



# 10 Essential Principles for Sound Energy Policy

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Energy policy in the United States for today and tomorrow involves much more than providing safe, reliable and affordable energy to consumers. The energy policy of the future must take into consideration global terrorism, foreign policy, national security, environmental concerns, the fear that climate change will cause catastrophic consequences, and worldwide economic considerations. Below are 10 essential principles that must be included in an energy policy adopted in the U.S. They are:

1. Reduce U.S. dependence on foreign oil by increasing domestic energy production.
2. The world and the U.S. have vast crude oil and natural gas reserves, but policies must allow for exploration and production.
3. Coal, crude oil and natural gas will provide a majority of U.S. energy needs for many future years.
4. Policies enacted should have a positive impact on U.S. economy, national security and foreign policy.
5. Make certain that the environmental gain (i.e., reduction in greenhouse gases) outweighs the economic pain.
6. Other countries must reduce greenhouse gases similarly.
7. Policy must be based on sound science.
8. Energy efficiency and conservation should be increased.
9. Encourage research and development in technology.
10. Government actions must be based on market conditions and consumers' needs, and private enterprise must be the spark plug that ignites the engine.

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Policymakers must recommend solutions that are realistic and pragmatic. Policies that are unrealistic, and reflect only wishful thinking, will create future energy shortages, accompanied by higher prices. Realistic proposals should be based on market forces and consumer preferences. The economic consequences of each idea should be analyzed and compared to the gain achieved through changes in the environment, conservation or new technology.

Sound science must serve as the cornerstone of any policy regarding climate change or global warming.

Energy efficiency is the cheapest, most plentiful form of new energy. Energy saved is energy found.

Diversity of domestic energy supplies is critical. Whether it's types (natural gas, crude oil, coal, nuclear, wind, solar, ethanol, etc.) or source of origin (U.S., North America, South America, Middle East, etc.), the key must be building a mix of energy that continues America's economic and military might.

Even though renewable energy sources are the darlings of Washington politicians currently, it will be decades before renewable energy will play a large role in providing sufficient amounts of energy at competitive prices. Crude oil will be the primary transportation fuel for the world for many years to come. Coal, natural gas and nuclear will provide a majority of the electricity. Federal and state governments should continue to encourage private enterprise to invest in renewable energy, but it would be a catastrophic mistake to

tax or punish one source of energy, i.e. hydrocarbons (coal and crude oil), to finance research in renewable energy.

Any policy adopted by the U.S. regarding reduction of greenhouse gas emissions should be adopted by all other countries, too, especially the 15 countries with the largest economies. Restrictions on energy production, or increases in taxes, could make U.S. businesses less competitive. In today's global economy, competition is keen.

Economic and social impacts must be addressed. Cheap, affordable and reliable energy ignites the economic engine.

While the largest portion of imported oil comes from Canada and Mexico, the U.S. continues to import substantial amounts from Saudi Arabia and Venezuela. Crude oil imports pose unique political, military, economic and foreign policy issues for the U.S. A policy that includes reduction of crude oil imports will have many positive benefits for Americans.

## Climate Change

The Intergovernmental Panel on Climate Change (IPCC) at the United Nations (UN) reported in early 2007 that the Earth's temperature is rising, that warming is caused by increased greenhouse gases, and that this is bad. IPCC's study reported that the Earth's climate warmed 0.6 degrees Celsius during the last 100 years. It also notes that 11 of the 12 warmest years since 1850 occurred between 1995 and 2006. Worldwide temperature is projected

to rise about 0.2 degrees Celsius per decade. “Even if the concentrations of all greenhouse gases and aerosols had been kept constant at year 2000 levels, a further warming of about 0.1 Celsius per decade would be expected,” the report stated.

The IPCC also said that “global atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased markedly as a result of human activities since 1750.” The report noted that carbon dioxide increased from pre-industrial values of about 280 parts per million (ppm) to 379 ppm in 2005. “The annual carbon dioxide concentration growth rate was larger during the last 10 years (1995-2005 average: 1.4 ppm per year), although there is year-to-year variability in growth rates.

The IPCC study said fossil fuels and land use changes were the primary cause of increased concentrations of carbon dioxide. Methane concentrations increased from about 715 parts per billion (ppb) to 1,732 ppb in the early 1990s and 1,774 ppb in 2005, predominately because of agriculture and fossil fuel use. However, relative contributions from different source types are not well determined.

The IPCC study found agriculture to be the primary cause for the rise in nitrous oxide concentrations from about 270 ppb to 319 ppb in 2005.

“The combined radiative forcing due to increases in carbon dioxide, methane and nitrous oxide, and its rate of increase during the industrial era, is very likely to have been unprecedented in more than 10,000 years,” the report stated.

Since 1961, the average temperature of the global ocean has increased, causing seawater to expand and the sea level to rise.

Changes in the climate include: “changes in Arctic temperatures and ice, widespread changes in precipitation amounts, ocean salinity, wind patterns and aspects of extreme weather, including droughts, heavy precipitation, heat waves and the intensity of tropical cyclones.” These changes very likely will happen, because of the observed increase in anthropogenic greenhouse gas concentrations.

### Other Opinions

A number of scientists disagree with the IPCC’s projections that all the changes attributed to global warming are bad. One dissenting opinion is offered by Patrick J. Michaels, Ph.D, who is professor of natural resources at Virginia Polytechnic Institute and State University, and is past president of the American Association of State Climatologists.

Dr. Michaels says “there is no relationship between the severity of storms and ocean-surface temperature, once a commonly exceeded threshold temperature is reached.”

Dr. Michaels contradicts the IPCC’s assertion that the ice caps in Antarctica and Greenland are melting and causing sea levels to rise, and that the increase in number of hurricanes and their intensity is created by global warming.

Furthermore, Dr. S. Fred Singer, an atmospheric physicist at George

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Mason University and founder of the Science and Environmental Policy Project, has been a leading skeptic of the scientific consensus on global warming.

He points out that scenarios presented are often alarmist, and that today's computer models reflect real gaps in climate knowledge. "Future warming," he says, "will be inconsequential or modest at most."

One of the key unanswered questions in this debate is whether warming is caused by an increase in carbon dioxide or by another factor, such as the sun.

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NASA detailed new observations of solar explosions from a powerful space telescope that recently beamed back X-ray images of the sun's outermost layer. While scientists had expected to see a calm region, they saw, instead a bubbling mass of swaying and arching spikes — some of which were more than 5,000 miles long. The tangled magnetic fields dump energy back into the corona, causing huge temperature flares.

Scientists know that global temperatures closely track solar cycles as measured by sunspot intensity, and a growing number of scientists are now saying that solar irradiance is heating both Mars and Earth simultaneously.

NASA Administrator Michael Griffin said on May 31, 2007, that he's not certain that global warming is a big enough issue that the world must wrestle with it. He said global

warming proponents believe that today's climate is best, and it should not change.

A study conducted by The Hoover Institute showed that the effects of solar activity on global temperatures were unmistakable. In fact, the pattern of temperature fluctuations was so clear that, statistically, the odds of the correlation existing simply by chance were less than 1 in 100.

In addition, the study could find no significant relationship between industrial activity, energy consumption, and changes in global temperature — even after adjusting for delayed and cumulative effects.

Today's global warming science is an emerging field, and one that will change as the tools to model it improve. Given the high stakes involved in this debate affecting our economic and national security, it is critical that Washington policymakers take into account the limitations of current scientific knowledge.

Policies should be based on sound science. In the 1970s, scientists were warning the public that the Earth was cooling. Were they wrong? Are the scientists correct this time? Just suppose that policies are enacted that restrict petroleum supplies, and prices rise to \$10 per gallon in 10 years. Then, we find out in 2017 that the Earth's climate has cooled, and we have made a multitude of changes based on the campaign of fear regarding global warming.

Intractable positions reflected in comments claiming that "the debate is over" will not serve the best

interests of the oil and gas industry or the American public.

Even though the differences of opinion about climate change continue, the “believers” have a definite political advantage in Washington. The “believers” have control of both the U.S. House and Senate, and are pushing for an energy policy that punishes the producers of fossil fuels and rewards “clean” energy sources.

### Hydrocarbons’ Future

Policymakers must recognize that crude oil will be a primary transportation fuel, and natural gas, a primary electric generation fuel for many years to come. The National Petroleum Council released a comprehensive study of energy in July 2007, *Facing the Hard Truths about Energy*, that said large volumes of crude oil and natural gas were in place to meet consumer needs, even though U.S. crude oil supplies have declined and demand has increased. U.S. petroleum usage has increased 27 percent from 1981 to 2005. In 1981, petroleum usage was 5.4 billion barrels compared to 6.8 billion barrels in 2005.

The Energy Information Administration (EIA) predicts that demand for petroleum products — gasoline, aviation fuels, distillate fuel oil, residual fuel oil, lubricants and asphalt — will increase 2.2 percent every year for the next five years. Worldwide demand will grow from 83 million barrels per day, today, to 95.8 million barrels per day in 2012, according to the International Energy Agency.

It is imperative that state and federal governments recognize that petroleum products will play an important role in the nation’s economic future. Policymakers should enact laws and regulations that will encourage the full development of the nation’s natural resources.

“Future oil supply will come from a variety of sources, including continued development of known resources, application of enhanced oil recovery, further expansion of unconventional liquids, and development of new discoveries,” the NPC study stated. However, the study pointed out the uncertainty involved in governmental actions (U.S. and foreign countries) that could impact industry’s ability to meet demand in the future.

### Three Key Misconceptions

#### 1. Big Oil is the leading producer of crude oil and natural gas in the U.S.

Actually, Big Oil only played a minor role when it came to drilling and producing crude oil and natural gas in the U.S. during 2006. The Independent Petroleum Association of America reports that the major oil companies only drilled 10 percent of the wells in the U.S. in 2006. In Texas, Railroad Commission records show that Big Oil drilled only 4 percent of the wells. Independents produced 92 percent of the crude oil in Texas for 2006, and 88 percent of the natural gas. Punitive legislation aimed at Big Oil usually hits the independents in some way.

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## **2. The U.S. imports too much oil from countries that then use those funds to finance terrorist actions against the U.S.**

In 2005, the most current year that figures are available from EIA, the U.S. imported 13.7 million barrels of oil per day from 87 countries, which is an increase of 20%, about 2.2 million barrels per day, since 2000. Even though imports have increased 20% in the last five years, oil imports from the Persian Gulf have dropped 6%.

Canada and Mexico were the two top exporters to the U.S.: Canada shipped 2.2 million barrels per day to the U.S., and Mexico sold 1.7 million barrels per day in 2005, an increase of 21 percent over 2000.

Saudi Arabia (1.5 million barrels per day), Venezuela (1.5 million barrels per day), and Nigeria (1.2 million barrels per day) were the next largest exporters to the U.S.

## **3. Carbon dioxide levels rise in the U.S.**

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The economy, as measured by Gross Domestic Product (GDP), grew 3.3 percent, and energy demand fell by 0.9 percent, indicating that energy intensity (energy use per unit of GDP) fell 4.2 percent. Carbon dioxide intensity ( $\text{CO}_2$  emission per unit of GDP) fell 4.5 percent.

Factors that drove emissions lower include weather conditions

that reduced the demand for heating and cooling services; higher energy prices for natural gas, motor gasoline, and electricity, that reduced energy demand; and the use of a less carbon-intensive fuel mix (more natural gas and non-carbon fuels) in the generation of electricity.

Through 2006, total U.S. energy-related carbon dioxide emissions have grown 17.9 percent since 1990. Energy-related carbon dioxide emissions account for over 80 percent of U.S. greenhouse gas emissions.

At the energy-sector level, preliminary data indicate that:

- Carbon dioxide emissions from the residential and commercial sectors decreased by 3.7 percent and 1.0 percent, respectively, in 2006, as heating degree-days declined by 7.4 percent, while at the same time cooling degree-days decreased by almost 1 percent.

- Industrial emissions fell 1.2 percent in 2006. Since 2004, emissions attributable to the industrial sector have fallen almost 4 percent despite growth in industrial output.

- Transportation-related carbon dioxide emissions, which account for about a third of total carbon dioxide emissions, decreased 0.1 percent in 2006.

From 1990 to 2006, the carbon dioxide intensity of the economy fell by 26.5 percent or 1.9 percent per year.

By 2005 (the latest year of data for all greenhouse gases), carbon dioxide intensity had fallen 23.1 percent and emissions of total

greenhouse gases per dollar of GDP had fallen by 24.7 percent.

EIA will continue to refine its estimates of 2006 carbon dioxide emissions as more complete energy data become available.

## Carbon Dioxide Regulation

Even though there is disagreement about current levels of carbon dioxide being a cause of global warming, a majority of scientists agree that carbon dioxide levels have risen since 1850. However, the scientific community is uncertain regarding the potential impact on people and ecosystems.

The leadership in the U.S. Congress in 2007 believes that policies should be enacted that could possibly lower carbon dioxide emissions. For example, in the transportation sector, Congress has tried to raise mandatory fuel efficiency standards for vehicles. Opponents argue that these standards are counter to what the public wants; i.e. large vehicles with large amounts of horsepower. Additionally, opponents have effectively pointed out that the public is not willing to curb its driving habits, even when gasoline is above \$3 per gallon. Congress, however, believes it knows what is best, and therefore, a higher miles-per-gallon standard is best for the environment. So, Congress arbitrarily mandates standards to the auto industry without regard to economic circumstances.

Similarly, the refining sector of the oil industry has had to deal with environmental mandates for years

without regard to cost to industry. The government has required refiners to switch from leaded to unleaded gasoline, and then to a variety of approximately 30 boutique fuels to be blended around the nation.

Now, some members of the House and Senate want either a carbon tax or cap-and-trade system on carbon emissions.

A carbon tax would tax all systems that generate carbon when burned, such as coal, crude oil, and natural gas and its products.

Obviously, Congress would avoid the initial wrath of voters by making the tax payable at the corporate level.

Consumers, however, cannot avoid the tax entirely, because business has to generate enough revenue to offset the costs of operations, including paying taxes, or it goes bankrupt. By raising the cost of hydrocarbons, Congress makes other fuels more competitive, i.e. wind, solar, etc.

A cap-and-trade system will require consumers of coal, crude oil and natural gas to purchase permits in proportion to their carbon dioxide emissions. The permits will be sold along with the fuel, that so individuals will not be required to deal with the permit market.

Theoretically, a business that can reduce its fuel use and emissions most inexpensively will do so. Those who cannot will end up purchasing more permits and supporting those who can.

Permit markets in Europe have proven to be uncertain and volatile. The National Commission on Energy

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Policy estimated that such a program would raise costs of gasoline about 7 percent, electricity 10 percent and natural gas 8 percent above normal rates during the next 20 years.

## Renewable Energy

The debate that is taking place around the world focuses on consumers relying on renewable fuels as the primary energy of the future. Governments hand out billions of dollars in subsidies, tax breaks and mandates in an effort to bring about a change in the world's dependence on fossil fuels (coal, crude oil products and natural gas).

Growth in renewable energy is going so fast that it is straining capacity in people, materials and supplies. Everything from corn to make ethanol to silicon for solar photovoltaic cells, and parts for windmills seems to be in short supply. Some believe that the worldwide investment in solar and wind last year was \$40 billion. The U.S. Department of Energy allocated \$1.6 billion, itself.

While the prospects for continued growth of renewable energy loom large for a number of years to come, it has a very long way to go to become a major player.

Since 1993, the net electricity generated has increased 27 percent (855 thousand megawatt hours). The largest electric generation source in 2006 was coal, which generated 1,987,224 thousand megawatt hours, followed by natural gas at 807,597 thousand megawatt hours, and third was nuclear at 787,219 thousand megawatt hours. Of the

three energy sources, natural gas usage has increased the most: 95 percent since 1993.

Renewable sources of energy grew 26 percent from 76,312 thousand megawatt hours in 1993 to 96,703 thousand megawatt hours in 2006. Wind — the largest growing sector at 757 percent — provided 25,782 thousand megawatt hours of electricity in 2006. Wind also provides the best option of all the renewable energy sources for future growth. Even if wind continues its marvelous growth rate — 757 percent for the next 13 years — it would provide only 195,169 thousand megawatt hours, or 25 percent of natural gas at 2006 rates and only 10 percent of coal's usage.

Progress has been slow. Renewables, which include hydroelectric, accounted for 9.6 percent of total primary energy production in the U.S. in 2006, up from 9.4 percent in 1949, according to the Department of Energy (DOE).

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The Texas Alliance of Energy Producers represents more than 3,000 members in 25 states. It has offices in Abilene, Austin, Houston and Wichita Falls (headquarters).

To learn more about the Alliance, go to [www.texasalliance.org](http://www.texasalliance.org) or call 800-299-2998.