

World Democracy and the Global Energy Crisis

*My father rode a camel, I drive a car,
my son flies an airplane,
and his son will ride a camel.*

—Arab saying

Fossil fuels pollute our environment and our bodies, are the direct cause of global warming, and are nonrenewable. At some point the oil and gas that makes the world economy run will become scarce and then eventually disappear. It is obvious that a sustainable global society cannot be built on such a finite resource.

We all know that industrial society is extremely dependent on oil to run motor vehicles, heat or cool living areas, generate electricity, transport staples, produce fertilizer—just about everything that makes our lives what they are. Cheap energy has, in fact, been the basis of the developed world's industrialization for well over a century. In the last chapter we noted that once the era of peak oil begins—which many experts say is imminent—disruptions will spread throughout the world economic system. Effective global government will be needed to adjudicate the conflicts that will inevitably arise, conflicts that could easily lead to “oil wars.” (In fact, they already have several times, according to many accounts.) Peak

oil is without doubt one of those global crises that cries out for a solution through the vehicle of democratic deliberation by the representatives of the world's peoples.

Developing countries everywhere are following in the footsteps of the advanced industrialized nations in basing their economies on fossil fuels. Those countries that are now industrializing, like China, will soon face fierce competition for dwindling oil supplies whose prices will be steadily climbing. Nearly a billion people in China are now changing from bicycles to cars and beginning to use refrigerators and other electrical devices. As a result, China has gone from an oil exporter to an oil importer in the last ten years and has replaced Japan in 2004 as the world's second largest consumer of oil after the US.¹ A similar process is happening around the world with other industrializing powers such as Brazil, and will reach a critical point in the near future.

As we saw in the last chapter, the luxury of affordable energy has allowed humankind to increase the carrying capacity of the earth to support a population of over six billion. By the same token, the impending loss of inexpensive energy will have far-reaching effects on populations everywhere. Economic output will slow and supplies will have to be rationed, creating personal hardships and lifestyle changes worldwide. Countries that still have exportable petroleum left will become increasingly powerful, and countries that are losers in the global competition for oil will experience energy shortages that may force a return to pre-industrial methods of living.

Global government must play a key role in renewables

Given the foregoing discussion, there can be no other conclusion: Alternative and renewable sources of energy—

many of which have long been available but whose potential has not yet been realized—need to be widely developed. This is an imperative for the global economy, not just to save the planet's environment, but also to protect industrial society from decline or collapse.

Currently available non-petroleum sources of energy, such as solar, wind, and hydroelectric power, are nonpolluting and inexhaustible. In Denmark, for example, 17 percent of electricity consumed in 2003 was generated by wind, and the cost of electricity in Denmark is lower than in many surrounding countries.² Germany has taken the lead on renewable energy development with large-scale use of solar and wind power. Why not follow that lead in the United States? The Great Plains of the US offers a potential wind-power gold mine. Wind power can be expanded with current technology to meet more of the demand for renewable energy, but like other renewables, it should be government-subsidized to compensate for its ability to reduce the costs of environmental pollution.

But wind, solar, and hydroelectric power have one big drawback compared to oil. To get oil, one only needs to drill a hole in the right place, and then sit back and tap years and years worth of stored solar energy. Relatively speaking, the cost of production is low and the return is high. In contrast, harnessing solar, wind, or water energy requires a much larger investment with a relatively lower return. This means either one of two things: We will need additional technologies or other sources of energy to supplement solar, wind, or water energy—or the planet will need to quickly become extremely efficient and ruthlessly conservative about energy use. Either way, a democratic global government would be a key ingredient in managing the solution.

Hydrogen is an option— especially with a global approach

Hydrogen offers an option that must be explored as a candidate for replacing petroleum. Its chief benefit is that it is nonpolluting: When hydrogen is burned it combines with oxygen to create water as the only waste product; no carbon is added to the atmosphere.

Hydrogen can be used to run cars, heavy equipment—even airplanes. It can be burned directly or stored in a fuel cell, which acts as an electric generator. The fuel cell can store energy and be refueled; unlike a battery, it doesn't need constant replacement. Fuel cells also offer the advantage of being able to be linked together to form a network similar to today's power grid, so that energy surpluses and shortages can be equalized.

Hydrogen does have important drawbacks, however. It is never found in its free form in the environment, whereas oil and natural gas are. It can only be produced by using energy to split it from other atoms, as in separating it from oxygen in water. At the moment, most commercial hydrogen is extracted through a process called natural gas re-formation—that is, from natural gas, a fossil fuel. But supply of natural gas is limited; it contains carbon that gets released into the atmosphere as the hydrogen is harvested. Therefore, this approach is a poor choice for future hydrogen production.

Hydrogen can also be liberated by the electrolysis of water into hydrogen and oxygen, a process that requires electricity. The source of the input electricity is the critical factor in this approach. If it were produced solely from renewable, nonpolluting sources, such as sun or wind, then one would have a complete cycle of low-impact energy generation and storage. The real question thus becomes: How much

clean hydrogen can reasonably be generated in this way—and at what cost? It takes energy and money to create other forms of energy. Every time one form of energy is converted to another form (for example, using coal-derived electricity to produce hydrogen), energy is lost in the process and costs are incurred.

The sad truth is that replacing coal-derived energy with renewables as the input is not now economically feasible; in other words, the cost-benefit ratio is not there for creating a wind- or solar-based system able to generate the amount of hydrogen needed to run an economy. It is a question of economies of scale. There is no current scenario that would allow us to accomplish such a feat on a large enough scale to generate anything near to what oil yields in energy output. But such a scenario might be possible with the kind of resources and planning that could be supplied by a global government. And it might become our best option as the price of oil inevitably rises.

Hydrogen does offer great promise in the short run as a *medium* of energy—that is, for storing and transferring it. However, it is not a viable *source* of energy at the moment. Fuel-cell cars that are powered by hydrogen are actually running on the electricity that created the hydrogen. If that electricity comes from a coal-fired power plant, then the car is essentially running on coal. The hydrogen fuel-cell car is cleaner because it doesn't produce carbon dioxide or other pollutants that come out the tailpipe, but unless the source of electricity it is running on comes from a less-polluting renewable energy source, such as wind or solar, it offers no improvement.

A global government could mount an “Energy Marshall Plan”

One promising form of energy is fusion-based nuclear power, but like hydrogen and the renewables, liberating its potential may require global government.

When nuclear power based on fission (the splitting of the atom) was first invented, people thought it a panacea—an almost unlimited and cheap source of power. They were wrong. Nuclear power turned out to be neither cheap nor plentiful. The cost of building and maintaining plants proved to be prohibitive when the safety and environmental factors were included.

Furthermore, nuclear power plants represent disasters waiting to happen. A complete meltdown at a nuclear plant could kill or injure millions. And the reality is that terrorists do not have to build their own nuclear weapons in order to terrorize a country—vulnerable nuclear power plants exist all over the developed world! Every nuclear plant is like a large “dirty bomb” just waiting for a terrorist to activate it. Nuclear power plants also produce plutonium, an essential ingredient of nuclear weapons that could easily fall into the hands of a terrorist organization. Some experts believe this has already happened.

The other big drawback to nuclear energy is the radioactive waste that is produced at every plant. We have no way to recycle this waste or destroy its toxicity.

Fortunately, the US recognized the dangers of nuclear power after the Three Mile Island accident and stopped building new plants years ago. (No new ones have been ordered since 1978.) But they are still being built in other parts of the world. In a responsible world, one led by a democratic government, all existing nuclear power plants would be

decommissioned for the safety of the people living near them. By eliminating nuclear power plants worldwide, the spread of nuclear weapons will also be kept in check, since it takes a nuclear power plant to produce plutonium, the essential ingredient of nuclear weapons.

But there is still a future for nuclear energy: The current technology of nuclear *fission* can be replaced with more efficient nuclear *fusion*. Fission involves splitting atoms from highly radioactive uranium molecules, while fusion is the combining of hydrogen atoms to make helium atoms. Fusion is the same reaction that powers the sun. Fusion, once perfected, would run on hydrogen, which is found in water, instead of uranium. Fusion does not produce nuclear waste. It is a much safer process and has the potential for delivering the promise of energy in abundance.

Scientists have been working on perfecting the necessary electromagnetic fields and energy input needed to start and maintain the fusion reaction, but they are not yet there. It requires time, money, and planning—all in short supply.

But if the will existed and if scientists were put to work on energy projects such as fusion or hydrogen, instead of developing weapons, the world could free itself from fossil fuels and spur economic development in a sustainable way. We need the intensity of the Manhattan Project, which developed the atomic bomb, to solve the fusion problem and other challenges of renewable and nonpolluting energy sources—and thereby change our energy usage forever. Using the coordination of a global government, there is no doubt that the resources of many nations could be brought together so that scientists and engineers worldwide could work in harmony to develop new energy sources that would benefit the planet and all its inhabitants.

The role of energy conservation is critical

Even if new energy technology does not assume the leading role, our energy use could be reshaped and the planet rendered sustainable through world government legislation that would mandate or encourage energy conservation.

The amount of energy squandered in just one part of the world—the United States—is tremendous. Having developed the automobile, Americans then proceeded to design their economic system and their entire lives around motor vehicles. Today most Americans are totally dependent on their cars, as typified by this scene: Just to buy a quart of milk, the average person has to fire up a two-ton vehicle and move it at least a mile. This is absurdly inefficient as the era of peak oil approaches. Suburban living may suddenly become rather inconvenient as gasoline prices rise to three or four dollars or even higher per gallon.

But the rigorous application of well-known techniques of energy conservation could make a huge difference. National legislation mandating conservation measures, and farsighted policies including improved zoning laws, better mass transportation, and other well-known approaches would all allow Americans to greatly reduce their dependence on fossil fuels. Important strides have already been made in Europe, where gasoline is taxed heavily, mass transit is efficient, and bicycles are more commonly used as everyday transportation.

Much of the problem for the US is corrupt politics. All too often, car manufacturers and oil companies are allowed to dictate American energy policy, as is typified by Vice President Cheney's notorious energy task force meetings. These companies run massive lobbies in Washington, and offer huge campaign donations to members of Congress and the

President, who in turn provide legislation and even prosecute wars that favor continued dependence on oil.

Again, the first and easiest step in changing America's energy policy would be to mandate conservation. One illustrative example is the humble solar hot-water heater. Consumers are reluctant to spend a lot of money up front for these devices. But when solar hot-water heaters were required by building codes, as they were in parts of the US in the late 1970s, many were installed. When the federal government gave a tax credit for half the cost of a solar hot-water system, they sold well. The point is that some energy-saving devices will not get used unless they are required by law—local laws, national laws, and someday global law.

Hybrid cars now on the market have price tags similar to those of standard gas vehicles, and they get a small government tax credit. However, without mandatory increases in gasoline fuel efficiency, they will remain a small part of the market. Government needs to take a leading role in creating energy standards and regulating energy usage. Leaving energy conservation to market forces has given us the SUV—a shortsighted vehicle choice that is emblematic of the great crisis that approaches.

The best way for government to encourage conservation is through financial incentives. As in Europe, energy use should be taxed to encourage conservation and the proceeds used to develop a more energy-efficient society. The world cannot rely on the market to correct its energy problems. The market has no regard for pollution costs and lacks the foresight to predict major shortages. It should be government's job to regulate energy usage for the greater good of society and the environment. We also need leaders to stand up to special interests in favor of public interests, as well as the good of the planet.

A global solution to the energy crisis is needed

Oil depletion and global warming are now entering a critical period. The industrial nations need to act aggressively to change their energy production and usage habits, and they need to plan wisely, for it takes many years to retool society. Facing this challenge will be like steering the *Titanic* away from an iceberg; the ship's captain will want plenty of time to make the course correction because the ship is huge and unwieldy. But very little time is left.

In summary, a few things are obvious to all observers: Solar and wind power need to be greatly expanded and further developed. Research into all other types of clean energy generation, especially hydrogen and fusion, needs to be expanded, and conservation efforts should be dramatically stepped up worldwide.

The planet is now facing an inexorable energy crisis. With an inevitable decline in oil supplies, and a looming environmental catastrophe resulting from global warming—a global government is needed now, among other things, to serve as a referee during the inevitable scrambling for resources and the finger-pointing among nations over who is at fault for the disaster. The peoples' world government would decide how disputes are resolved and make sure they are fought in courts, not on battlefields.

To deal with the crisis itself, a global government could create rules regarding energy usage and carbon emissions that apply equally to all countries and are legally binding and enforced by the power of global law. Global government could concentrate scientific resources to address the shared challenges of the coming energy shortage. And, most importantly, global government would play a crucial role in

forestalling the wars that otherwise will occur as nations compete for shrinking supplies of oil and other resources. The inevitable energy crisis is high on the list of the many serious global problems that require a momentous global solution.

*Science has made unrestricted national
sovereignty incompatible with human
survival. The only possibilities are now
world government or death.*

—Bertrand Russell