The Choice Is Ours

“[The Iraq War and Middle East conflicts are] far more than a war against terrorism. And I think it will last probably at least as long as the Cold War did, which was 45 years. This is really the first war the United States government has ever fought in which we pay for both sides. This is not a good plan. We need to stop paying for their side. And one very important way to do that is to recognize that oil in particular has some very specific problems . . . .”

– James R. Woolsey, former director, Central Intelligence Agency

Can the U.S. achieve energy independence from the Persian Gulf in 10 years? Yes.

- With the Prometheus Plan, the U.S. can replace Middle Eastern oil by 2015.
- Without energy independence, the U.S. faces recession, possible depression, and decline as a world power.
- Oil is our number one national security, environmental, and economic issue.
- Businesses and the states must lead the way in addressing the energy-climate change crisis, because the federal government has not.
A Titanic Miscalculation

We are experiencing the initial phase of the first major oil shock of the 21st century. Its shock waves will soon reverberate throughout the global economy.

To avert both economic and environmental disaster, the world must immediately pursue a radical solution to the energy crisis. In making such a drastic departure from a badly broken system, we must seek an emergency exit that is as safe as possible, knowing full well that everyone who jumps into a lifeboat is still at risk.

Remember the Titanic? The great ocean liner departed Southampton, England, in 1912, as headlines proclaimed it “the biggest moving man-made object ever built” and “the ship that could not be sunk.” This struck some observers, in hindsight, as hubris, the Greek word for excessive pride and arrogance. Hubris is usually followed by suffering and punishment.

The Titanic, because of gross miscalculation caused by arrogance, was not designed with enough lifeboats to save all its passengers. Those passengers who made it to the lifeboats were the fortunate survivors. All the others perished.

For decades, the American public, acting out of hubris, has been living under the delusion that the fossil-fuel energy system that has been powering the planet for the past 100 years—a blink of an eye in the geologic history of the planet—was somehow inexhaustible.

Since the first oil crisis of 1973, America has been sold this false belief by extremely powerful Arab sheiks and oil executives, who were aided by domestic politicians eager for massive financial contributions and other favors while parroting this self-destructive nonsense.
As a result, this colossal and complex planetary energy system was left vulnerable to a fossil fuel system that has created an energy-climate change crisis—and we have perilously too few lifeboats. The “lifeboats” which would save our society are the renewable energy systems we could profitably build today, using existing technology. Regrettably, without enough lifeboats, not everyone will survive. Even more unfortunate, because of global climate change, we now know that the fossil fuel iceberg has already struck and the floodwaters are pouring in. We are out of time.

The impetus for this book can be stated simply as follows: the carbon-based, climate-changing, planetary fossil-fuel system will, like the *Titanic*, sink beneath the waves of history much more quickly than most thoughtful observers ever imagined possible.

To understand the danger, one must grasp the current levels of the two greenhouse gases other than water vapor that contribute the most to heating our planet—carbon dioxide (CO$_2$) and methane. Levels of CO$_2$ are higher than any time in the last 750,000 years. Levels of methane, 20-60 times more destructive than CO$_2$, are higher than any time in the last 650,000 years. When frozen permafrost melts, it releases potentially disastrous levels of methane and CO$_2$. More permafrost has already melted than at any time in the last 100,000 years, and Siberia is warming faster than any other place on earth. The gases released by melting permafrost accelerate global warming in a dangerous spiral. The planet is in trouble, and the problem is greenhouse gas emissions from fossil fuels.

*It is, therefore, imperative that we begin to rapidly commercialize renewable energy systems and extend them around the planet, so that we do not have to perish in the en*
ergy and climate change crisis that has already begun. Those few who truly understand the current situation will do their utmost to see that the world stops using fossil fuels now, so we can survive the epochal, slow-motion catastrophe that is unfolding.

Hopefully, it is not too late to avoid “sinking.” We still have choices. Individually or collectively, it would be hubris for us to fail to seize them and act. It is clear we must act now to halt global warming. We must act now to reconstruct our economic system to base it on renewable energy rather than increasingly costly and scarce fossil fuels that can be secured only with great geopolitical risk.

In every major transition in the history of humanity, losers greatly outnumbered winners. Whether they were blinded by their vested interest in the prior regime or by their lack of information, the losers stayed behind. They failed to act before the critical hour. The winners anticipated the changes, made the necessary plans, and took the necessary action.

A radical shift is coming. It will transform the way we generate, store, distribute, and use energy. It will permanently alter the planetary fuel system as we rapidly make the transition from oil and commercialize technologies that will harness the abundant and sustainable renewables that can power our future.

The winners will be those individuals and companies who conscientiously seek out and act upon the most up-to-date information in two critical areas: the speed at which the present petroleum-based, fossil-fuel system is exhausting itself, and the steps necessary to identify and implement the energy-efficient and climate-compatible renewable technologies that are available today to replace that system.

This book contains a national Prometheus Plan that will al-
low America to achieve freedom from Persian Gulf oil in 10 years or less by eliminating the need for all imports of Middle Eastern oil.¹

This book can help you become a winner—a survivor in the coming energy transformation. It will help you understand where “the lifeboats” are and how to get to them.

This book can help you and your company navigate the turbulence whipped up by $100/barrel oil—the price paid in 2006 by one power plant in Hawaii, for example.

This book can help America, and ultimately other nations as well, survive the looming energy crisis.

This book explains what we can do as a civilization if we are willing to provide enough “lifeboats” for every passenger on Spaceship Earth.

Most of us can be “winners” or survivors in this planetary energy transformation. But we must start now. There is no time to waste. The good news is that with existing technology and reasonable investments, we can begin by eliminating all dependence on Middle Eastern oil within 10 years. And we can do so in a manner that mitigates the emerging challenges of climate change.

**A Nation of Petroholics**

We have become a nation of “petroholics” hooked on liquid black speed—the methamphetamine of energy—much of which is supplied by Middle Eastern potentates who deal in oil and, sometimes, terrorism. If we do not move quickly to end our addiction, a future historian reflecting back from 2015 will see that rapidly escalating oil prices between 2005 and 2010 were an economic tsunami that triggered a recession and possibly a depression of an unprecedented scale, even when compared to the Great Depression of the 1930s.
Looking back from the future, a historian will be able to identify the business winners and losers in the new age of energy scarcity, which began in 2005 with the end of cheap oil.

Toyota, with a current market capitalization of $200 billion and the seller of well over one million advanced gas-electric hybrid cars annually, will be seen as a winner. Ford and GM, with market capitalizations that have dropped to $15.4 billion and $12.5 billion, respectively, will probably be seen as losers who missed out on the global auto-efficiency revolution and only belatedly exhibited an interest in “going green.” DaimlerChrysler will be praised for its wisdom in mid-2006 when it elected to build fuel-efficient engines, ethanol-capable cars, and a hybrid SUV—and for the $2 billion it invested in converting its American domestic car fleet from petroleum. However, the company will be criticized for not making those changes in its vehicle production fast enough to avoid the financial stress tearing at it in 2007.

The historian looking backwards from 2015 will note that all of the domestic airlines in the U.S. wishfully premised their business plans and sometimes their bankruptcy strategies on oil costing less than $60/barrel when oil prices had already risen to the mid-$60s. United Airlines’ bankruptcy exit plan is a case in point.

That future historian would also look back in wonderment at how many companies, acutely dependent on energy prices, failed to rethink their energy strategies as oil hit almost $78/barrel in 2006 and stayed above $60/barrel as this book went to press.

Give the entire U.S. economy’s vulnerability to oil prices, every one of its sectors—not just its transportation sector—and every American business and citizen will pay dearly when skyrocketing demand from China and India sends oil prices above
$100/barrel. It will be clear to future observers that the business survivors of the “great energy shakeout” saw something that the non-survivors did not see at the time or were too rigid to accept. That “something” was accurate information about the inevitable energy transformation looming at the end of a century-long run of cheap fossil fuel in the form of oil.

**This Is an Energy War**

This book begins with the facts that every informed citizen and business leader should know. But unlike the recent wave of doomsday forecasts about the end of oil and civilization, it moves rapidly to explore the technologies and strategies available today that can create a new, sustainable, and abundant energy economy for the 21st century.

*It is well known that the world runs on oil and that the era of cheap oil is over forever. It is also well known that oil is the fundamental national security, environmental, economic, and equity issue of our time.*

For the U.S., the most important domestic and foreign policy challenge is achieving energy efficiency and independence from Middle Eastern oil—and ultimately all imported oil. More than the War in Iraq and the War on Terrorism (which are inherently intertwined with our oil dependence), oil dependence is the defining threat to this nation in the new century, much as the Cold War was in the latter half of the 1900s.
The 20th century was roiled by nationalism, popular revolts, and communist revolutions waged under the banner of competing ideologies. The 21st century will be roiled by conflicts over energy and resources under the guise of clashing religions. The battle has already begun: 9/11 was the “shot heard round the world.”

Given the projected global supply-demand curves for energy, the next 10 years will be critical, bringing growth or recession, energy abundance or energy poverty, a sustainable future or the aftershocks of climatic catastrophe worse than the 2004 tsunami. Acting individually and collectively, you and I get to choose which it will be. Literally, we get to choose. But to choose wisely, we must know what our choices are. We must know what is possible.


The first two scenarios pointed to optimistic, even rosy outcomes, in which aggressive environmental policies and a series of technology breakthroughs “cut oil demand so significantly

“The world is changing before our eyes—dramatically, inevitably and irreversibly. The change we are seeing is affecting more people, and more profoundly, than any that human beings have ever witnessed. I am not referring to a war or terrorist incident, a stock market crash, or global warming, but to a more fundamental reality that is driving terrorism, war, economic swings, climate change, and more: the discovery and exhaustion of fossil energy resources.”

CHAPTER 1: THE CHOICE IS OURS

that by 2020, the world is using 13 million barrels a day less than most baseline forecasts.” The second two pessimistic scenarios, both premised on the lack of any aggressive policies to make the dramatic shift to renewables, predicted a collapse of Western civilization as we know it.

One of the two pessimistic scenarios explored the impact of a “peak” in conventional oil production sometime between 2010 and 2015, after which declining output in the North Sea, Alaska, Iran, and Venezuela pushed the global economy into recession. The other pessimistic scenario, “A Darker Middle East,” was much grimmer. It assumed the War in Iraq had backfired and led to fundamentalist Islamic regimes replacing friendly governments in Saudi Arabia, Kuwait, and other Arab members of the Organization of Petroleum Exporting Countries (OPEC). New nationalist governments cut oil production by 20% for three years and 10% thereafter. This long-term supply disruption set the stage for the “end of the modern energy economy based on cheap oil.” Oil prices soared beyond the world economy’s ability to adjust, creating catastrophic effects on all modern, energy-intensive societies.

Ironically, with today’s oil prices already above $60/barrel, the most surprising outcome of this four-scenario exercise by the intelligence community was not the relatively modest increases in oil prices that were found to be sufficient to trigger a recession and depression. Rather, it was that all of the “experts”—among our best and brightest—found the two pessimistic scenarios to be more probable than the optimistic ones.

Even more ominous was the outright complacent negativity of some of the participants. Roberts observed, “In today’s political climate, the idea of an energy future created proactively, by thoughtful policy or a technological breakthrough, struck some
as highly unlikely.” We simply do not believe that such pessimism is warranted about Americans, a people long known for their resourcefulness, political will, and capacity to profit from technological innovations.

Even Abu Dhabi, the capital of the United Arab Emirates, the fourth largest OPEC oil producer and home to about 10% of the world’s known reserves, has launched an ambitious effort to become a world leader in commercializing renewable energy technologies, including wind, solar, and hydrogen. Abu Dhabi has paired with the Massachusetts Institute of Technology to bring this plan to reality. An MIT representative said, “This is the first oil-producing state that has . . . agreed with the concept that oil may not be the only source of energy in the future. That is a significant realization.”

Surely the U.S. is as astute as Abu Dhabi, as capable of seeing what needs to be done and doing it. Now.

**IT IS A CHOICE**

As they say in Alcoholics Anonymous, “Your best thinking got you here.” In other words, “thinking within an old paradigm nearly killed you.” The best thinking of our oil-addicted experts leads to a bleak future. They are suffering from a lack of imagination, ingenuity, and, most of all, information. They are excellent candidates for “Petroholics Anonymous.”

Other experts see it differently. Our research reveals that, contrary to the gloomy prognoses expressed above and echoed daily in the media, every credible, recent energy futures study concludes that it is indeed possible to cut at least half of U.S. oil imports from the Middle East (or their equivalents) within the next 10 years. These independent studies, which we discuss in Chapter 8, were conducted by the Rocky Mountain Institute, the Earth Policy Institute, the Natural Resources Defense Council,
the Union of Concerned Scientists, the Institute for the Analysis of Global Security, Apollo Alliance, and the bipartisan National Commission on Energy Policy.

Moreover, even these estimates of future oil savings, made by knowledgeable research groups, are too conservative. By following the Prometheus Plan, America can completely eliminate its reliance on oil imports from the Middle East within 10 years.

This strategic plan for making the transition from fossil fuels to renewables grew out of the work of the Energy Task Force of the World Business Academy. The 10-year Prometheus Plan and our plan for the following years both take into account the reality of continued terrorism for the foreseeable future, but a sudden cataclysmic event that brought widespread devastation, such as a successful terrorist plane attack on a nuclear facility, would necessarily change our predictions and timeframe.

The noted British futurist H.G. Wells remarked, “Human history becomes more and more a race between education and catastrophe.” Nowhere is this truer than in the bad news/good news energy story.

The bad news is that after failing over the past three decades to achieve energy independence, this is our last chance to manage an orderly and peaceful shift to a sustainable energy future that creates the preconditions for global peace and prosperity. If we continue to postpone difficult choices, we face a more violent and anarchic future.

The good news is that the technologies needed to dramatically reduce U.S. oil consumption are available now and more plentifully than they were 30 years ago—the last time the U.S. took energy efficiency seriously. The even better news is that these technologies are now profitable.
HIGH NOON IN THE DESERT

Our modern world runs on oil. It is the life blood of civilization and the motor of progress. This black elixir supplies 40% of global energy and 90% of all transportation fuels.

So the specter of $100 per barrel oil as the “new price reality” is cause for grave concern. This is especially true when the new world of $100 oil is forecast not by oil-conspiracy bloggers, eco-alarmists, or doomsday prophets, but rather by energy analysts from the prestigious Wall Street investment banking firm of Goldman Sachs. In February 2006, Goldman Sachs warned that the cost of a barrel of oil could top $100 in the near future. “Oil markets may have entered the early stages of what we have referred to as a ‘super spike’ period,” Goldman analyst Arjun Murti noted. Only a few months later, in May 2006, Newsweek reporter Karen Miller observed, “Now predicting $100 oil has become respectable. Just look at the futures market, where call options on $100 barrels—a novelty when the first one appeared last year—have become commonplace.”

FIGURE 1

Sources: Federal Reserve Bank of St. Louis and Bureau of Labor Statistics
Certainly, oil prices have spiked sharply in the past. But those increases were directly attributable to geopolitical disruptions of the market. For example, as Figure 1 shows, OPEC dramatically raised the world price of oil in 1973 during the Yom Kippur War, and then again in 1979 during the Iranian revolution. The world enjoyed a brief respite following that period as: (a) the conservation measures adopted during this period caused efficiencies, and (b) non-OPEC countries discovered new oil fields, such as in the North Sea and Prudhoe Bay, that added to the global supply. In 1990, Iraq’s invasion of Kuwait broke a trend of falling prices and prompted another sudden price spike.

What distinguishes the current spike from previous spikes is the fact that we stand, for the first time in modern history, at the pivotal point where global demand essentially equals oil production at full capacity. Oil production is at 99% of full capacity and, as discussed below, several key oil reserve estimates are badly inflated. The ultimate world oil supply is completely inelastic.

Moreover, increased demand in traditional markets such as the U.S., the European Union, and Japan, plus recent rapid GDP growth in the giant emerging markets of China and India (10.5% and 8.5% annual growth, respectively), have irrevocably increased world oil demand. In other words, there is virtually no “give” in the system.

The fundamentals of this new conviction about rising oil prices are found in the sands of Saudi Arabia. In a recent book, Twilight in the Desert, Matthew R. Simmons, president of an international energy investment banking firm, argues that the vast reserves of Saudi oil are much smaller than the sheiks would have us believe. (In fact, it is a crime punishable by death to reveal state secrets of this type in Saudi Arabia.) Simmons concludes we will soon be facing a proverbial “high noon” in the
The next generation of oil will be hard to extract and therefore more expensive. In two to three years, we will have conclusive evidence that Saudi oil is peaking.” As go the Saudis, so goes the world.

**Sliding Down from Hubbert’s Peak**

This situation has fueled a heated discussion about when we will reach the “tipping point” for the end of oil, known as “Hubbert’s peak” or, more precisely, “Hubbert’s Bell Curve,” named for legendary geophysicist M. King Hubbert. While working for Shell Oil Company in 1956, Hubbert published a now-famous paper predicting the peak and decline of U.S. oil production in the lower 48 states.

Based on the amount and rate of past production, he argued that U.S. oil output would crest between 1965 and 1970. Hubbert was widely discredited at the time as a “fear monger.” To the amazement of his many critics, Hubbert’s predictions came true. Using the same model, Hubbert later projected that the peak in global oil production would occur as early as the year 2000.

So, where are we on Hubbert’s curve? The optimists, many of whom are employed in the oil industry, the U.S. Department of Energy, and the International Energy Agency, say we have at least 20 years or more to go before reaching global “peak oil.” The pessimists, including Hubbert himself, and astute observers like Simmons, Jeremy Rifkin, author of *The Hydrogen Economy*, and Kenneth S. Deffeyes, author of *Beyond Oil: The View from Hubbert’s Peak*, believe we are already there.

Inadvertently, the major oil companies have confirmed one significant piece of evidence buttressing our contention that oil will peak sooner rather than later: they have invested $112 billion in profits since 2005 to buy back their own stock instead
CHAPTER 1: THE CHOICE IS OURS

of funding new exploration, development, or refineries. The oil companies understand very well—and who is in a better position to know?—that with little new oil to be easily discovered and with demand soaring, their remaining reserves will be even more valuable in the future world of $100 oil.

Even if oil does not peak for another 10 years, we must act now for several reasons.

First, whether the peak comes sooner or later, it will likely take at least a decade’s lead time to wean the U.S. from Middle Eastern oil. As President Bush finally stated in his 2006 and 2007 State of the Union addresses, dependence on foreign oil is “a national security problem.” In today’s dangerous and unpredictable world, it is far, far better to act now.

Second, due to increased global demand, reduced U.S. demand for oil in response to higher prices will not significantly lower the global price of oil, as it did 1977-1985. Forced into action by the “second oil shock” of the Iranian revolution in those eight years, America implemented significant auto mileage and energy efficiency measures. “U.S. GDP rose by 27%, oil consumption fell by 17%, net oil imports fell by 50%, and net oil imports from the Persian Gulf fell by 87% . . . The entire world oil market shrank by one-tenth, total U.S. energy consumption dropped by 17%, and OPEC’s output fell by 48%, breaking its pricing power for a decade.” In other words, the U.S. was able to rapidly implement energy conservation measures and dramatically reduce oil consumption (and thus total global demand for oil), effectively undermining OPEC’s control of oil prices, while at the same time achieving strong economic growth.

That was yesterday. Today, increased demand by China, India, and other developing nations will devour any surplus supply caused by U.S. efficiency measures or economic downturn, keep-
ing oil prices relatively high. From now on, the global demand for oil will grow faster than production capacity, as one billion people—the “haves” of the modern societies—strive to maintain and increase their economic well-being, now dependent on oil. For most “have-not” nations, rising oil prices will derail development plans and increase human suffering. The only nations somewhat protected from economic hardships will be those that take definitive action to achieve energy independence from fossil fuels. For example, Brazil has replaced oil imports with ethanol produced from sugar cane and is now independent of all foreign energy sources—the first modern state to achieve this distinction.

Third, any of a series of possible geopolitical events could disrupt oil supplies, rapidly increasing post-peak oil prices. Foremost among these are continued disruption and destruction of oil pipelines in Iraq, the emerging civil war in Nigeria, an oil embargo by Venezuelan strongman Hugo Chávez, a terrorist attack on some segment of the global oil infrastructure, regional war in the Middle East sparked by the Iraq War or the ongoing conflict between Israel and Muslim nations, and, last, fall-out from international sanctions over Iran’s nuclear program—not to mention the further destabilization of the region that would occur if Israel struck Iran’s nuclear facilities as it struck Iraq’s nuclear facilities in 1981.

The most serious blow of all would be a successful terrorist attack on Saudi Arabia’s Ras Tanura installation, the largest oil terminal in the world. Every day, nearly 10% of the world’s oil supply, more than eight million barrels per day (MBD), flows through this facility. Al Qa’eda calls oil the “umbilical cord and lifeline of the crusader community.” Since 2004, it has incited attacks on key Persian Gulf installations, causing financial markets to assess an additional ~$5-$12/barrel risk premium.
In February 2006, suicide car bombers carried out a bold attack on the world’s largest oil processing facility at Abqaiq, Saudi Arabia, about 25 miles inland from the Saudis’ Persian Gulf coast—a target much easier to hit than the World Trade Center. While the attack was stopped by guards who fired on the bombers’ cars, exploding the vehicles and killing the attackers, crude oil futures immediately shot up more than $2 a barrel on fears that the militants would again target the vital facility. This attack was viewed as new “in the sense that this is the boldest attempt to strike at the heart of a Saudi oil-production complex,” said Eurasia Group oil analyst Antoine Halff.

One wonders what the outcome of the suicide attack would have been if instead of using a vehicle, the suicide bombers had rented a small private jet loaded with fuel—something Osama bin Laden has told us to expect.

In summary, one way or another, oil prices will increase faster than economic activity, causing widespread economic hardship. Obviously, oil prices do not rise in a straight line; they move up and down, sometimes because of market manipulation by the oil companies. But the general trend since 1999 has clearly been dramatically upward, resulting today in nearly a four-fold increase in oil prices from less than $20/barrel in 1999 to nearly $80 per barrel in August 2006.

In many ways, the extraordinary success of Al Gore’s *An Inconvenient Truth*, as both a book and a movie, is directly attributable to the growing public awareness that we are running out of time faster than anyone previously thought possible. It could be that we have a decade or less to avoid the “tipping point” for global disaster.

The global fuel system will change. The important questions are: “In what way?” “How fast?” and “Through which new technologies?” Or, as Paul Roberts notes, “The real question, for any-
one truly concerned about our future, is not whether change is going to come, but whether the shift will be peaceful and orderly or chaotic and violent because we waited too long to begin planning for it.”

**The Chinese Caterpillar**

Lester Brown, founder of the Worldwatch Institute and president of the Earth Policy Institute, has been described as “one of the world’s most influential thinkers” by the *Washington Post*. Ted Turner refers to Brown’s most recent work, *Plan B 2.0: Rescuing a Planet under Stress and a Civilization in Trouble*, as “a masterpiece.” In fact, Turner purchased more than 3,000 copies and sent them to members of Congress and many CEOs.

Brown’s central conclusion in *Plan B* is that “our global economy is outgrowing the capacity of the earth to support it, moving our early twenty-first century civilization ever closer to decline and possible collapse.” His most compelling argument for this view is based on an analysis of China’s stunning growth and its impact on the world economy.

In this context, Brown further observes the changing role of the U.S. economy. Contrary to conventional wisdom, the U.S. is no longer the world’s leading consumer nation. Recently, China replaced the U.S. as the globe’s major consumer of basic commodities. China has surpassed the U.S. in consumption of four of the five basic commodities that Brown uses as indicators: grain, meat, coal and steel. Only in the consumption of oil does the U.S. still lead China by about a three-to-one margin (20.4 MBD versus China’s 7 MBD). This gap also is closing, with negative consequences on a global scale.

The real shock to the global energy system, however, emerges in Brown’s extrapolation of the future implications of what he
calls the emergent “Chinese caterpillar,” implacably devouring more and more oil to feed the energy needs of its vast population. If Chinese oil consumption were to equal that of the U.S., by 2031—less than 25 years from now—China would be using 99 MBD oil, which is nearly 18% more than the 84 MBD presently consumed by the entire world’s population. Obviously, this can’t possibly happen.

The number of cars in China has been growing by 19% a year, and by 2010, China is expected to have 90 times more cars than it had in 1990. If China follows the U.S. pattern of three cars for every four people, China will eventually support 1.1 billion vehicles, well beyond the current global fleet of 800 million vehicles. Simply providing the roads, highways, and parking needed for those vehicles would necessitate paving an area roughly equal to China’s current acreage for growing rice.

“The inevitable conclusion to be drawn from these projections is that there are not enough resources for China to reach U.S.-style consumption levels. The western economic model—the fossil-fuel-based, automobile-centered, throwaway economy—will not work for China’s 1.45 billion people in 2031.” Nor will it work for India, nor for the other three billion people in the developing world who seek higher standards of living.

Of the 6.6 billion people in the world today, one billion use 85% of all generated energy, three billion use the rest, and 2.6 billion have virtually no energy at all. Based on the oil-addicted model of development, how can the “have-nots” ever hope to become “haves”?

How does China break its caterpillar consumption patterns copied from Western world views and oil consumption models that are no longer viable? How does China become a butterfly?

*Where do we go from here?*
The Prometheus Plan and Beyond Prometheus

Given the unprecedented challenge the emerging energy crisis poses for the U.S. and the world, the only viable solution is a bold initiative that mobilizes the nation’s vast resources around the bipartisan goal of energy independence. We therefore submit the Prometheus Plan, which uses conventional technologies to replace oil in the short and medium term, thereby achieving independence from Middle East oil by 2015. We also propose moving Beyond Prometheus to further reduce oil consumption by rapidly commercializing advanced technologies to phase in and facilitate the transition to a hydrogen future.

Today, venture capital investment in efficiency and renewable energy technologies is soaring. Many technologies, like wind and ethanol, are already cost-competitive with conventional electric power and gas prices at the pump. What is lacking is the political will necessary to mobilize America on the same scale as President Franklin Delano Roosevelt’s Manhattan Project, which built the atomic bomb during World War II, and President John F. Kennedy’s Apollo Project, which put a man on the moon within 10 years during the Cold War.

Prometheus Plan. The primary goal of the Prometheus Plan is to reduce U.S. oil consumption by 5 MBD by 2015 using conventional, practical, and climate-neutral technologies. This is equivalent to all the oil the U.S. is projected to import from the Middle East by 2015.

The U.S. now consumes about 20 MBD of oil, and half of that is imported. Half of those imports come from OPEC, and
in turn, half of the imports from OPEC come from the Middle Eastern members of OPEC. In other words, the Middle East now supplies 2.5 MBD (12.5%) of U.S. imports.

Unless the U.S. changes course, by 2015, it will be even more dependent on Middle Eastern oil than it is now. By 2015, predictions are that the U.S. will be consuming 25 MBD of oil, of which 60% (15 MBD) will be imported, with nearly 20% (5 MBD) coming from the Middle East. So by 2015, the 5 MBD of oil that the U.S. now imports from all OPEC nations are projected to come solely from the Middle Eastern, Persian Gulf members of OPEC.

Reducing our oil consumption would lessen our vulnerability to OPEC price increases, reduce OPEC’s ability to control oil prices, and relieve geopolitical pressures in the volatile Middle East.

In order to reach the primary goal of achieving freedom from Middle Eastern oil, the Prometheus Plan contains the following specific objectives and recommendations:

- **Reduce oil use by 5 MBD by 2015.**
  Free the U.S. from dependence on Middle Eastern oil.

- **Cut transportation sector greenhouse gas emissions by 20% by 2015.**
  Cuts will come through transportation fuel efficiency and use of nonfossil fuels.

- **Increase fuel efficiency standards, saving 1.6 MBD by 2015.**
  Significantly improve average new passenger vehicle fuel economy to 40 mpg.

- **Make a rapid transition to bio-fuels, saving 1.6 MBD by 2015.**
  Use ethanol for flex-fuel vehicles, and biodiesel or pure vegetable oil for heavy-duty trucks.
• **Produce non-fossil fuels @ $1.50 per gallon (in constant dollars) by 2015.**
  Current price of Brazilian sugar-based ethanol delivered FOB New York is only $1.00.

• **Achieve massive implementation of 20% Renewable Energy Standard.**
  Standard will change residential, commercial, and industrial energy use.

• **Stimulate agriculture and biofuels business sectors.**
  Create billions in biofuels investments and new farm revenues.

• **Save or create nearly 2 million jobs by 2015.**
  Save or create one million rural jobs and one million auto and transport jobs.

• **Produce and sell at least 1 million hybrid electric vehicles a year by 2015.**
  Ramp up to annual sales of at least 1 million hybrid and plug-in hybrid electric vehicles.

• **Produce and sell at least 100,000 hydrogen fuel cell vehicles a year by 2015.**
  Create a platform for the long-term phase-in of a hydrogen economy.

To reduce oil consumption by 5 MBD by 2015 and build the platform for a hydrogen economy, we propose the strategy shown in Figure 2 below. We emphasize the transportation sector because that sector holds the greatest potential for rapid reductions in our oil consumption. The electric utility industry relies on petroleum to supply only about 3% of its energy needs.


**Figure 2**

U.S. Oil Savings Measures by 2015

(Achievable Oil Savings in Millions of Barrels of Oil per Day)

<table>
<thead>
<tr>
<th>Oil Savings Measures</th>
<th>MBD</th>
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<tbody>
<tr>
<td>1) Auto-Efficiency: Rapidly increase the efficiency of using oil by:</td>
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<tr>
<td>• Raising fuel efficiency in new passenger vehicles to 40 mpg</td>
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<tr>
<td>• Accelerating oil savings in motor vehicles through:</td>
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<tr>
<td>— Fuel-efficient replacement tires and motor oil</td>
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<tr>
<td>— Efficiency improvements in heavy-duty trucks</td>
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<tr>
<td>2) Biofuels: Accelerate growth of biofuels industry through major expansion of:</td>
<td></td>
</tr>
<tr>
<td>• Ethanol, mainly E85 from corn and sugar feed stocks</td>
<td></td>
</tr>
<tr>
<td>• Biodiesel, mainly B20 from vegetable oil feed stocks</td>
<td></td>
</tr>
<tr>
<td>3) Industrial, aviation, and residential sectors: maximize oil savings in all three sectors to supplement savings in transportation sector</td>
<td></td>
</tr>
<tr>
<td>4) Hydrogen Economy: Phase-in through R&amp;D and commercialization:</td>
<td></td>
</tr>
<tr>
<td>• Initially through annual sales of 100,000 hydrogen fuel cell vehicles</td>
<td></td>
</tr>
<tr>
<td>Total Oil Saved within 10 Years of Implementation:</td>
<td>5.0</td>
</tr>
</tbody>
</table>

**Timetable.** Five MBD over 10 years requires an average annual reduction of 500,000 barrels of oil per day, equal to a 10% savings per year over current consumption levels.

**Beyond the Prometheus Plan.** As stated above, the longer-term objective of a strategy that goes beyond the 10 years of the Prometheus Plan (Beyond Prometheus Strategy) is to rapidly commercialize advanced technologies in order to phase in and facilitate the transition to a hydrogen future.
Since the end of World War II, the American people have not shown much appetite for conservation, so predicking a plan on reducing overall fuel use, instead of replacing fuels, might be unrealistic. However, we believe that as the U.S. heeds the imperative to stop climate change and move away from fossil fuels, the hydrogen economy presents an attractive alternative, especially if current trends in oil prices continue.

Obviously, before this transition can take place, we need to overcome significant challenges relating to technology and infrastructure. Primary among these challenges are the large-scale production and storage of hydrogen, the high cost of fuel cells, and the creation of a national infrastructure for the hydrogen economy.

To overcome these challenges will require a three-stage, *pedal-to-the metal* Beyond Prometheus Strategy. The principal components of this strategy are as follows:


- Second, acceleration of the domestic and international biofuels industry, primarily through corn-based ethanol in the short term; through corn- and sugar-based ethanol (sugar cane, sugar beets) in the mid-term; and ultimately through cellulosic biomass feedstocks, which will not compete with food or animal feed supplies, in the long term.

- Third, rapid phase-in and long-term transition to advanced-materials hydrogen fuel cell vehicles which use as feedstocks, cellulosic ethanol and/or hydrogen, the latter generated from distributed “trickle-charge” electrolysis plants.
All of the fundamental technologies required for this strategy are available today; no theoretical scientific breakthroughs are needed to achieve mass distribution and commercialization. By adopting this Beyond Prometheus Strategy, America could turn the dream of an oil-free future into a reality.

While describing the process of achieving total independence from all forms of petroleum (a principal contributor to global warming) is beyond the scope of this book, it is critical to understand that the steps taken in the next 10 years to eliminate U.S. dependence on OPEC oil will lay the foundation for a “beyond petroleum” economy in the future.

Why? It’s simple. Few people remember that whale oil was the source of energy for most U.S. lighting needs until it was replaced by petroleum products in the 1850s. Once petroleum was refined for one purpose, it was quickly applied in a slightly different form (kerosene) to eliminate the need for more expensive whale oil, practically overnight. Similarly, once American industry has scaled up production, storage, distribution, and combustion of hydrogen in one application, hydrogen will readily begin displacing all other forms of energy still reliant upon dramatically more expensive and environmentally toxic fossil fuels (i.e., oil, coal, natural gas, and tar sands) from domestic and foreign sources.

At that stage, society will take its net savings and begin to work to reduce carbon dioxide concentrations in the upper atmosphere and to slow global warming with its attendant cataclysmic weather patterns. In fact, some thoughtful observers believe that the coming devastation from climate change may impel society to switch from fossil fuels whatever the cost, even before non-fossil fuel alternatives become significantly cheaper.
**Prometheus Plan Investment.** Based on data from a well-regarded independent, peer-reviewed study by the Rocky Mountain Institute, we concur that it will cost approximately $180 billion to achieve the long-term objectives outlined in a Beyond Prometheus Strategy of eliminating dependence on all imported oil, not just Middle East oil. In *Winning the Oil Endgame*, Amory Lovins and his associates conclude that it will require an investment of “$180 billion over the next decade to eliminate oil dependence and revitalize strategic industries.” That’s less than one-half the current cost of the Iraq War, started in large part to secure that country’s oil. Currently, the U.S. pays more than that much for imported oil *with zero return*. The oil payments enrich OPEC rather than building infrastructure or creating jobs at home.

According to a report of the United Bank of Switzerland (UBS), *Global OilCo 2005*, the major oil companies will generate *more than $1 trillion in net cash flow from operations* between 2004 and 2008.17 Because these are pure profits—calculated after deducting all other capital expenditures, buybacks, disposals, acquisition and dividend costs, private jet travel for executives, expense account lifestyles, and spending on lobbyists and politicians—this spectacular increase in returns can certainly be considered “excess profits.” If governments—which already regulate, tax, and charter the very existence of these corporations—were to excise a trifling 18% of the corporations’ next trillion in profits (leaving all of their historical profits untouched), it could use the revenue to fund the transition to new fuel sources.

**Prometheus Benefits.** Depending on how the Prometheus Plan strategies are implemented, the benefits will vary significantly. From any perspective, however, they are spectacular. These benefits include the following:
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- Limiting the wealth flowing to Middle Eastern states that funds terrorism
- Reducing dependence on unstable, autocratic, and hostile governments
- Dramatically reducing carbon dioxide and harmful air emissions
- Rebalancing trade, reducing the deficit, and stabilizing the dollar
- Saving $133 billion in oil costs annually (assuming oil at $73/barrel), going forward after 10 years
- Saving one million high-wage automotive and transportation-related jobs
- Creating up to 2 million additional jobs in biofuels and new energy industries
- Increasing annual farm income by billions and revitalizing rural communities
- Providing the energy foundation for global security, prosperity, and equity

**John F. Kennedy’s Example**

The Prometheus Plan is far easier to achieve than President Kennedy’s Apollo Project was because it relies *upon existing technology and resources*. The risks and stakes of today’s energy crisis and war on terrorism are far greater than those that confronted President Kennedy at the height of the Cold War. In 1962, President Kennedy launched the Apollo Project. He challenged America to put a man on the moon in 10 years, to confront the mounting threat to U.S. and international security posed by Soviet dominance of space. At that time, the technology for a moon landing was in its infancy. No one knew for certain whether this ambitious goal could actually be achieved. No one had ever gone beyond the earth’s orbit, let alone made a
manned landing on the moon. The challenges were too great to even calculate. Nevertheless, the Apollo Project inspired the nation and resulted in extraordinary strategic and technological success, affecting almost every facet of modern life. It even, as it was hoped, totally revitalized the education system for engineering and the physical sciences.

Today, instead of Cold War threats and fears of nuclear annihilation or superpower confrontations, we face the more diffuse and slow-moving dangers of terrorism, recession, economic chaos, and the end of the American dream as we know it. As in the time of Roosevelt and Kennedy, it is essential that America once again provide bold domestic and international leadership to address a fundamental challenge to world peace, prosperity, and progress. Through the Prometheus Plan, the U.S. can provide the leadership required to reduce oil dependency, while averting a global energy and economic catastrophe triggered by peak petroleum prices and cataclysmic climate change.

**DOOM-AND-GLOOM PUNDITS**

We are now surrounded by doom-and-gloom pundits, who sincerely do not believe the American way of life will survive “the converging catastrophes of the twenty-first century.” For example, in *The Long Emergency*, social commentator James Howard Kunstler predicts:

> The Long Emergency will change everything. Globalism will wither. Life will become profoundly and intensely local. The consumer economy will be a strange memory.
Suburbia—considered a birthright and a reality by millions of Americans—will become untenable. We will struggle to feed ourselves. We may exhaust and bankrupt ourselves in the effort to prop up the unsustainable. And finally, the United States may not hold together as a nation. We are entering an uncharted territory of history.18

Certainly, those are potential dangers. Nevertheless, even though the current energy system is entering its sunset years—in fact because of it—our basic findings are overwhelmingly positive. Civilization has already survived, indeed prospered, through several profound energy transformations: from muscle power to wood; from wood to coal and whale oil; and most recently from coal and whale oil to petroleum and natural gas. We firmly believe it is within our collective power and wisdom to call forth the leadership needed to replace fossil fuels, minimize and eventually stabilize climate change, create a stronger and more secure global economy, and spread wealth to poor nations.

Lack of Federal Government Leadership

Based on the experience of the past three decades, it is clear that the federal government has not been providing meaningful leadership to guide us through the coming energy crisis. In 1977, President Jimmy Carter made energy the central issue of his presidency, calling it “the moral equivalent of war.” Conservatives and oil company “spin doctors” successfully portrayed him as a dour defeatist and pessimistic preacher, wearing a sweater in the unheated White House while lecturing Americans that they would have to learn to live with less. As a result, Carter squandered political traction and eventually lost the presidency. No one should underestimate the political risks in confronting Big Oil.

Part of the problem is the confusion Big Oil spreads throughout the voting public and among elected officials with its mas-
sive advertising budgets, paid for by excess profits. Conservation has often meant living with less and with lower expectations. This is not what we are suggesting. We believe the focus should be on energy efficiency, which means getting the same or more, but spending less. Major corporations such as 3M, DuPont, GE, and BP learned this lesson years ago. Wal-Mart is trumpeting its commitment to “go green” as very smart business sense. These corporations save hundreds of millions of dollars annually through energy efficiency programs. They will save many multiples more in the years ahead.

In President Ronald Reagan’s view, “America did not conserve its way to greatness. America was a modern industrial state, not a hunting and gathering society. It needed more and more energy every year, and the mission of government was to provide that energy.” 19 As energy prices fell in the 1980s, the Reagan administration froze the vehicle fuel efficiency standards, allowing auto manufacturers to build gas-guzzling, oversized sedans, light trucks, and SUVs that today represent half of all car sales. In the case of Ford, SUVs have constituted 90% of its profits. Much to its dismay, as its bond ratings fall to junk levels, it is learning that such a strategy is unsustainable.

Then came the first Gulf War. Conservation had been abandoned and the U.S. went to war over oil. In a new book by Senator Byron Dorgan (D.-N. Dakota), in a section entitled “Oil Wars,” he cogently discusses “the potential for military misadventures as countries seek to secure oil supplies.” Senator Dorgan writes:

If we do not wean ourselves from oil imports, we face not only skyrocketing prices and a devastated economy but the potential for military misadventures as countries seek to secure oil supplies.
And let’s face it: The unspoken agenda of America’s military and political involvement in the Middle East is the oil supply. That is not to say that there are not other good reasons for our interest in the region, but oil is always a factor in our strategy.

Always. The supply of oil is so important to us that we go to war for it. The first Gulf War was a war about whether we would allow Saddam Hussein to gain control of Kuwait’s oil reserves—the fifth largest in the world. I know, they said it was about freedom. But we all know better. If Kuwait had been a country in central Africa and without oil, do you think we would have sent a half a million American troops to reclaim it?20

New Mexico Governor Bill Richardson, former U.S. Secretary of Energy, also has candidly discussed the role of oil in making foreign and national security policy, and has stated that oil provoked the first Gulf War.21

Since the 1970s, no Democratic or Republican administration has seriously attempted to curb America’s growing addiction to foreign oil. Moreover, since the 2000 election, the Bush-Cheney administration has openly championed higher profits and greater tax breaks for the fossil-fuel industry by adopting the industry’s fiction that we can “drill our way out of the problem.”

“Follow the Money”

George W. Bush is an oil man. He and Dick Cheney have close ties to the oil and other energy industries. Having served as co-chair of the host committee for the Republican National Convention in Houston in 1992, former Enron CEO Kenneth Lay exerted great influence in shaping energy policy in both Bush administrations. Enron and its employees gave $2 million to President Bush’s campaign in 2000. Kenneth Lay was a mem-
ber of the vice president’s panel of energy advisors and had private access to the vice president. Lay also selected his own regulator from the Federal Energy Regulatory Commission. Former Enron employees or consultants who worked for or have strong influence in the second Bush administration include Lawrence Lindsey, Andrew White, Ed Gillespie, Theodore Kassinger, Marc Racicot, Ralph Reed, James Baker, Wendy Gramm, Robert Mosbacher, and Robert Zoellick.

Exerting enormous leverage over both the White House and the Congress, the fossil-fuel industry lobbied for and helped draft an energy bill in 2005 that was researched and written in a series of private industry meetings. In the years between the Bush-Cheney 2000 election and 2005, oil company profits exceeded the cumulative profits of the industry over the prior 14 years.

Most policies of the Bush Administration deepen our energy dependence. The Administration’s predisposition to support the fossil-fuel industry may well be the cause of its failure to recognize the exigency of reducing carbon dioxide emissions and arresting global warming. The two positions go hand in hand: support Big Oil and resist meaningful attempts to halt global warming.

Early on, the Bush-Cheney team rejected U.S. participation in the multinational Kyoto Protocol to reduce greenhouse gases and slow global warming. It also rejected the theory of man-made climate change. In March 2007, a House committee released documents showing “hundreds of instances in which a White House official who was previously an oil industry lobbyist edited government climate change reports to play up uncertainty of a human role in global warming or play down evidence of such a role.” The official, head of the White House Council
on Environmental Quality, even tried to stop Dr. James Hansen, NASA’s top climate expert, from calling for prompt reductions in greenhouse gases linked to global warming.23

The Administration consistently has refused to raise CAFE standards. President Bush called for CAFE standards “reform” in his January 2007 State of the Union speech, but his proposal rejects legislatively mandated increases in favor of leaving the National Highway Traffic Safety Administration (NHTSA) with discretion over standards. His proposal requires no measurable mileage increases over time, and makes it harder for NHTSA to change the standard because the benefits of any change would have to be proven to outweigh costs. The present statutory language calls only for the consideration of “economic practicality.” As the common legal expression says, “res ipsa loquitur”—the situation speaks for itself.

“We have to, in the next 10 years . . . decrease the rate of growth of CO₂ emissions. . . . If that doesn’t happen . . . there’s a great danger of passing some of these tipping points. If the ice sheets begin to disintegrate, what can you do about it? You can’t tie a rope around the ice sheet.”

— Dr. James Hansen, NASA

The Energy Policy Act of 2005 approved vast new subsidies for conventional energy sources: $6 billion for oil and gas, $9 billion for coal, and $12 billion for nuclear power. It awarded these subsidies at a time when oil companies were recording the highest quarterly profits of any corporations in history. Since the energy companies helped draft this legislation, it comes as no surprise that only $2.6 billion went to conservation and alternative fuels.
Even after the 2000 election, in which the fossil-fuel industries were among the top three financial contributors, energy corporations gave $115 million in campaign contributions to politicians running for federal office. By any measure, they have earned exceptional returns on their “investment.”

For example, powerful oil and automobile industry lobbyists were able to use the 2005 Energy Policy Act to continue exemptions for SUVs from meaningful fuel efficiency standards, as well as tax incentives that encouraged Americans to purchase them. On top of this, and despite record gas prices and oil profits, the Bush-Cheney team blocked a one-year, $5 billion windfall profits tax for oil companies that the Senate passed in late 2005.24

**More Money Trails**

As a result, we are trapped in a vicious circle: gargantuan oil company profits generate continuous self-serving advertising campaigns and enormous influence in the White House and Congress. This generates billions of dollars in subsidies and tax breaks, which in turn generate more excessive profits for the oil industry. These profits are used to pay for more lobbying and political donations in an ever-expanding circle.

It is difficult for most people to grasp the sheer size of the oil and gas industry. Today, about 425 companies in the developed world serve the demand for hydrocarbons. The major oil companies are the main players in this group, which includes explorers, producers, refiners, and distributors of oil, gas, and electricity. Their aggregate market capitalization approximates $3 trillion, and they constitute 10% to 12% of the entire world economy. By way of example of the size of these companies, Chevron supplies a mere 2% of global energy demand, yet its sales rank it as the 11th largest company in the world.
The *UBS Global OilCo 2005* report predicted that these companies would generate an estimated $250 billion in net cash flow in 2006, and that between the time that the Bush-Cheney team took office in 2000 and the year 2006, the companies would generate more than $1.5 trillion in *net cash flow*, after all executive perks and dividends.

ExxonMobil, the biggest of the majors, announced $36 billion—*in profits*—for 2005. That’s $3 billion every month, which if ExxonMobil were a country would make it the 90th richest nation in the world. Beginning in 1993 and continuing until he stepped down, ExxonMobil paid CEO Lee Raymond $144,000 every day, and recently rewarded him with a $398 million retirement package for tripling company profits.

Not surprisingly, ExxonMobil is regaled as the “Bad Boy of Oil” that ignores the coming energy crisis and current environmental problems and simply goes about its business. It has been among the top funders of climate skeptics and has the smallest investments in alternative energy.

With few new oil fields on the horizon and world demand rising, oil companies understand that their remaining reserves will continue to increase in value. Most major players, therefore, resist any significant energy initiatives that do not rely primarily on oil and other fossil fuels. However, some companies, such as BP, Chevron, and Shell, have already seen the handwriting on the wall. They are making a conscious decision to reposition themselves as “energy service companies” and are developing plans to incorporate sustainable energy resources into their product mix. If the other majors do not react quickly enough, rapidly growing alternative energy enterprises, such as GE and its FPL Group, are ready to fill the gap.

The outcome of decades of Big Oil’s influence on Washington
is that, in a very real sense, we in the West, especially the U.S., have become powerless petroholics. We are addicted to cheap oil, while OPEC, our dealer, is only too happy to supply our much-needed daily fix at ever-increasing prices. As a result, we are now mired in what New York Times columnist Thomas Friedman calls the era of petrolism, corrupt antidemocratic practices whereby oil rich nations—such as Iran, Nigeria, Russia, Saudi Arabia and Venezuela—can co-op their citizens through public largesse and build up their internal security forces and military to keep themselves in power.

We fully agree with Friedman that what America needs now is a president and a Congress with the guts not just to preemptively invade other nations, but to inspire energy efficiency, reward energy innovation, and lead an energy revolution here at home. This will take the adoption of the Prometheus Plan, which is based on a sound energy policy with real incentives for efficient cars and sustainable energy (biofuels, solar, and wind), rather than the business-as-usual, “welfare-for-oil-companies” policies in the Energy Policy Act of 2005.

In terms of true national security, becoming green is what we need. It is actually the most pragmatic, pro-growth, pro-active, preemptive, and patriotic policy we can pursue.

“Green is the new red, white, and blue.”
- Thomas Friedman, International Herald Tribune, 2006

With adoption of the Prometheus Plan, the U.S. will take back its sovereignty from OPEC and regain control over its national destiny, while simultaneously reducing the threat of a catastrophic environmental breakdown from greenhouse-gas-driven climate change.
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Cost of Oil Addiction

In the absence of federal leadership, the business community and the states must lead the charge in addressing the negative impact of our dependence on foreign oil. The economic implications of this long-term addiction are staggering:

- For half of all households that received Bush income tax cuts of less than $500 per year, the increase in gas prices mean a $360.25 de facto gas tax, which wipes out 60% of that tax relief.

- A 2005 study by the International Center for Technology Assessment found that by quantifying the external costs of using gasoline-powered vehicles, including the cost of maintaining a permanent military presence in the Middle East, the real per-gallon cost of gas is actually between $5.60 and $15.14.

- The non-war cost of securing our access to Middle Eastern oil—deploying U.S. forces in the Persian Gulf, patrolling its waters, and supplying military assistance to Middle Eastern countries—is estimated at $50 billion per year.

- In 2006, oil imports cost $270 billion, up from $229 billion in 2005.

- On our present course, in 10 years America will import nearly two out of every three barrels of oil, up from one out of every two barrels now.

- Oil imports account for more than one-third of the total U.S. trade deficit and therefore are a major contributor to unemployment.

- The cost of the Iraq War is already more than $450 billion, with no end in sight. The Bush Administration originally promised that the cost of the war would be covered by Iraqi oil production, then revised its costs estimates to predict that the war would cost Americans $50 billion-$60 billion.
• One recent study by Nobel Prize-winning economist Joseph Stiglitz and Harvard’s Linda Bilmes that incorporates the indirect and human costs of the war put the long-term cost to the U.S. at between $1 trillion (the most “conservative” estimate) and $2.2 trillion (their “moderate” estimate).

• According to U.S. Comptroller General David Walker and the conservative and liberal think tanks with whom he has been traveling the country to address audiences, the federal fiscal picture is so bleak that if the U.S. does not change course, by 2040 the federal government will have funds for little more than interest on its mounting debt and some entitlement benefits—nothing for defense, homeland security, education, or anything else.  

• In order to fund this growing deficit, we are going deeply into debt to China and other Asian nations, who show up weekly at the U.S. Treasury auction. China recently decoupled its currency from the dollar, reflecting a growing global lack of confidence in the dollar’s long-term stability. Russia has already converted a staggering portion of its monetary reserves into euros and other non-U.S currencies.

• A study commissioned by the U.S. Department of Energy found that dependence on oil from unfriendly counties has cost the U.S. more than $7 trillion in present value dollars over the past 30 years—more than the cumulative cost of all wars since the Revolutionary War.

Heard enough? What are we waiting for?

**Business as the Trimtab Factor**

Business cannot afford to stick its head in the sand and hope for the federal government to save it. Despite modest tax incentives for biofuels in the 2005 Energy Policy Act, the federal government has been and continues to be a large part of the problem and certainly not the solution.

As a result, American business leaders and state governments have a fundamental self-interest in mobilizing on the en-
ergy issue and taking concerted action to increase energy independence and constrain the influence of Big Oil. The business bipartisan goal must be nothing less than the establishment of a new and sustainable U.S. transportation fuel system so that the economy can thrive during the transition to non-fossil fuels. It will take the active engagement of business leadership to influence the federal government at the highest levels to change the course of the ship of state and to provide the signals, policies, and incentives necessary to implement the Prometheus Plan.

As members of the World Business Academy, we are well aware of the successful precedent for bipartisan business leadership at the national level that was inspired by Harold Willens’ book, *The Trimtab Factor: How Business Executives Can Help Solve the Nuclear Weapons Crisis*. Writing in 1984, Willens described the “trimtab” as the tiny rudder that turns the main rudder in order to change the course of a large ocean liner (in this case, an oil tanker) traveling at high speeds through the ocean. He argued that business could provide the trimtab for steering the U.S. out of the cold war stalemate and avoiding the threat of nuclear war.

Willens’ work inspired the formation of Business Executives for National Security (BENS), a bipartisan organization that successfully lobbied throughout the 1980s for the ambitious tri-part agenda of changing our relationship with the Soviet Union and ending the cold war, preventing nuclear war, and getting more bang for the buck out of the military budget. Prominent Fortune 500 executives who supported BENS’ objectives included Ted Turner (CNN), Tom Watson (IBM), Dick Monroe (Time Warner), and Stanley Marcus (Neiman Marcus).

Our insights on how business and concerned citizens can be mobilized to address the present danger of foreign oil depen-
dency are informed by Willens’ writings and our personal experience with BENS. We believe that the time has come to apply these insights to the task of alerting the business community to the greatest challenge we have faced: the global climate change-energy crisis that perhaps fortuitously accompanies the end of cheap oil. This is the defining issue of our time and the greatest challenge of the 21st century.

Energy Common Sense

Published in 1776, Thomas Paine’s Common Sense challenged the authority of the British government and the monarchy. We offer this current work as a challenge to the 30-year failure of U.S. policymakers to defend Americans’ vital interests by making energy independence a cornerstone of national security.

The primary rationale for the Prometheus Plan is that America is already at war and under siege from hostile interests who are threatening to destroy or interdict our long petroleum supply lines which snake through the pipelines, ports, and refineries of the desert sands of the Middle East to fuel our prosperity at home. Furthermore, higher oil prices weaken democracies and encourage autocracy around the world. Or, as Thomas Friedman succinctly puts it, according to the First Law of Petropolitics, “The price of oil and the pace of freedom always move in opposite directions in petrol-ist states.”

Our current leaders have spent hundreds of billions of dollars on a Middle Eastern war that totally misses the point of how the energy-climate change crisis has overtaken the war in Iraq and the War on Terrorism as the most vital domestic and foreign policy issue of our time.

This is not an alarmist or fatalistic approach, but a realistic and optimistic one that recognizes that business, acting as the
trimtab factor, can provide the catalyst for appropriate government action. This mission involves convincing business, political, and military leaders and concerned citizens that continuing to defend “security of supply” is not in our best interests. Rather, making a rapid transition to a “new energy economy” is essential to win our freedom from continued instability and turmoil in the Middle East and hostile oil-producing nations.

Like it or not, we are on a journey through turbulent times. If we act expediently, we can make adjustments prudently. If not, we face the daunting prospect of having to come together during the equivalent of a hurricane to “rebuild the ship at sea,” as Willis Harman used to say. This would indeed be a titanic miscalculation.

Depending on what course of action we choose, a future historian looking back from 2015 will, it is hoped, observe how certain “information-rich” companies adapted and prospered during the coming transition. Unfortunately, without proper leadership, many enterprises lacking knowledge will find themselves at a competitive disadvantage and will flounder or fail.

We believe that survival goes to the most vigilant. The vigilant are those armed with the critical intelligence necessary to negotiate through times of traumatic change. If we act wisely, individuals, companies, and nations can use the energy crisis as a unique opportunity for co-creating energy abundance and a sustainable future for all inhabitants of the earth —both the have and the have-nots.

Civilization stands at a major crossroads at which nothing less than our modern way of life is at stake. If we fail to meet this challenge, we may accelerate the end of the golden age of energy-intensive prosperity and the onset of the next Dark Ages. If we succeed, we may, in our time, witness the birth of an oil-free
economy and secure a brighter and safer future for countless
generations.

The choice is ours!
Notes and References

Chapter 1: The Choice Is Ours

1. For the purpose of this analysis, the term Middle Eastern oil refers to the major Middle Eastern oil-exporting nations of the Persian Gulf, which are (ranked according to amount of oil exports): Saudi Arabia, Iran, United Arab Emirates, Kuwait, Iraq, and Qatar. All of these countries export more than 1 MBD of oil.

2. See U.S. Department of Energy, Energy Information Administration, Annual Energy Outlook 2006 with Projections to 2030 (Washington, D.C., 2006), 33-39, (www.eia.doe.gov/oiaf/aeo/) for a discussion of the economic effects of high oil prices. While the discussion acknowledges that oil price spikes may have caused the recessions of the 1970s and 1980s, it suggests that “in today’s U.S. economy, sustained higher oil prices can slow short-term growth but are not likely to cause recession.” The fallacy in this analysis is that it is based on an oil price reference case of $50-$60/barrel between 2006 and 2030, when in fact the $60 cap has already been breached and economic experts believe prices will spike to $100 or more in the near future.


5. The member nations of OPEC are Saudi Arabia, Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, United Arab Emirates, and Venezuela.


11 Amory Lovins et al., *Winning the Oil Endgame: Innovation for Profits, Jobs and Security* (Snowmass, CO: Rocky Mountain Institute, 2005). Similarly, in recent years Europe has demonstrated that economic growth is not dependent on increasing per capita consumption of energy.


15 Brown, *op. cit.*, 11.

16 Lovins et al., *op. cit.*, xii.


19 Dennis Hayes, an officer in the Energy Department in the Carter Administration, quoted in Roberts, *op. cit.*, 219.

20 Byron L. Dorgan, *Take This Job and Ship It: How Corporate Greed and Brain-Dead Politics are Selling Out America* (New York: St. Martin’s Press 2006), 120.


