ENERGY – SOURCES, COSTS AND CONTROVERSIES

– POINT/COUNTERPOINT PART I

Stephen L. Bakke, July 2008 and April 2011

In this report I first present an argument most often presented by liberals and progressives. This is followed by an argument using competing information.

Energy Cost and Availability

- ***Point:*** "Big oil companies" are the main cause of the high cost of gasoline. Oil company profits are unusually high. The increasing profits from recent years clearly reside in the "coffers" of these oil companies.

  Counterpoint: Oil company profits have surged in recent years but the increase should be put in context. Local, state and federal taxes paid "at the pump" are several hundred percent larger than the "after tax profit" going to the oil companies. The level of oil company net income, as a percentage of sales was 8.3% for 2007 – and is even lower early in 2008. This percentage is not high for industrial companies. The average gross margin on sales is also not unusual.

  I analyzed the financial statements of Exxon Mobil Corp., which I understand to be the most profitable of the oil companies. Some facts are presented here (amounts and percentages are rounded): gross margins increased, as a percentage of sales, by 3% from '04 to '07; income tax expense, as a percentage of pre-tax income, increased from 38% in '04 to 42% in '07; after tax net income rose from 9% in '04 to 11% in '07, as a percentage of gross revenue; during the same time period, reinvestment in property plant and equipment was $57 billion compared to net profits of $140 billion – i.e. 40% of net profit was invested in the Company's future, and this excludes much of the exploration investments which, for the industry as a whole, amounted to a large majority of combined net profits.

  Some interesting information from the Tax Foundation: since 1981, the oil industry has earned a cumulative $1.2 trillion in profits after taxes – but paid a cumulative $1.65 trillion in U.S. taxes plus approximately another .5 trillion in foreign taxes; for most of the 25 years from 1981 through 2006, federal, state, and local government tax payments were double the profits in those years; and looking at Exxon Mobile's taxes for just the last quarter, taxes exceeded the profits after taxes by almost 300%. Who benefits from oil company success? In addition to the oil companies, let's not forget the big winner – our tax system!

  One important additional point: If gas prices were rolled back by just 10%, and if that reduction was imposed entirely on the oil companies, virtually all corporate profits would disappear. So the bulk of the problem does not reside there.

- ***Point:*** Repeating and expanding on the last point: "Big oil companies" are the main cause of the high cost of gasoline.

  Counterpoint: When did we forget about considering the effects of supply and demand which are mentioned elsewhere in this report? We must consider the facts that the large majority of our offshore and land-based deposits are virtually off limits, the value of the dollar is sinking, the energy demand from developing countries is accelerating, and U.S. oil production has gone down 40% since '85 while our consumption has grown by 30%. Add these up and we see the real cause – the impact of world-wide supply and demand.

  It is an irresponsible distraction to point and wave such a "large finger" at oil companies. They have contributed to the price increase, but only part of it. Some interesting ironies have been documented. For example, list politicians who have done the most to reduce supply by restricting drilling, preventing refining expansion and blocking expanded use of nuclear power. Make another list of the politicians who express the greatest outrage about high energy prices and start pointing fingers of blame. The lists will be very similar.

- ***Point:*** Speculators are to blame for high oil prices.

  Counterpoint: Speculating and futures trading is a tradition in all commodities markets. This is a little understood activity – perhaps least of all by me. However, while sometimes inaccurate assumptions about future oil supplies do affect the oil prices, it is truly supply and demand that ultimately influences prices. Sometimes the activities of these "speculators" do cause volatility – no market is perfect. More often the futures markets provide the buyers of commodities a dependable price and supply of a crucial resource for their business. As often as it causes volatility, it actually reduces wild fluctuations and provides more certainty as to prices. Volatility is the result of confusion and uncertainty – often due to government involvement, and very little else.

  Pursuing speculators as the culprit would likely be a significant waste of time. Recent proposed legislation to further regulate "speculators" in the futures markets would introduce genuine distortions to the oil market and make life even more difficult for oil consumers who are quite reasonably using the futures market as a hedge against higher prices. This is an example of the law of unintended consequences as it relates to so much of our enacted legislation. It is an imperfect system but most likely better than the government imposed alternative.

- ***Point:*** We are running out of oil fast.

  Counterpoint: We are outstripping the current production capacity but the possibility of significant energy from untapped resources is immense: coal and "coal to gas" production; known but untapped natural gas reserves; oil shale exploration; ANWR oil potential; oil off our east and west coasts, and the Gulf of

Mexico; the Bakken formation in the northern U.S. and Canada. And increasing our use of nuclear power makes all of these even more attractive and improves their potential longevity.

Considering just the Bakken formation oil deposit in North Dakota, one estimate is that it has over 4 billion barrels of oil available using current technology. Some real optimists state that it could even be greater – perhaps the largest single oil find in U.S. history – and possibly largest in the world if drilling technology advances. The Energy Information Administration estimates the reserves at over 500 billion barrels – but technology would have to advance to access it. One estimate pegs the ultimate cost per barrel, without major technology advances, at just $16. While this deposit was discovered over 50 years ago, its characteristics originally made it impossible to extract. Applying today's techniques, such as horizontal drilling, the "Bakken" shale oil can be extracted relatively cheaply.

It is estimated that beneath America's coast lies enough oil to fuel 60 million cars in the U.S. for 60 years and enough natural gas to heat 60 million homes for 160 years. If allowed access to American oil reserves in Alaska and off our coastline, American oil companies could increase our country's reserves an estimated fivefold, taking the United States from 11th place to 4th among the countries with proven oil reserves. Some estimate the oil deposits on the outer continental shelf is 86 billion barrels, nearly four times our proven reserves.

The potential in just the shale oil reserves in Colorado, Utah, and Wyoming is estimated by some to be 800 billion barrels – more than the proven reserves of the rest of the world – or more than a century worth or projected oil imports. There are some estimates that are more than double this amount.

Recent discoveries in the Arctic have produced estimates of reserves adequate to meet world demand for three years.

Our untapped natural gas reserves have staggering energy potential.

- ***Point:*** Politicians can make a meaningful difference in the cost of energy.

  Counterpoint: Progress can't realistically be made simply by blaming the oil companies, suing OPEC, and giving lip service to developing new alternative sources of energy, most significantly corn ethanol. The simple fact is that worldwide oil demand exceeds the supply which is approximately 85 million barrels of oil a day. This production has not increased for several years. The increasing demand comes significantly from developing third world countries. Legislation in the U.S. has prevented any increase in refinery capacity in 30 years (in fact it has reduced) and 85% of our potential oil and gas exploration areas are declared off limits to exploration. And our nuclear power capacity has been effectively blocked for several decades.

Dependable alternative energy sources are a worthy objective in the long term, but the reality is that if reduced energy costs and energy independence are to be meaningfully addressed, at least in the short term we must develop our energy technology, resources and reserves here at home.

Another competing opinion is to simply accept the high cost of energy and energy dependence as desirable, at least in the short term, even going so far as to prevent pump prices to go below, say, $4 per gallon. The theory here is that by taking such dramatic action, individual and corporate behavior would eventually be adequately adjusted to make a real difference in the long term.

Embedded in all of these opinions and strategies is the climate change issue. This is unfortunate if meaningful progress on prices and independence is truly desired in the next few decades. We must remember that arguably the cleanest source of energy is being ignored – nuclear. We must expand nuclear energy production, particularly if more oil and gas exploration and production are delayed.

- ***Point:*** Oil companies are selfishly and irresponsibly choosing to not drill in the areas they are now leasing. Why do oil and gas companies want more access to areas to drill if they aren't using all of the 68 million acres they already have – isn't this obviously exploitation?

  Counterpoint: Anyone with only the most basic understanding of how oil and natural gas are produced knows that claims of "idle" leases is a diversionary feint. A company bids for and buys a lease because it believes there is a possibility that it may yield enough oil or natural gas to make the cost of the lease, and the costs of exploration and production, commercially viable. The U.S. government received $3.7 billion from company bids in a single lease sale in March 2008. If these acres are not brought into production, they revert to the government with no refund of the payments made.

  Until the actual exploration is complete, a company does not know whether the lease will be productive. If, through exploration, it finds there is no oil or natural gas underneath a lease – or that there is not enough to justify the tremendous investment required to bring it to the surface – the company cuts its losses by moving on to more promising leases. Yet it must continue to pay rent for the term of the lease – typically up to10 years.

  The volume of "idle acres" which have been presented include three types of areas: those under exploration to determine deposits, those with proven deposits and in process of setting up production, and areas determined to be unproductive. These are classified as "idle" or "non-producing" during the time they are being explored, the time required to determine the size of the field, the time to obtain the government permits to commence producing, and the time for engineering and building the production facilities. Remember, all of these phases are technically "not producing oil", and therefore "idle" – but all for appropriate reasons.

There are also many anecdotal examples of the frustration encountered when trying to bring an oil field on line e.g.: permission granted to explore but not to drill; permission granted to drill for oil but no permission to bring the unexpected natural gas deposits into production, etc.

The finger pointing in this regard is simply a false dodge.

- ***Point:*** We can't drill our way out of the problem.

  Counterpoint: Some would say that really isn't the point. They feel it is possible and important to "drill our way" back to $3 per gallon, or some other chosen objective, and in so doing, also move in the direction of energy independence, at least in the short term. And they remind us of the added affect of using coal, coal gasification, shale oil production, and natural gas exploration. There is enough natural gas waiting to be tapped to heat all U.S. homes for 150 years. And, once again, how about the benefits of using nuclear energy?

- ***Point:*** The price of gasoline at the pump would be not be materially reduced by expanding our domestic oil and gas production. Any reduction will be tiny and won't occur for years in the future.

  Counterpoint: Those arguing this also point fingers at the "greedy speculators" for driving up the price of oil. They can't have it both ways. They can't blame speculators for artificially driving up the price of petroleum and gasoline, while at the same time claim no real benefit from removing any reason for speculation due to uncertainty, while increasing the anticipated future volume of production. It is simply contradictory. Significant price reductions would occur if the U.S. took a measured but aggressive position to increase our domestic production of oil. It is a simple and well known fact that if speculation is truly impacting price, then a small increase in supply with the promise of more in the future, will have a material affect on the futures market. This is a simple and accepted concept and to argue any further is a waste of time.

More About the Oil Companies, Taxation and Legislation

- ***Point:*** Oil stocks are held by the very wealthy.

  Counterpoint: Less than 1% of Exxon Mobil, for example, is held by the "very wealthy". And there are a few million additional shareholders of various wealth levels who hold the stock directly. A vast majority of the remaining stock is held by pensions, 401k plans, etc. The majority of "beneficiaries" of oil profits are definitely, and provably, "the little guy".

- ***Point:*** American consumers definitely hold the oil companies to blame for energy problems, particularly the price.

Counterpoint: Recent polls indicate the number of Americans who blame the oil companies has recently dropped from 34% to 20%. And pollsters are told the impending legislation (e.g. Lieberman/Warner) is something the respondents don't want to pay for. This proposal has been extensively reviewed by real experts, including many who are staunch but cautious global warming advocates and activists, as a massive subsidy-fest which will yield very few results at a great economic cost.

- ***Point:*** Windfall profits tax is an answer to our energy prices and independence because "they can afford it".

  Counterpoint: Stock price is based on anticipated profits. If taxes are raised, profits are reduced, stock prices are reduced, and significant losers are pension plans, 401k plans, etc. Definitely "the little guys" are the biggest losers. If, on the other hand, the companies pass on the effect of the tax increases through higher prices, who loses? Again, it is easily demonstrated that most of our energy is paid for by "the little guy". Those who would tax oil companies as a solution must first somehow create a "disconnect" between a company and its owners – the majority of whom are "little guys"!

  The U.S. actually tried the windfall profits tax in the '80s. The Wall Street Journal reported in a 1990 analysis that, following the added taxes, oil production fell by 3% to 6%. Many small producers actually capped their wells.

  And how about incentives? Will oil companies have an incentive to increase energy production if their profits are to be tainted as "excess"? There is something seriously wrong with the economic shallowness of politicians who believe that when oil companies prosper they should be punished. Remember, corporations are in business to create a return to their investors. If they are "punished", repentance will not be the result. Rather, they will react by not making further energy investments. There will be fewer jobs than otherwise, and guess what – we will have even higher prices for oil.

- ***Point:*** Passing restrictive oil legislation, if nothing else is accomplished, will at least preserve off shore areas from drilling and environmental exploitation.

  Counterpoint: Cuba is planning to explore for oil in the Gulf of Mexico within 45 miles of the Florida coast. China, India, and Venezuela are planning to join together to explore in the Gulf of Mexico. Brazil found two large oil fields in the Atlantic which is expected to make even that large country energy independent. We should remember that Canada allows drilling offshore in the Atlantic, Pacific, and ….. even the Great Lakes. And Russia is preparing to explore the recent discoveries in the Arctic. Will these countries be better stewards than the U.S.? Someone will go after oil, wherever it is. The world will not follow our lead in

restricting production. By our actions we have put ourselves at a great disadvantage – and to no net worldwide environmental gain.

- ***Point:*** OPEC is being unfair by restricting petroleum production and sales allocated to the U.S.

  Counterpoint: In response to this popular opinion, the U.S. House of Representatives actually passed a law by 324 to 82 which is considered to be, in its affect, a lawsuit against OPEC. It states: "It shall be illegal and a violation of this Act to limit the production or distribution of oil, natural gas, or any other petroleum product … or to otherwise take any action in restraint of trade for oil, natural gas or any petroleum product when such action, combination, or collective action has a direct, substantial, and reasonably foreseeable affect on the market, supply, price or distribution of oil, natural gas or other petroleum product in the United States". But isn't that what our Congress has done relative to our domestic resources? Isn't it the U.S. Congress which now "limits the production or distribution of oil" here in the U.S. by declaring that there'll be no drilling in the Gulf or ANWR. Haven't their actions also limited expanding our refining capacity? How arrogant and hypocritical!

- ***Point:*** While politicians have made some bad decisions, at least they have moved us closer to a comprehensive energy and environmental solution than we otherwise would have been.

  Counterpoint: The legislative actions of restriction and overreaction listed throughout this report have truly caused a huge step backward. The many restrictions, taken in combination with aggressively encouraging the very problematic ethanol as an alternative source, seem to be the behavior of a nation utterly NOT really serious about energy costs, independence and national security. We really aren't even trying to do anything that will make a meaningful difference. We have been bombarded with many concerns which are virtually no longer valid – e.g. technology to be applied in ANWR and other drilling operations, nuclear applications, and implications for climate change (see my separate report on global warming).

How About the Nuclear Controversy?

- ***Point:*** Nuclear power production routinely exposes citizens to higher than normal levels of radiation

  Counterpoint A stroll through Grand Central Station exposes a person to more radiation than a walk through a uranium mine or a nuclear power plant. A coal fired plant releases more radiation than a nuclear plant.

- ***Point:*** The limited level to which we have continued using nuclear energy has expanded the amount of radioactive material on the planet.

Counterpoint: Half of the nuclear material in our country comes from dismantled Soviet bombs. We have not even begun to use the energy available from decommissioned U.S. nuclear warheads.

- ***Point:*** Waste from nuclear plants is significant.

  Counterpoint: The volume is far less than one would expect. For example, the amount of nuclear waste resulting from one individual's lifetime of high-powered energy use is about the size of a coke can. The coal equivalent for this individual would be waste totaling approximately 68 tons.

- ***Point:*** While relatively small, the amount of waste potential in the U.S. is significant and there is no real solution to this problem.

  Counterpoint: There is a viable solution right now in New Mexico. It is the WIPP (Waste Isolation Pilot Plant) in a deep salt formation in New Mexico. It has been operating since 1999. It now handles only military waste, but I understand there is no reason, except political, for it not to take all of our civilian spent fuel. Because nuclear waste has a relatively small volume, it has proven to be quite manageable, and developing other repositories is very doable.

- ***Point:*** There is very little we can do with nuclear waste other than find "a corner to put it in".

  Counterpoint: Recent technology advances have provided a commercially viable way to recycle nuclear waste for reuse in generating power. It is now not just a waste product and a burden. Rather, it is considered by some energy producers as a resource. Stay tuned for more on this development.

- ***Point:*** In spite of the lack of carbon emissions, it is overall a risky source of energy.

  Counterpoint: The safety issues have been dealt with effectively. The risks are relatively comparable or less than other types of energy generation. It is very clean and safe.

- ***Point:*** If we make a huge investment in nuclear energy, when other forms of energy come on line for electricity generation, specifically wind and solar, the nuclear capacity will no longer be needed.

  Counterpoint: The fact is that there is a concept which contradicts this thesis. It is the fact that any power grid has "baseload" requirements. This is the massive power which must constantly be available 24/7. I understand that this can come from only three sources: fossil fuel, hydro-electric dams, and nuclear. Hydro is maxed out. Fossil fuel is the source we are trying to limit for a number of

reasons. That leaves only nuclear growth to handle much of the expected doubling of energy demand in the world by 2030.

The next report is ***Energy – Sources, Costs, and Controversies – Point/Counterpoint– Part II***