

Something to Think About



OAKWORTH
CAPITAL BANK

COMMON CENTS

I am bullish on energy long-term. The argument is simply too compelling: as emerging market economies, namely India and China, continue to develop and prosper, they will consume more. Period. They will want more protein, even in India, and they will want many of the trappings of perceived Western affluence, namely personal transportation, and preferably a car.

According to an aggregated amalgam of various sources, India has around 25 personal vehicles for every 1,000 inhabitants. China has about 85; Indonesia around 70; Nigeria comes home slightly less than 10, and Brazil is at 200 or so. By comparison, roughly 275 Mexicans out of 1,000 have their own wheels, and about 800 of every 1,000 Americans do as well.

While available space will limit the amount of cars in some of these countries, notably India, Indonesia, and even Nigeria, you can surmise there is a lot of room for growth in personal transportation in the most populated countries on earth.

For instance, what would happen if, all of a sudden, India had a quarter the number of vehicles, per capita, as Mexico. With around 1.3 billion people, voila, that would be a difference of about 57 million vehicles. What if China got to half the Mexican average? Using that same number of folks, presto, that would be an increase of around 68 million vehicles.

Then, of course, you have population growth rates, and autos are, pun intended, off to the races. To that end, I have read stories which estimate there are an estimated 1.2 billion vehicles on the world's roads today, and there will be 2 billion within the next 20 years. Obviously, that is 800 million new units and drivers.

Now, what must all those vehicles have to get around? That's right, energy, of some sort. Given the relative efficiency of producing internal combustion engines, the vast majority of these new cars hitting the streets in these countries will more than likely use good old gasoline, because getting around is more important than paying up to be green.

At least initially.

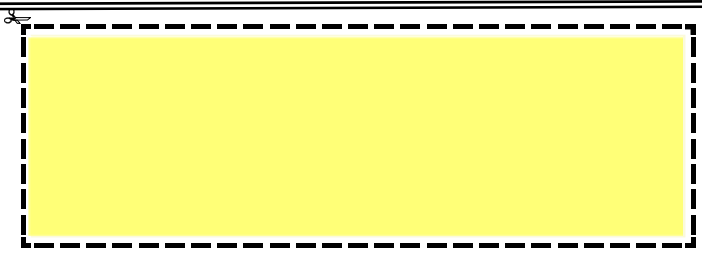
But, but, what about the trend in battery operated cars, like Tesla? Won't that eat into the number, and reduce the amount of gasoline we use? Sure, relatively speaking. You have to remember, the IEA (International Energy Agency) has a target goal of 200 million EV/PHEV (plug-in hybrid electric vehicles) vehicles on the road by 2030. So, 250 million on the roads in 20 years? Sure, if we meet the target, and, gosh, we are starting with about 500,000 on the streets in 2014. So, that is some significant growth, to be sure.

So, take 250 million off that 2 billion number, and you have 1.75 billion vehicles which will still require some form of good old-fashioned fossil fuel. Petroleum burns pretty hot, and there is a lot of infrastructure already around it, so it is the odds on favorite at this point. Therefore, we are looking at an additional 500 million internal combustion engine vehicles, of some description, hitting the bricks over the next 20 years.

That will require a lot of fuel, of some sort.

Inside this issue:

Something to Think About	1-3
Disclaimer	2



Something to Think About Cont.

Then, we have the issue of all those battery powered cars. You might think they won't require fossil fuels, but you would be in error. There will require them, only indirectly. Why? Because we produce a lot of electricity, a lot, in the United States using natural gas and coal, yep, coal.

Lets assume a standard EV/PHEV requires 30 kWh to go 100 miles, which is about right. Let's further assume the average driver will travel 12,000 miles in any given year. This means the average EV/PHEV will need 3600 kWh annual just to go those 12,000. Multiply that by 250 million, and, voila, you can conclude IF we hit that adjusted target of 250 million EV/PHEV in 2035, they will use an estimated 900 billion kWh of energy. That works out to be 900,000 gigawatts

To put that into comparison, Japan's total electric output in 2013 was only a shade over 1 million gigawatts, and was the 4th highest total by country. More? Okay, Mexico, our friend to the south, produced 294,000 gigawatts of electricity in 2013.

So, what if we assume natural gas will provide 40% of the energy to produce the additional 900 billion kWh of energy? That would be 360 billion kWh, right? How much additional natural gas will we need?

Well, according to the EIA, it takes 1,000 cubic feet to generate 127 kWh. Therefore, we produce .127 kWh for each cubic foot. If we need 360 million kWh, we will therefore need an additional 2,834,645,669,291.34 cubic feet of natural gas in 20 years, just to provide 40% of the electricity needed to charge our 30/kWh per 100 mile EVPHEV annually. How is this for nerdy?

To put that into comparison, that number is comparable to what the United Kingdom uses each year.

I think you probably get the point. Even if we are more judicious in our energy use, we will still consume a lot more of it in the future simply because there will be a lot more of US, people in general, and we will be driving more vehicles and using more A/C and forced heat, etc.

Now, if you want to be environmental friendly, don't have children. Why? Because children are people, and people consume food, water, plants, minerals, and energy. The more people there are, the more they will consume, and that is just the way it is.

To that end, if the prognosticators are right, there will be an additional 1.5 billion people on the earth in 20 years. They will be wealthier, in general, meaning they will consume at a higher rate than they do today. If history serves as a guide, global energy use increased 39% from 1900-2008, according to the EIA. This was a combination of per capita usage and population growth. Strangely enough, we used less energy per capita in the United States over this time period!

As a result, I feel very comfortable in estimating 2-3% per year growth in energy usage, globally, over the next 20 years....particularly as poorer countries, particularly India, come into their own. The global numbers,...the potential need for capacity....are amazing. If Indians consumed only 25%, per capita, of what Americans do, the world would need an additional 17-18 TWh of energy....not too far off what the European Union consumes in a year.

Disclosure

This report does not constitute an offer to sell or a solicitation of an offer to buy or sell and securities. The public information contained in this report was obtained from sources and vendors deemed to be reliable, but it is not represented to be complete and its accuracy is not guaranteed.

This report is designed to provide an insightful and entertaining commentary on the investment markets and economy. The opinions expressed reflect the judgment of the author as of the date of publication and are subject to change without notice; they do not represent the official opinions of the author's employer unless clearly expressed within the document.

The opinions expressed within this report are those of John Norris as of the date listed on the first page of the document. They are subject to change without notice, and do not necessarily reflect the views of Oakworth Capital Bank, its directors, shareholders, and employees.

Something to Think About Cont.

That is the potential in just one country, and they are mind-boggling. In essence, given the ongoing depletion of the North Sea and the decrepit nature of the fields in Venezuela, you know, there should be a lot of money for the Saudis, Russians, Canadians, and Americans in the future, as those 4 ultimately put a strangle hold on the global energy markets.

This brings me to today.

What we have today is a relatively short-term supply/demand mismatch in the energy markets. The stuff coming out of the ground in the US came out undoubtedly much faster than anyone had anticipated. It is amazing what \$100/barrel for crude oil will do, huh? This happened as there was a slight slowdown in global economic activity, which will probably be mitigated by increased central bank stimuli around the world.

Speaking of central bank stimuli, the Australian and New Zealand central bank's have intimated they are inclined to cut interest rates, just as the Singaporeans recently have. Asian banks, in general, have been cutting rates, as each nation tries to weaken their currencies against the other(s) in order to increase exports to the United States. If market expectations are accurate, South Korea will do so in the near future.

Basically, with the exception of Switzerland and the United States, the remainder of the world seems near heck-bent on weakening their currencies OR at least unwilling to do much about them weakening. It would be hard to imagine hard asset prices falling significantly in a global economy where money is as cheap as it is, and as cheap as it will be in a lot of economies moving forward.

In so many ways, when the US dollar, with our significant trade deficits and YOY negative short-term interests when compared to inflation, is appreciating like a rocket against most everything else, well, I hope you get the picture.

In the end, with a long-term growth trend in energy demand coupled with weaker global currencies, in general, I think it safe to say the easy money has been made betting against crude oil, etc. Sure, 'it' can fall some more, and might. However, and everyone watching this knows this (even if they won't admit it publicly), all the market needs is one small sentence from the Saudi royal family, and energy will bounce \$5-10/barrel: "we plan to cut production by 1 million barrels per day." That's it.

Why? Because the energy sector isn't broken; it just got a little ahead of itself.