

Once upon a Time

The Stone Age came to an end not for a lack of stones, and the oil age will end, but not for a lack of oil.

—Yamani

ONCE, MANY YEARS AGO in a distant land, Yamani the Enigmatic launched a great experiment. Without warning, he sent out a proclamation to every corner of the earth declaring the need to conserve energy. At first, people conserved little. But gradually, the pace quickened—only to slacken once again.

After six years and only modest progress, Yamani issued a second, stronger proclamation. This time, the world reacted dramatically. For the next six years, while the people of the earth multiplied and grew richer, their use of oil diminished—something never seen before. After twelve years, Yamani and his confederates, duly impressed with the power of their methods and the world's response, withdrew their proclamations.

There matters rested for another eighteen years. Surprisingly, much of the world's reaction continued, and by the end of the thirty-year experiment, the world had saved, by a most conservative estimate, eight times as much oil as it now uses in a year.*

The story is true. Yamani has retired, but his confederates have begun a second and more sophisticated experiment. Fortunately, the lessons of that first experiment, if properly applied, provide a path to escape the enormous costs that now await us if we fail to choose a secure and sustainable energy future.

Sheikh Ahmed Zaki Yamani, famous for his enigmatic sayings, was Saudi Arabia's oil minister when OPEC, the Organization of Petroleum Exporting Countries, conducted its "great energy experiment."¹ The first "proclamation" led to the October 1973 oil shock, which tripled the price of oil. The second "proclamation" led to the 1979 oil shock, which doubled the price again.

While the worldwide response was enormous, the U.S. response was even more dramatic. U.S. addiction to oil decreased over a thirteen-year period, as did the country's carbon dioxide (CO₂) emissions. The United States conserved not just oil, but all kinds of energy. In the thirty years from 1973 through 2003, the United States saved energy equivalent to twenty years of U.S. oil consumption at the rate we now consume it.*

Carbonomics, the economics of fossil fuels, not only explains that astounding success, but also teaches us how to repeat it—but this time without paying OPEC another trillion dollars in tribute.

Yamani's experiment did more to reduce CO₂ emissions than the Kyoto Protocol has; there is simply no comparison. The experiment taught the world how to gain independence by saving energy, how to stabilize the climate by saving carbon, and how to increase security by reducing the world price of oil. By 1986, these lessons were fairly well understood, but OPEC had been crippled, and climate change was not yet a concern, so there was little motivation to act on the new understanding. As a result, nothing was done, and now the lessons are forgotten.

Climate Stability and Energy Security

The key to an effective energy policy is to understand that climate stability and energy security are twin challenges—though not identical. Both are global issues, and both suffer from the problem of free riders, which I describe later in this chapter. Unfortunately, those interested in one challenge often show little interest in—and sometimes antagonism toward—the other. I believe the two challenges—climate stability and energy security—are not only compatible, but that solving either requires solving both.

Twin Global Challenges. It's clear that global warming requires a global solution, but Yamani's experiment taught us that energy security also requires a global solution. In 1974, the United States recognized the need for a global response to OPEC, and Secretary of State Henry Kissinger organized what the *New York Times* called "a counter-cartel of the major oil-consuming countries." That organization, the International Energy Agency (IEA), still exists; twenty-seven countries including the United States, Japan, and most of Europe are members. But it has forgotten its purpose.

1. You can meet Yamani at www.azylawfirm.com/founder.asp.

Later, in 1979, after OPEC doubled the oil prices that it had already tripled, the seven industrialized nations held a “world economic summit.” They issued a communiqué, which the *New York Times* again said “amounts to a consumers’ cartel.” This effort also failed; nevertheless, the global response to high oil prices eventually did crush OPEC—but not permanently.

Now, the lessons that Yamani’s experiment taught have been forgotten, and people think the United States can achieve energy security on its own. But even if Americans cut oil imports to zero—say, by driving hybrid cars that burn ethanol—we would not achieve independence. The world oil market would still control the price of corn ethanol at American gas pumps, just as it does now. I explain this in Part 2, along with other lessons, including how to crush OPEC again.

So energy security is a global challenge just like climate stability. OPEC’s market share has grown again, and OPEC is short on production capacity, as it was before 1973. China and India are rapidly expanding their demand for oil. Greenhouse gas emissions are increasing faster than ever, and China has passed the United States to become the largest emitter of CO₂. No one country, not even the United States, can meet either challenge on its own.

The Problem of Free Riders. By curbing our use of oil, we can force down its price on the world market. While this is worth doing, the job is tough if we go it alone. Any price decrease we cause benefits all consumers worldwide, even if they do nothing to help out. Economists call those who benefit without helping out “free riders.” These free riders take advantage of the lower price to use more oil, counteracting our efforts.

Climate change presents a parallel problem. No country, acting alone, can do much to stop climate change. Any country that tries will find that most of the benefit accrues to other countries. So the more we do to reduce global warming on our own, the less others will worry about global warming, and the less they are likely to help.

Solving the problem of free riders requires an international approach, such as the Kyoto Protocol. But energy security also requires a global approach—a point that Kissinger’s team recognized in 1974, but which is now forgotten. Fortunately, because the challenges are twins, the same international organization can address both. But we need a better design than the Kyoto Protocol or the IEA offers. Part 4 provides a blueprint of that better design along with the rationale for unifying these two problems and their solution.

Conflicting versus Joint Solutions. Some proposed solutions that help with one challenge conflict with the other. Joint solutions, however, help us meet both challenges. One proposal for increasing energy independence conflicts most intensely with solving the problem of climate change: turning coal into gasoline. Unfortunately, this proposal is a favorite of Big Oil and Big Coal.

Coal companies like the idea of making gasoline from coal for obvious reasons—it takes a lot of coal. But oil companies are just as enthusiastic because they would build and operate the new coal refineries. The problem is, these refineries use far more fossil energy than oil refineries do, which is terrible from a global warming perspective.

Fortunately, conservation—the main activity that crushed OPEC in the early 1980s—is an ideal solution, though not the only solution, for both challenges. In fact, conservation is better for energy security than producing gasoline from coal. Of course, the oil companies hate conservation, which is shorthand for not using their product. Gasoline made from coal keeps us addicted and keeps us paying prices set by the world oil market. Conservation helps us break the habit.

Cooperation

Breaking the world's oil and coal habits is no easy task, and those who think it can be done by either resolute proclamation or a change of consciousness will once again be disillusioned. Only a program with the broadest support and based on self-interest can succeed. This explains why joint solutions are crucially important. Only joint solutions can provide the basis for broad-based national and international cooperation.

National Cooperation. The chance of achieving a sound energy policy is now better than ever, because we have a double motivation. OPEC is again breathing down our necks, and climate change has become the number-one national concern on the environmental front. But Americans divide into two camps over which challenge deserves priority. One camp focuses on energy security and the other on climate stability. If one camp adopts a policy that conflicts with the goal of the other camp, the double motivation is lost; in fact, the two camps could cancel each other out.

On the other hand, adopting a cooperative strategy could produce a complementary alliance between the two groups. The environmental camp can provide the staying power and the link to popular international concern about energy issues. The energy security camp can provide the motivation that comes from the short-term tangible gain that is possible in the oil market. It took only six years to bring about a huge reduction in world oil prices after OPEC doubled oil prices in 1979 and 1980. It will take much longer to have an impact on climate change.

International Cooperation. China and the United States together emit half of all greenhouse gases, yet neither has made a commitment to take specific action. If these two countries fail to cooperate, the world has no real hope of success against global warming. And nothing substantial will be done about OPEC's increasing market power and the tightening oil market.

Although both countries claim to be concerned about global warming, both are also afraid of reducing economic growth. As things now stand, neither is likely to make or keep a strong commitment.

One thing, however, could motivate China and the United States to come together. Both are addicted to oil, and their addiction is growing. China is predicted to increase its oil imports from 20 percent of the country's oil use now to about 80 percent in 2030. China is already building plants to refine coal into gasoline. Any reduction in the world price of oil would provide a huge economic benefit to both countries. Surprisingly, only one thing is likely to lower global oil prices—an effective international climate agreement.

An international climate agreement is also, like it or not, an oil consumers' cartel. A consumers' cartel is simply an international agreement to use less oil, and any effective climate agreement will make sure we do just that. Instead of hiding this fact to avoid upsetting OPEC, we should advertise it to enhance the appeal of an international agreement.

That a climate agreement is automatically an oil consumers' cartel may come as a surprise, but it shouldn't. Among economists it's an open secret. In fact, in 1998, when the U.S. Department of Energy (DOE) analyzed possible U.S. compliance with the Kyoto Protocol, it found that even such a weak agreement would have served as an oil consumers' cartel—though it did not use the word *cartel*. The DOE found that the Kyoto Protocol would have lowered the world price of oil by 16 percent had the United States fully complied. With oil at \$100 a barrel, that would have saved the United States \$70 billion a year on imported oil. American consumers—who must pay domestic oil companies as well as OPEC—would have saved over \$100 billion a year.

Unfortunately, the Kyoto Protocol is fatally flawed. It does not require developing countries to make any firm commitments to reducing emissions. This is one reason the U.S. Senate voted against such a treaty 95-to-0. Our problem with the Kyoto oil consumers' cartel—if I may call it that—is much the same problem that Yamani had with the OPEC cartel. Smaller OPEC producers went for a free ride at Saudi Arabia's expense. They did not restrain their production, leaving that job to Yamani.

Developing countries take a free ride on the Kyoto Protocol by not restraining their consumption. This damages both climate stability and energy security.

Although our organizational problems are similar to Yamani's, a consumers' cartel has two organizational advantages over OPEC. First, the consumers' cartel can piggyback on the goodwill and momentum of international climate initiatives. Second, according to experts in the field, a climate agreement can use international trade law as an enforcement mechanism.

The oil price benefits of an international consumers' cartel do not detract from its climate stability benefits. The two are entirely complementary. In

fact, to garner support, the proponents of any climate agreement need to take advantage of people's short-term self-interest, playing up the five years it takes to reduce oil prices, as opposed to the fifty or so years it could take to solve the problem of global warming.

Part 4 of this book discusses how to put together a durable international organization that challenges OPEC and stabilizes the climate. The first step is to replace the emissions-cap policy that has stymied the Kyoto Protocol. The second step is to use China's interest and the U.S. interest in lower oil prices to lever these two into an international agreement with binding commitments. The third step is to curb the problem of free rides with an enforcement mechanism better than anything Yamani ever dreamed of.

None of these ideas are new. For example, the move away from international carbon caps has support from a wide range of experts, from George W. Bush's chief economist N. Gregory Mankiw, to liberal economist Joseph E. Stiglitz. But the ideas are important because the people currently debating national energy policy are ignoring these important international considerations and may well end up obstructing rather than advancing international cooperation.

A Fossil Philosophy

So far, I've mentioned the twin challenges, joint solutions, learning from OPEC, and free riders. Another theme of this book is prices and markets. Most people consider pricing to be weak medicine compared with government mandates such as a strict cap on carbon emissions. But markets—driven by prices, not mandates—have built the modern world, with its engines that consume 40,000 gallons of oil per second (this is not a typo). If prices are strong enough to drive the world's economies, they are strong enough to meet our present challenges.

Another theme of this book is conservation, which many also consider weak medicine. Conservation, however, moved quickly and vigorously against OPEC. In fact, it moved ten times more forcefully than all the increases in energy supply—including non-OPEC oil supplies, nuclear energy, and synfuels.

Just a few ideas underlie all of the themes of this book. These ideas make up a sort of fossil philosophy. As with all philosophies, we cannot follow this one to the letter. But it does provide guidance in many situations. The underlying ideas are these:

- ▶ Treat the problem, not the symptom.
- ▶ Support cooperation.
- ▶ Focus on real benefits, not imaginary disasters.

These are the simple tenets that guide the energy policies of this book. But simple as they are, they are often forgotten.

Treating the problem instead of the symptom is the most important. We rely too much on coal and oil and not enough on wind and conservation. Those are the symptoms. But why do we do that? What is the underlying problem?

The price of oil does not include the military cost of protecting oil supplies or the cost of oil's effect on the climate. So the price of oil has long been too low. That is the root problem. Not having enough wind turbines is only one of a million other symptoms, large and small. Using the government to try and fix a million symptoms is, according to the first principle of fossil philosophy, a bad idea.

Of course, the first principle wouldn't be worth much if a million underlying problems led to the million symptoms. But, in fact, only four major problems account for almost all the symptoms. Called market failures, the four underlying problems are these:

- ▶ The low price of carbon (fossil fuel).
- ▶ OPEC's market power.
- ▶ The nearsightedness of consumers.
- ▶ Insufficient reward for advanced research.

Not that it will be easy, but fixing these four problems is all we need to do to meet the twin energy challenges.

Pricing Carbon. We can raise the price of carbon with either a cap-and-trade policy, a tax on carbon, or an untax on carbon. A central purpose of this book is to explain the old and venerable concept of an untax. The term is mine, and I hesitate to introduce it. But the economic description—"a Pigovian tax with a full, equal-per-person refund"—seems a bit awkward. In any case, the untax is a combination of a carbon tax and a per-person refund that the government mails out, say, once a year. An example is Alaska's Permanent Fund, which issues annual refunds of revenues from the Trans Alaska oil pipeline to Alaska's residents.

While refunding a tax may seem circular, the untax provides more bang for our bucks than any other energy policy. I explain this economic mystery in Part 3, but for now I will simply note that, in July 2008, Al Gore called an almost identical proposal "the single most important policy change we can make." But this is no liberal nostrum. Former Bush economist Mankiw supports a proposal identical to Gore's, and the right-wing American Enterprise Institute is on board. James E. Hansen, the most outspoken climate scientist, also proposes an untax by a different name.

A Consumers' Cartel. The solution to the second problem—OPEC's market power—is, as I've already mentioned, an international consumers' cartel. Although, in 2007 and 2008, Saudi Arabia was withholding about 20 percent of its oil production capacity and has underinvested in new capacity for twenty years, OPEC may not be the main supply problem. The main problem might

be natural limits—that is, we might be near the peak of cheap conventional oil production. Fortunately, a consumers’ cartel works even better against a natural shortage than against an antagonistic producers’ cartel.

A Race to Fuel Economy. When making purchases that can save energy over many years—for example, the purchase of a house or car—consumers tend to be systematically nearsighted. That is, they undervalue future energy savings. So consumers don’t push automakers as much as they could to improve fuel efficiency. We can address this failure of the energy market by engaging car companies in a race to produce fuel-efficient cars. This eliminates the need for government standards and produces a more powerful incentive to improve.

An Energy Moonshot. Lately, people have been talking about the possibility of an energy moonshot—a major effort something like Project Apollo, which put a man on the moon. This could correct the fourth market failure, a shortage of funding for advanced research. However, we need to be careful. This market failure justifies government funding of basic research but not vast subsidies for existing technologies. Clean coal technology is an excellent example of an energy moonshot the government should fund.



Most of Part 1 concerns energy myths. In Chapters 2 through 4, I demonstrate the importance of rejecting imaginary or speculative disasters. To balance things out, I debunk the myth of energy miracles in Chapter 5, while in Chapter 6 I question the most pessimistic view of policy. And for those anxious for answers, the last chapter of Part 1 summarizes the national policies that I propose in more detail in Part 3.

However, before I go into detail about my proposals, I lay a foundation in Part 2 for understanding both national and international policies. In Parts 3 and 4, I focus on solutions to the four basic failures of the energy market. Parts 3 and 4 also focus on cooperation, at both the national and international levels—even down to the level of car companies.

I have designed this book to help readers who wish to skip ahead. But for a solid understanding of why the policies I propose are necessary and cost-effective, I suggest you first clear your mind of the myths about fossil fuel right here in Part 1, then read about the realities of energy markets in Part 2.