

Chapter 1

Introduction

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 the great energy experiment. Without warning, he sent a proclamation to every corner of the earth declaring the need to conserve. At first, little energy was conserved. Gradually the pace quickened—but then slackened.

After six years, and only modest progress, he issued a second and stronger proclamation. The world's reaction was dramatic. For the next six years, while the earth's population grew more numerous and richer, its use of oil declined—something never seen before. After 12 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 18 years. Surprisingly, much of the effect lingered, 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 the 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." 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 world-wide response was enormous, the U.S. response was, if anything, more dramatic. U.S. addiction to oil actually decreased over a thirteen-year period, as did its carbon dioxide (CO₂) emissions. The United States conserved not just oil, but all kinds of energy. From 1973 through 2003, the United States saved energy equivalent to twenty years of U.S. oil consumption at the 2006 rate. Carbonomics, which can be thought of simply as the economics of fossil fuels, explains not only such an astounding success, but also how to repeat it without paying OPEC another trillion dollars in tribute.

Yamani's experiment did far more to reduce CO₂ emissions than has the Kyoto Climate Protocol—there is simply no comparison. The experiment taught the world how to save energy for independence, save carbon for climate stability, and reduce the world price of oil for security. 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. Today the lessons have largely been forgotten, and seem surprising when rediscovered.

Climate Stability and Energy Security: Twin Challenges with Joint Solutions

The key to an effective energy policy is to understand that climate stability and energy security are twin challenges—though not identical. As discussed below, both challenges are global and suffer from the "free-rider" problem. Unfortunately, those interested in one challenge generally have little interest in—and sometimes have antagonism towards—the other. This book takes the position that the two challenges are not only compatible, but that solving either requires solving both.

Twin global challenges. 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 and includes 27 countries. But it has forgotten its original purpose.

In 1979, after OPEC doubled oil prices again, 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 fell apart; nevertheless, the global response to high oil prices eventually did crush OPEC—but not for good.

Now the lesson that Yamani’s experiment taught has 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 drink ethanol—we would not achieve independence. The price paid at the pump for American corn ethanol would still be controlled by the global oil market—just as that market now controls the price of ethanol. Of course we will not cut oil imports to zero for decades, and independence will remain a doubly global problem. Imported oil will be insecure and domestic fuels will be subject to global price shocks.

So America faces twin global challenges, climate stability and energy security. Both are dangerous. OPEC’s market share is rising again as it did before 1973, and OPEC is again short on production capacity. China and India are rapidly expanding their demand for oil. Greenhouse gases are increasing faster than ever and China has passed the United States and is the largest emitter of CO₂. No one country, not even America, can meet either challenge on its own.

Free rider problems. By curbing our use of oil we could force down its price on the world market. This makes some sense, but the job is much harder if we go it alone. First, any price decrease we cause will benefit all consumers worldwide. Second, those other consumers will take advantage of the lower price to use more oil—partly counteracting our effort to reduce oil use and the price of oil.

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. 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 do.

Economists call these problems free-rider problems, because when someone helps out, others take advantage and go for a free ride. Both challenges are global in nature, both require global solutions, and both are plagued by the free-rider problem. The challenges of climate stability and energy security are not identical twins, but they have more in common.

Conflicting vs. Joint Solutions. Although the twin challenges are closely related, some proposed solutions that help with one challenge

conflict with the other. Joint solutions, however, help with both challenges. One proposed solution for energy independence conflicts with climate change most intensely. Unfortunately it is the 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 coal refineries. The problem is, these refineries use far more fossil energy than oil refineries, which is terrible from a global-warming perspective.

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

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 ecology front. But there are two camps in America, with relatively little overlap. One sees the problem of energy security and the other sees the problem of climate stability. If one camp adopts a policy that conflicts with the goal of the other camp, then 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 ecology camp could provide the staying power and the link to popular international concern about energy issues that the energy security camp is lacking. The energy security camp could provide the motivation that comes from the short-term tangible gain that is possible in the oil market. It took only about six years to bring about a huge reduction in world oil prices after OPEC doubled oil prices in 1979-80. It will take much longer to have any 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. Without the cooperation of these two countries, there is 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, each is afraid of reducing economic growth. As things now stand, both are unlikely to make or keep a strong commitment.

There is, however, one motivation that might bring China and the United States together. Both are addicted to oil, and their addiction is growing. China is predicted to increase its imports from 20 percent now to about 80 percent of its oil use in 2030. It is already building plants to refine coal into gasoline. Any reduction in the price of oil would provide a huge economic benefit for both countries, and there is only one likely way to lower oil prices—an effective international climate agreement.

The surprising part of a climate agreement is that explicitly including oil in the agreement makes the agreement serve double duty. The agreement automatically becomes a consumers' cartel just as the IEA was designed to be, and just as the world tried again to organize in 1979. In fact, when the U.S. Department of Energy (DOE) analyzed possible U.S. compliance with the Kyoto treaty, it found that even such a weak agreement would have served as an oil-consumers' cartel. The Kyoto treaty would have lowered the world price of oil by 16 percent had the U.S. fully complied.

Unfortunately the Kyoto Protocol is fatally flawed. Kyoto does not require developing countries to make any firm commitments to reducing emissions. This is one reason the U.S. Senate voted against it ninety five to zero. Our problem with the Kyoto oil-consumers' cartel—if I may call it that while discussing its impact on oil prices—is much the same problem Yamani had with the OPEC cartel. Other OPEC members went for a free ride at Saudi Arabia's expense. They did not restrain their production and left the job to Yamani.

The developing countries, quite sensibly, would like to free ride with respect to global warming—and currently they are. But in doing so, they also free ride on the aspect of the Kyoto treaty that makes it a consumers' cartel—its incentive to reduce the use of oil. Such free riders spoil the cartel effect. When Yamani had this problem, he first showed good faith, but eventually disciplined the free riders. As a result, OPEC is now much stronger.

OPEC's organizational problems have much in common with the problems of organizing an international climate agreement, also known as a consumers' cartel. But 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.

These benefits to the consumer aspect of the climate agreement should not be seen as detracting from the climate aspect. The two are entirely

complementary, and in fact the climate agreement is sorely in need of the relatively short-term self interest—five years instead of fifty—that comes from the consumer side.

Part 4 of this book discusses an approach to pulling together a durable climate/energy-consumers' cartel to challenge OPEC and stabilize the climate. The first step is to overcome the emission-cap policy which has stymied the Kyoto agreement. The second step is to use the interest of China and the United States in lower oil prices to lever them into an international agreement with binding commitments. The third step is to curb the free rider problem with an enforcement mechanism better than anything Yamani ever dreamed of.

There is no guarantee this approach will work. The main challenge, I believe, is for America to start thinking practically and internationally. Current Congressional efforts at climate-change legislation do not even consider the problems of international organization, but instead rely on blind faith that if America chooses a path, the world will follow. Surely such naiveté must delight Yamani and his confederates—not to mention Exxon and the rest who profit so grandly from OPEC's triumphs and our defeats.

A Fossil Philosophy

A number of themes run through the book. Several of these—the twin challenges, joint solutions, learning from OPEC, and free riders—have just been introduced. Another theme suggests relying on prices and markets. Most people consider pricing to be weak medicine compared with government mandates; for example, a strict cap on carbon emissions. But markets driven by prices, not by mandates, have built the modern world and its engine—which consumes 40,000 gallons of oil per second.

Another theme is conservation, again often considered to be weak medicine. Conservation, however, moved more quickly and vigorously against OPEC than all other energy supply increases—including non-OPEC oil suppliers, nuclear, and synfuels—combined. But just a few ideas underlie all of these themes. These underlying ideas might be thought of as a sort of fossil philosophy.

Like all philosophies, this one cannot be followed to the letter, but it does provide guidance in many situations. Carbonomics is guided by this philosophy:

- Treat the problem not the symptom.
- Support cooperation.

- Focus on real benefits, not imaginary disasters.

It is remarkable how consistently these simple principles are disregarded.

There are reasons that we rely too much on coal and oil and not enough on wind and conservation. As everyone knows, the price of oil does not include the military cost of protecting oil supplies or the cost of oil's effect on the climate. The price of oil has been too low. That is the root problem. Not having enough wind turbines is a symptom of this root problem, and there are a million other symptoms as well. Using the government to try to fix a million symptoms is, according to the first principle of my fossil philosophy, a bad idea.

Of course the first principle wouldn't be worth much if there were a million different problems underlying the million symptoms, but in fact five major problems account for almost all of the symptoms. I will focus on fixing only the price problem just mentioned and the problem of consumers' nearsightedness with regard to future energy cost. That will be enough to put us far ahead of where we are likely to end up as things are going.

I have already discussed how to support cooperation between two national camps, one focused on climate change and the other focused on energy security. That is essential. So is international cooperation. But the second principle applies more broadly. The poor spend more on fossil fuel relative to their income than the rich. The second principle requires that energy policy not harm the poor, because this would be divisive. Of course there are moral reasons as well.

Perhaps surprisingly, I believe the second principle—support cooperation—should also be invoked in dealings with the Big Three auto companies. Their cooperation is possible, because a good energy policy will mean spending more on efficient cars so we can spend less on expensive fuel. There is no reason a policy that has us spend more on cars should hurt the car companies in general. The only problem is how to keep the policy from tilting towards Toyota and similar companies. The second principle suggests this should be a goal. Once it's made a goal it turns out not to be so difficult. Failing to make this a priority has been a costly mistake, both for U.S. car companies and for conservation policy.

The 'support cooperation' principle must be applied with caution to Big Oil. OPEC and the oil companies always profit when the oil price goes up and are hurt when it goes down. Our objects include reducing the use of oil and its price, and we should not be so naïve as to think oil companies will truly cooperate in reducing their own profits. When they appear to cooperate, it is wise to look below the surface. Compromise may be necessary, but in this case, true cooperation is likely to be impossible.

The third principle is to focus on real benefits, not imaginary disasters. This principle is the subject of the next five chapters on energy myths. But before moving on to mythology, I would like to summarize the benefits of following this fossil philosophy. These benefits are captured by the national and international policies advanced in this book.

The Carbonomics polices:

- Do not risk betting on the wrong horse yet again.
- Harness the creativity of the entire economy—that’s all of us.
- Avoid harm to the poor and the Big Three automakers.
- Replace contentious and unenforceable international emission caps.
- Capture oil profits to motivate cooperation and help pay the cost of climate stabilization.
- Harmonize the goals of climate stability and energy security.

The proposals themselves are first described in the last chapter of Part 1, after the chapters discussing the major energy myths. Part 2 shifts from myths to realities and covers such topics as Yamani’s great experiment, how consumers can affect the world oil market and how the world oil market affects national polices. Part 2 ends with practical considerations for the national policies, which are then taken up in detail in Part 3. The national policies include an “Untax,” which keeps energy-incentive revenues in the hands of consumers—not the government. Part 3 also describes a fuel efficiency race that’s fair to the Big Three. Part 4 first presents a way around the international dispute over emission caps, and then explains a combined consumer-climate approach to a strong and enforceable international agreement.

Those who wish to head straight for the policies can begin at the end of part 1, with chapter 7. But for a better understanding of the politics and mythology that underlie much of the energy debate, I hope you’ll continue on to chapter 2, which asks if doing anything effective really could “wreck the economy.”