50. The production of a barrel of oil from Canadian tar sands is $65.

Tar Sands

There are ten tar sands fields in Canada and a total of forty are planned. The most environmentally destructive of the tar sands production processes clear cuts all the trees, removes the overburden to expose the tar sands. excavates the tar sands by the ton and heats it to 700 degrees to separate the heavy oil from the sand. The toxic tailings are then dumped into "ponds" which are really lakes from which birds are discouraged from landing by the sound of loud blasts from proane canons surrounding these lakes. You can see from this description of the process why production cost is high in terms of dollars, energy and environment.

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Offshore Oil

We have gone from land based gushers of light sweet crude to more expensive shallow water oil production in the Gulf of Mexico, Prudhoe Bay in Alaska and the North Sea. We are now producing oil from deep water reserves in the Gulf of Mexico and off the coast of Brazil.

Deep water production involves expensive offshore deep water rigs and tenders to extract and deliver oil. These platforms are marked by flares which waste natural gas including methane by burning it and directly heating the atmosphere while producing carbon dioxide at the rig.

Shale Oil

Finally shale oil has become economically viable because of the rising price of a barrel of oil. We have been aware of Shale oil deposits such as Bakken in South Dakota for decades. However the cost of production of this oil was too high to be profitable. Production of this oil requires deep horizontal drilling, hydraulic fracturing and steam injection to obtain very low production rates. To compensate for low production rates large numbers of expensive wells are drilled. Like tar sands this oil is expensive in terms of dollars, energy and environment.

http://ganchoblog.blogspot.com/2009/05/on-kessels-declaration.html

These costs will be reflected at the pump. They will have an increasing effect as land based light sweet crude continues to decline and expensive unconventional oil becomes an increasing proportion of global daily oil production

Infrastructure

The oil industry has been producing oil for over a century. Much of the current infrastructure is over 30 years old. Pipe lines need constant repair due to leaks. In addition to the repairs, there is the added cost of spill cleanup. Despite blowout prevention technology, blowouts still happen. Deep under water blowouts are particularly difficult and expensive to contain, sometimes producing leaks far removed from the well head.

Old shallow water abandoned caped wells produce leaks due to decaying failed caps. This is also true for land based abandoned capped wells. Oil companies have renewed interest as technology improves such as EOR (Enhanced Oil Recovery) which uses injection techniques to produce pressure to make old wells productive again.

Refineries are aging and no new refineries have been built recently. Refineries are another place where you will see flares wasting natural gas including methane.

Ocean going fleets used to transport oil are aging resulting in the need for costly maintenance. Changing environmental standards require costly improvements necessary to achieve compliance. Hard economic times have caused maintenance and environmental standards compliance to be delayed and neglected. Eventually these costs will be incurred.

These cost also contribute to rising prices at the pump.

2. Global oil consumption is rising.

In India the auto maker Tata Motors is producing the worlds cheapest car, the Nano, at under US$3,000. Formerly the cheapest car in India was over US$5,000. Sales of this car are not limited to India. It is being sold in other developing countries. This has contributed to rapidly rising global demand for oil.

Similarly China is quickly increasing the number of private automobiles and demand for oil. The fastest growing market for new automobiles is in China now surpassing the US in annual automobile sales. Auto sales in China for 2011 exceeded US sales by 2 million at 14.5 million vehicles. In 2009 China had 62 million cars on the road. China's demand for oil will continue to increase as the size of their automobile fleet grows.

Personal automobiles are increasing in numbers in oil producing nations as well. This has the result of reducing oil exports from these oil producers as their domestic consumption rises. This has the two fold effect of reducing oil availability in a rising demand market.

As the number of personal automobiles rises globally, global demand for oil will rise.

3. Global oil discovery rates are in decline

It has been said that we discover one barrel of oil for every four we consume. Oil fields are classified as super giant (greater than 5 billion barrels of recoverable oil), giant (500 million to 5 billion barrels of recoverable oil) and the rest which accounts for 90 percent of the fields. These smaller fields have recoverable reserves of less than 500 million barrels of oil and are significant only in their aggregate.

Oil is also categorized as conventional (light sweet crude) and unconventional (shale oil, tar sands and deep water). We also have a growing component in the mix of oil products which include natural gas liquids and fuels produced from methane or coal. Unconventional oil and non oil based liquids are increasingly included in oil production figures and tend to obscure the decline in conventional oil production. The cost of producing these unconventional oil products and non oil based liquids account for the rising price of gas at the pump.

4. The size of newly discovered oil reserves are small.

Although we are finding some new giant fields, they tend to be at the lower end of the 500 million - 5 billion barrels of recoverable reserves and they tend to be natural gas rather than oil and unconventional rather than conventional and more likely small fields rather than giants. There are not likely any more conventional super giants.

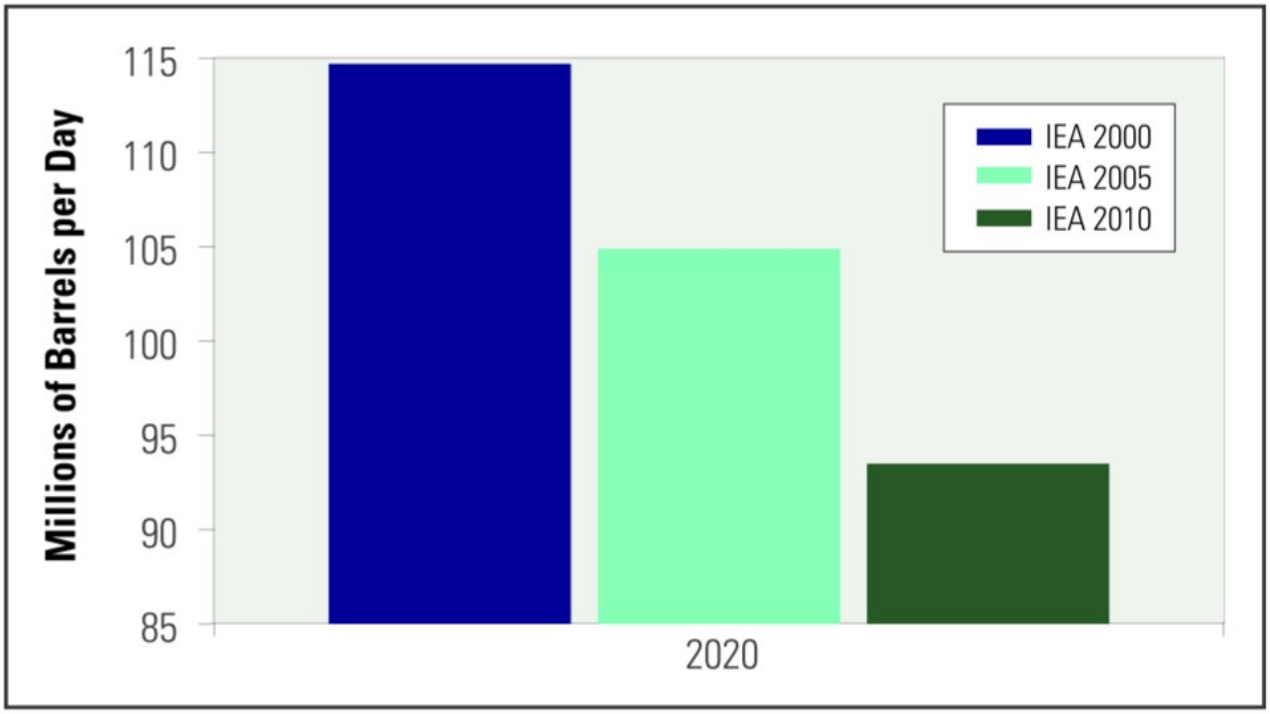
5. Global production is flat and may soon fall

We are on the bumpy plateau when it comes to daily global oil production. We seem to be living in anticipation of a resumption of the growth of daily global oil production. Yet we suffer with continued minor ups and downs.We do not yet see the declines predicted by M. King Hubbert so many years ago nor the increases predicted by the EIA and the IEA.

As we see declines in production of conventional oil, as evidenced by increased production of deep water, shale and tar sands we increase our efforts as demonstrated by increases in number of wells drilled. We are working harder to no avail. We are unable to resume the growth in the rate of daily global oil production. Increases in one area are offset by declines in others.

The IEA produces predictions of future daily oil production. While daily global production has remained more or less flat with no clear upward trend since 2005, it is interesting to review IEA predictions for daily global production in 2020 starting with their prediction in 2000. At that time they predicted 115 million barrels per day..In 2005 they predicted that in 2020 daily global daily oil production would be 104 million barrels per day. In 2010 they revised their 2020 prediction to 93 million barrels per day.

FIGURE 3: IEA OIL PRODUCTION FORECASTS



Source: International Energy Agency, World Energy Outlooks (2000, 2005 and 2010).

Through the period typical daily global oil production rates have been 82 million barrels per day more or less. It seems that the experts are gradually,year by year revising the expectations for the resumption of growth in daily global oil production. if the next prediction in 2015 is revised downward by the same amount as the last two, in 2015 they will predict 82 million barrels per day. It maybe that this figure will also be too high as daily global oil production may have already begun to decline into the high 70 millions.

Signs

Each of us must imagine what the future price and availability will be of gas at the pump and take that into consideration when buying a new car. A new automobile is a large investment to make only to find you can't afford or can't find the fuel you need to drive it.

For those who look at the factors affecting the price of gas at the pump, the future is clear. One needs only to look at the rise in gas prices alone to see the trend. We look at gas prices of $4.00 per gallon in the summer of 2008 and the spring of 2012 and think it took four years to get back up to where it was in 2008. Actually if you look at the average price of gas for each year over the period 2008 - 2011, there was really no relief. The average price of gas rose every year. Each year's average gas price was higher than the previous including 2008.

There are people who think gas should be $2.00 per gallon or less. There is a reason for this. They believe what presidential hopefuls like Michele Bachman ($2.00) and Newt Gingrich ($2.50) have told them. At $2.00 per gallon oil has to be $55 per barrel. At $2.50 per gallon oil would be $69 per barrel. At these prices tar sands and other forms of unconventional oil are not profitable.

It is the rising demand for and price of gas that has encouraged the development of technologies necessary to produce unconventional oil. Whether you look at the rising price at the pump or the rising cost of unconventional oil production, which is becoming an increasingly larger proportion of daily oil production, or if you consider rising global demand combined with a declining rate of discovery, the signs are clear to those objective enough to look at them. The trends are obvious. Gas is not getting cheaper. It will not get cheaper. It can not level off or get cheaper unless global consumption drops significantly below global production.

When it comes to oil production we have our foot on the gas when it should be on the brake. We are drilling three times more for a ten percent increase in production. The outcome of this doubling and tripping of effort will only result in shortening the time for which oil will be available. The faster you produce oil, the sooner it is exhausted.

The outcome is obvious, even to the casual observer. You only have to observe. There are interests who encourage your complacency. We all enjoy the benefits oil provides. We are predisposed and receptive to promises of never ending $2.00 gas. When you hear this type of promise consider the source and the motives. Look beyond these claims. Go deeper.

Check out the number for yourself, both production and consumption by the barrel by country by year.

http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/reports_and_publications/statistical_energy_review_2008/STAGING/local_assets/2010_downloads/Statistical_Review_of_World_Energy_2010.xls

New Car Purchase

If you plan to purchase a new vehicle, don't waste your money on anything less than a plug-in vehicle. Consider purchase price versus life cycle cost. Consider how you will feel if gas becomes prohibitively expensive or scarce after you have made a significant financial commitment in an automobile that can no longer be driven.

Consider your actual daily needs. Don't buy a car capable of the annual drive halfway across the country to grandma's and deprive yourself of the daily benefits that go with a plug-in battery electric vehicle which runs without gas. You can rent a gas car to go to grandma's house or take thetrain or a plane. A rental car is the cheapest range extender for your new EV.

If you own two cars and plan to replace only one, you may not need a rental car. Just use the old gasser for the trip.

Do some serious thinking. How long have you driven the car you are replacing? If you are like many people, you may have this vehicle for eight or ten years. This is more than enough time to recover the initial cost of a new electric car.

How much gas has your current car consumed during the time you have driven it? If you drive 40 miles per day and get 20 mpg, you are using 730 gallons of gas per year. In ten years that is 7300 gallons of gas at $4.00 per gallon that is $29,200. This might be more if your old car gets less than 20 miles per gallon in city driving or you drive a little more than 40 miles per day or your weekend driving is more than your daily 40 mile commute.

You know what you need and what your cost of operation is. Figure it out. Is it $20,000 or $30,000 over the Life of the vehicle? Is it less? Have you thought about it. You may feel the fuel consumption of the replacement vehicle is a more appropriate figure to use. Just consider this. Use the new vehicles fuel economy numbers appropriate to your driving. Don't use the higher mpg unless it is appropriate to your driving. Also consider the fuel prices are likely to rise over the period. In any case come up with the cost of fuel you won't buy, subtract it from the price of the electric car and the cost of operation of the electric car. You will reach the crossover point in less than seven years. This is the point where the cost of the gas car plus operating costs equals the cost of the electric car plus its operating costs.

You can use this calculator to help you find the crossover point.

http://www.befrugal.com/tools/electric-car-calculator/

Here is a article from The Globe and Mail worth reading.

http://www.theglobeandmail.com/news/national/the-age-of-extreme-oil-this-used-to-be-a-forest/article2437730/page1/

The insanity will only end when each of us stops using oil.

http://beta.images.theglobeandmail.com/archive/01407/web-xtreme-oil1_1407758cl-8.jpg