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High Octane: A Primer on the Economics of the Energy Crisis, 2000

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HIGH OCTANE?

A Primer on Energy Economics

by

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A

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>I. Over a Barrel in 2000</td>
<td>3</td>
</tr>
<tr>
<td>II. Has America Acted Fuelish?</td>
<td>5</td>
</tr>
<tr>
<td>III. When Peace Broke Out</td>
<td>7</td>
</tr>
<tr>
<td>IV. Wartime Petronomics</td>
<td>9</td>
</tr>
<tr>
<td>V. Oil In the Family</td>
<td>13</td>
</tr>
<tr>
<td>VI. Creative Juices Flow</td>
<td>17</td>
</tr>
<tr>
<td>VII. Energy Facts of Life</td>
<td>19</td>
</tr>
<tr>
<td>Epilogue: Crude (Oil) Humor</td>
<td>21</td>
</tr>
</tbody>
</table>
Introduction

In the late 1970's, the service station attendant implored me, "Fill it up?" Reluctantly, I replied, "Fill it up." He opened the cash drawer and said, "Fill it up." I filled it up, emptying my wallet. Then he filled my gas tank, doubling the value of my old, gas guzzling car.

By the mid 1980's, the pendulum had swung to the other extreme. I breezed into the service station in my new, fuel efficient model and happily challenged the attendant to "fill it up." He moaned, "I haven't seen gas prices this low since it was put in the trolling motor of Noah's ark!"

Today, those high gas prices again make us feel as if we are "paying through the hose." Aside from trying to face any energy crisis with a sense of humor, the fact is, gas is at least $1 more per gallon in Canada--$2 more in parts of Europe. Most of that price differential is attributed to the size of the respective countries' gas tax.

Examining the situation closer, the news at the pump gets even better. After adjusting for inflation, current gas prices are on a par with the prices that fueled our 1950 cars. In real terms, we have the least expensive gas in the industrialized world. In 1930, the average pay for an hour of factory work would purchase about 3 gallons of gasoline. As of March 2000, average wages for that hour's work would buy about 8 gallons.
At this writing, the Spring of 2000, few Americans view motor fuel to be the bargain it really is. Incredibly, and according to the American Petroleum Institute, motor fuel prices, as compared to inflation adjusted per capita income, have fallen 50 percent since 1981. Literally, if we priced today's motor fuel in 1981 dollars, we would be paying about $2.70 a gallon for motor fuel and oil would be approximately $69 a barrel.

What really drives gas prices? Inventory replacement costs, spot market prices, and buyer-seller psychology will always determine feedstock prices downstream into refineries, wholesale markets and retail outlets. Prices at the pump usually rise 2.5 cents per gallon for each $1 increase in crude oil prices.

What about those surging prices at the pump? Price increases for gasoline and heating oil shouldn't continue to be as great as feared or stay as high as those experienced during past oil crunches. The price of crude oil rose 400% in 1973-74 and 300% in 1979-80. Circumstances are basically and structurally different today. To also gauge what a low price we pay for motor fuel, try pricing a gallon of drinking water these days.

Nevertheless, our economy cannot thrive except under peaceful conditions. The very foundation of our economic lives--our freedom of choice to manage our individual, business, and national affairs--is a direct result of sustained peace in our time.
I. Over a Barrel in 2000

Always a balancing act, in a typical year, it is standard operating procedure for American oil refineries to convert from the production of heating oil to the production of gasoline shortly after the New Year starts. Only by doing that conversion on a timely basis can the energy companies meet and anticipate the growing demand related to summer travel by Americans.

Did such a conversion occur in the winter of 1999-2000? No. The equation was different in that, globally, there was a shortage of crude oil; prices at the wellhead were triple what they had been a year earlier. As with most things in economics, it really all does come down to supply and demand. During what would have been a normal conversion process this last winter, U.S. inventories were at their lowest levels in over two decades.

I'm certainly not predicting a petrocession, an energy shortage induced recession, nor even a dramatic shift in consumer spending habits. Only after a sustained period of adverse economic signals, combined with chronic shortages and persistent record high prices, would we expect to see a petrocession.

According to the chief economist at Conoco, this last winter of 1999-2000, "Inventories are low and crude oil is too expensive to buy and run through refineries at normal rates." Lest we think there is
price gouging in the works, American energy companies have not allowed motor fuel prices to rise as fast as crude oil prices have gone up at the wellhead.

Essentially, what was hoped for in the spring of 1999 ended up working all too well. That is, OPEC, the Organization of Petroleum Exporting Countries, did cooperate in restricting the supply and flow of crude oil in early 1999 as part of an attempt to salvage sectors of the depressed American oil industry when prices at the wellhead were then around $10.00 per barrel.

Alas, the fix worked too well, and within one year's time, the marketplace responded from an earlier time of abundance and low prices to a new era of shortages and high prices.

If gas prices stay high, what would be the result domestically? New England will be hurt the most on heating oil costs. Texas, Oklahoma, Louisiana, Alaska economies will pickup (Mexico, Venezuela, too). Price inflation could rise 0.5 to 1.0%, resulting in less downward pressure on interest rates. US exports could weaken with a stronger dollar, as exports become more expensive.
II. Has America Acted Fuelish?

Have we been "fuelish"? Not really. We have grown 75% in real Gross Domestic Product (GDP) since 1973; and we did it with only 20% more energy. Some would accuse us of being "energy pigs." No, we are not "energy pigs" any more than our children whom we push to go on in school are "education pigs". Yes, we use about 25% of the world's oil flow. We also produce (and sell to ourselves and others) nearly 25% of the world's goods and services.

Do we realize how far we've come? Our 2000 model cars go twice as far on a gallon of gas compared to 1973 (29.3 vs. 14.2). Trucks have shown a 50% improvement. The equipment in our houses, cars, factories, and aircraft is 30% to 60% more efficient than 25 years ago. Total residential fuel bills have held steady for the last decade, despite an increase of 20 million dwellings (a 25% gain in total dwellings).

These improvements put us ahead of every major Western trading partner, and almost equal with Japan, in terms of energy efficiency gains. Japan has one-fifth the cars and a total land mass that would fit inside the state of Montana. This is a tremendous achievement, considering the topographical size and diversity of our land and population. Oil now powers 6% of our electrical energy, compared to 17% in 1973. We have come a long, long way in just a quarter century.
We have been pumping oil domestically for 140 years. As a result, we are down to averaging 19 barrels a day from our American wells, compared to 240 barrels per well each day in the Persian Gulf. So where do we go from here? Our strength and future is in coal, natural gas, and nuclear.

With environmental considerations, we may also have to tap into our Western off-shore continental shelf for new, major oil reserves. Beyond that, the sun is expected to shine for several billion years. Nuclear fusion creates its own fuel. The oil shale of the mountain states, although not commercially recoverable below $60 a barrel, may rival the Mid East reserves. Recent discoveries in Venezuela have effectively doubled known world reserves.

One hundred billion barrels of oil are estimated to be in America's continental shelves. Oil, natural gas, gasoline and methanol can be synthesized from coal, as was accomplished by Germany during World War II. Additionally, we are literally the Persian Gulf of coal. Currently, coal accounts for 80% of American fossil fuel reserves.
Ill. When Peace Broke Out

To be sure, America's primary economic goal must be to guarantee a stable supply of reasonably priced oil. Two-thirds of the world's oil stock is in the Persian Gulf, as is one-fourth of the world's current flow of crude oil. Our lack of resolve to tap our own recoverable reserves, combined with our willingness to do business with OPEC, as if a cartel is an honest and legal marketing situation, has contributed to the power and pervasiveness of OPEC for three decades.

Do we have another spike in energy prices because we still import too much of our oil and are wasteful? No, the planet's chronic energy crisis is that oil provides 40% of the energy and that two-thirds of verified oil reserves are in the Persian Gulf known by its shifting sands of strife for millennia. Not to go unnoticed logistically, during "Desert Storm" in 1990-91 the only refinery in the entire Persian Gulf that could produce jet fuel was in Kuwait.

Oil reserves in Iraq and Kuwait alone are 200 billion barrels. We use 17 million barrels a day. We could not simply withdraw and cross our fingers that there would be no more such crises. In 1990-91, we embarked on a course that will continue to require collective resolve, diplomatic savvy and mega quantities of manpower and equipment.

We went "over there" to the Persian Gulf in 1990-91 for many reasons: to protect the
interests of America's friends in the Middle East; because Iraq with nuclear weapons would endanger the entire world; to protect those oil fields and oil company investments; because a big spike in oil prices threatens our economy; and to create that elusive "new world order."

Is there some truth to each of those points? Yes, and summed up they were probably ample reasons to send our finest into battle. However, there were many other reasons. All were related; some are more compelling than others. Each tile became joined together into a compelling mosaic.

It is in our national and international interest to assure a stable flow of oil from the Persian Gulf at reasonable prices. American troops could be rotated into the Persian Gulf for years. Additionally, the loss of control of the oil fields in the Persian Gulf could shake the foundations of the international banking system. Why? There are scores of oil-importing, underdeveloped countries which owe tens of billions of dollars to overexposed major banks.

A sharp, sustained increase in crude oil prices, and those nations may not be able to service their debts. The world's biggest and most vulnerable banks would take a significant broadside. If the banks are pushed to the edge, those who suffer won't just be bank stockholders. We, all of us, our enterprises, and our loved ones could also suffer, at least temporarily, due to financial deflation and confusion.
IV. **Wartime Petronomics**

The term "wartime economics" may seem to be a contradiction. The language of "war" is "compulsion, victory, defeat, survival, destruction, violence, waste, tactics, assault, defense, fear, and patriotism." The language of "economy" is "voluntary action, gain, loss, creating, producing, peaceful work, industriousness, commerce, free trade, and consumer sovereignty."

What would have happened if Iraq developed a monopoly on Persian Gulf oil? It could have held captive the world's economy and severely affect industrial output. By that time, it could have stifled the coalition's military power and will to resist. Was the war about cheap crude oil? No, it was about heading off the terrible misuse of oil power. We did not send nearly 500,000 Americans to the Persian Gulf just to hold oil prices at $20 a barrel.

Our young men and women were there to keep Iraq from controlling two-thirds of global oil reserves and from using that control to blackmail the industrial world possibly with nuclear weapons. The case for fighting in 1990-91 was, frankly, that Iraq (already possessing the world's fourth largest military) would be militarily, politically, and geographically harder to fight later.

What we did was a pragmatic attempt to maintain access to the oil on which the world depends. It was nothing less than an effort to sustain the well-being of billions of people.
including Americans. We import half our oil, but even achieving self-sufficiency would not fully protect us from war in the gulf. Our prosperity is heavily linked to countries that are heavily dependent on Mid East oil.

If the price were all that mattered, we could rely on the marketplace. Even for producers, excessively high prices don't maximize profits. They drive away buyers by promoting conservation and inducing new oil production. And sanctions don't restrain a leader who protects his military first while sacrificing his civilian population.

Is America a warmongering nation? Nay. Rather, we are a cautious trustee of our planet. Only the United States is strong enough to be the guardian of justice. As President Bush stated in 1990, "Such is the price of leadership." We desired so much to live in a world where fighting would not be necessary. The leader of Iraq did not view things that way.

To some extent, the 1990-91 allied coalition members were unwitting partners in creating Iraq's fortress in the first place (and a decade earlier) as we feared Iran would defeat Iraq. Iraq's aircraft and tanks are Russian- and French-made. Italy designed Iraq's nuclear reactor. Those chemical plants were constructed by Germany. U.S.-made computers, dual-use chemicals, and U.S.-grown food flowed into Iraq throughout the 1980's. The British engineered Iraq's underground aircraft bunkers.
V. Oil In the Family

There have been many energy crises. In 1973, Arab nations refused to sell to Israel's allies, then tripled prices. In 1980, Iran's revolution and the Iran/Iraq war led to panic buying led by Japan. That resulted in oil prices increasing to an all-time high of $40 a barrel. In 1986, Saudi Arabia flooded the market, drove prices down to $12 a barrel and effectively eliminated, for several years, some of our recoverable reserves.

Is oil merely "another commodity"? No, it powers the engine of our market economy and fortifies our national defense. We cannot have it both ways. We cannot have low-priced, offshore fuel from unstable foreign sources while we sacrifice our strategic defense capability and our own recoverable energy reserves. Pay your money and take your choice.

Economists have long known that quantity available in the marketplace, both supplied and demanded, is always a function of price. We must avoid the temptation of making energy predictions on the assumptions that our stockpile, technology, and environment are fixed. Throughout our history, various crises and technology breakthroughs have had a way of bringing new resources into existence while rendering old ones valueless.

Consider that for a thousand years, from approximately 900 A.D. until the 1860's, mankind's principal source of lubrication and
lighting came from whale oil. By the time of the Civil War, the relative scarcity of whales and the tandem upward price spike of whale oil led to the development of refining processes for the then so called non-resource crude oil, discovered in Pennsylvania in 1859. More on this later.

If economists know anything, it's that free markets, when allowed to operate in their own channels, have a way of resolving shortage and surplus conditions. Prices will respectively rise and fall in response to supply and demand conditions.

Isn't it odd that, internationally speaking, such a slippery thing as oil seems to cause so much friction. The 1990-91 Mid East crisis removed the world's cushion of excess petroleum production. The global supply system remained tight, fragile, and vulnerable to further shortfalls in volume and delivery.

Although domino theories have been out of vogue lately with the thaw in East-West relations, consider this scenario. A major oil cutoff would surely hobble Europe and Japan. As major trading partners, their economic implosion could throw our economy into a freefall. One big winner in short run? Russia is a large oil producer. The rise in oil prices could partially rescue the Russian economy. Ironically, that could impair Russia's primary customers: fuel inefficient Eastern Europe.
VI. Creative Juices Flow

Entrepreneurs with a good feel for applied science brought the Petroleum Age into full flower. We owe them much of our standard of living (products), our material comforts (heating and cooling), and longevity (medicines from petroleum bases). Only when we try to bypass ordinary market processes and throttle creative juices do we then face possible prolonged and protracted energy crises.

From the birth of America to the mid 1800s, the principle sources of energy in the U.S. were wood, coal, and whale oil. Around 1829, the demand for whale oil was so great, and the cost of hunting whales so high, that prices increased over 400%. The only other oil available was kerosene made from petroleum that had seeped to the surface.

It sold for $42 a barrel in 1850 dollars -- roughly twice the current price of a barrel of oil in today's inflated dollars. Then, using data provided by a Yale chemist, a group of New Haven investors decided to drill for oil. On Aug. 27, 1859, near Titusville, Pennsylvania, they struck oil and a new industry was born.

Our supply of fossil fuels is finite, but we are certainly not in the last days of the Petroleum Age. Curiously, at frequent intervals over the last 135 years, various government bodies (Revenue Commission, Bureau of Mines, Department of Interior, etc.) have respectively and oft declared the
end of our reserves to be 10 to 20 years hence.

Then, new reserves would be discovered, exceeding all previously known reserves and all oil pumped out of the ground to that date. Examples abound from Texas, Oklahoma, and Louisiana 100 years ago to the more recent and major finds on the north slope of Alaska and in South America.

Come what may, we will have the energy we need, and we will pay for it at rates that, in the short run, may seem like a "gold arm and a platinum leg." No doubt we will end up with far more energy at lower prices in the long run if we can avoid so-called quick fix solutions.

Such was the case with the abortive price controls attempted in past decades. Those controls attacked symptoms, were cosmetic, obscured root causes, aggravated shortages, curtailed buyer-seller freedom, masked true market costs, encouraged wastefulness, and discouraged exploration.

Government policies have kept the price of domestic oil and gas well below world market values. This has discouraged conservation because the public simply hasn't considered it necessary to skimp on a low cost commodity. Legislative controls on prices have at the same time discouraged exploratory drilling that would have led to increased supplies.
VII. Energy Facts Of Life

So, what are the energy economic facts of life? Those who lobby against coal-fired power plants, nuclear energy, off-shore drilling in our own backyard, exploration of mineral rights on federal lands should be more reasonable, or we'll have to shut down the country and return it to native Americans.

How can we fight back against the painful swings in world oil prices? One approach could be to implement a countervailing tariff whenever the price drops below $25 a barrel. If the price falls to $20, the fee would be $5. When and if the price goes up above $25 again, this variable import fee disappears. The revenue generated can be used to refill our Strategic Petroleum Reserve.

If the price goes above $25, oil could be released from the Strategic Petroleum Reserve to dampen the price increase. In effect, we would buy low and sell high, at the expense of the Mid East oil cartel. It's a tough job, and we've got to do it.

America's energy dilemma is serious and real, but much good can come from it as has been the case with past crises. Shortages? Yes, from time to time. But there is no shortage of energy reserves waiting to be identified and commercially developed. Then, the 21st Century will also be known as the "American Century," and you can take that to the bank.
EPILOGUE

Crude (Oil) Humor

In energy crises, each of us has a role to play. The problem is, nobody wants a walk-on part. Don't look to more small cars as the answer for everyone. Some of those new models are so small now that when you take one to a car wash, you have to wait for a full load. Make our cars any more compact, and they will be afraid to come out of the garage whenever there's a hawk in the sky.

At best, severe conservation measures might cut in half our growth in energy usage requirements. Such was the case in one hotel in 1979 which posted small signs beside wall switches, "Oh say, can you see by the dawn's early light? Then turn off this switch!"

It really does come down to a choice between laughing and crying. In that regard, there is a prediction afoot of a shortage of humor by 2002, and the cost of a barrel of mirth could go as high as $50. A year ago, a barrel of crude laughs was selling as low as $12, and it was difficult to give the stuff away.

By raising the price of a barrel of mirth to $50, we might wake people up to the fact that, unless strong conservation methods are taken, we could run out of humor by the year 2010. In fact, the price of refined laughter could go as high as $60 a barrel. We'll have to live with it. We can't have
recession and inflation and expect cheap humor to boot.

As we pull ourselves together and hang loose, are there worse things than an energy crisis? Sure. Having an "identity crisis" and an "energy crisis" at the same time: not knowing who we are and being too tired to try to find out.

Abe Lincoln said it best (on the Rosie O'Donnel Show, I think), "You can 'fuel' all the people some of the time, and you can 'fuel' some of the people all of the time ... but you can't 'fuel' all the people all the time."

Have courage, dear reader. If we do have an unlikely recession, at least we'll use less gasoline going down hill.
REFERENCES FOR FURTHER STUDY


ABOUT THE AUTHOR

Dr. Don Diffine is currently Professor of Economics at Harding University in Searcy, Arkansas, and Director of the Belden Center for Private Enterprise Education. Senior Research Associate of Harding's American Studies Institute, Dr. Diffine is listed in the Heritage Foundation's Guide to Public Policy Experts. He has seven books and 20 monographs in print and presently serves on the Board of Directors of the Arkansas Council on Economic Education.

The recipient of the $7,500 Freedoms Foundation Principle Award for Excellence in Private Enterprise Education, Dr. Diffine has received 16 additional Freedoms Foundation awards in the categories of Non-profit Publications, Economic Education, Public Affairs-Advertising, Public Address, and Published Works. He is the faculty winner of a $1,000 First Place prize in a national essay contest judged by Nobel Economist Milton Friedman.

In 1995, he received the "Champion of Enterprise" award and became the first inductee into the National Students In Free Enterprise Hall of Fame in Kansas City. The First Annual Distinguished Scholar Award was also presented in 1988 to Dr. Diffine in Cleveland, Ohio, by the Association of Private Enterprise Education. A member of the Governor's Council of Economic Advisors, Dr. Diffine has provided Congressional testimony on business problems, economic impact statements, and inflation-recession dilemmas.

Dr. Diffine is married to the former Dion Hillman of Kailua, Hawaii. Dion is a math teacher in the Searcy public schools. The Diffines have two children: David, 29, who is a medical doctor; and Danielle, 27, who is an accountant.