Illustration by Steve Brodner

The Long Emergency

What's going to happen as we start running out of cheap gas to guzzle?

By JAMES HOWARD KUNSTLER

A few weeks ago, the price of oil ratcheted above fifty-five dollars a barrel, which is about twenty dollars a barrel more than a year ago. The next day, the oil story was buried on page six of the *New York Times* business section. Apparently, the price of oil is not considered significant news, even when it goes up five bucks a barrel in the span of ten days. That same day, the stock market shot up more than a hundred points because, CNN said, government data showed no signs of inflation. Note to clueless nation: Call planet Earth.

Carl Jung, one of the fathers of psychology, famously remarked that "people cannot stand too much reality." What you're about to read may challenge your assumptions about the kind of world we live in, and especially the kind of world into which events are propelling us. We are in for a rough ride through uncharted territory.

It has been very hard for Americans -- lost in dark raptures of nonstop infotainment, recreational shopping and compulsive motoring -- to make sense of the gathering forces that will fundamentally alter the terms of everyday life in our technological society. Even after the terrorist attacks of 9/11, America is still sleepwalking into the future. I call this coming time the Long Emergency.

Most immediately we face the end of the cheap-fossil-fuel era. It is no exaggeration to state that reliable supplies of cheap oil and natural gas underlie everything we identify as the necessities of modern life -- not to mention all of its comforts and luxuries: central heating, air conditioning, cars, airplanes, electric lights, inexpensive clothing, recorded music, movies, hip-replacement surgery, national defense -- you name it.

The few Americans who are even aware that there is a gathering global-energy predicament usually misunderstand the core of the argument. That argument states that we don't have to run out of oil to start having severe problems with industrial civilization and its dependent systems. We only have to slip over the all-time production peak and begin a slide down the arc of steady depletion.

The term "global oil-production peak" means that a turning point will come when the world produces the most oil it will ever produce in a given year and, after that, yearly production will inexorably decline. It is usually represented graphically in a bell curve. The peak is the top of the curve, the halfway point of the world's all-time total endowment, meaning half the world's oil will be left. That seems like a lot of oil, and it is, but there's a big catch: It's the half that is much more difficult to extract, far more costly to get, of much poorer quality and located mostly in places where the people hate us. A substantial amount of it will never be extracted.

The United States passed its own oil peak -- about 11 million barrels a day -- in 1970, and since then production has dropped steadily. In 2004 it ran just above 5 million barrels a day (we get a tad more from natural-gas condensates). Yet we consume roughly 20 million barrels a day now. That means we have to import about two-thirds of our oil, and the ratio will continue to worsen.

The U.S. peak in 1970 brought on a portentous change in geoeconomic power. Within a few years, foreign producers, chiefly OPEC, were setting the price of oil, and this in turn led to the oil crises of the 1970s. In response, frantic development of non-OPEC oil, especially the North Sea fields of England and Norway, essentially saved the West's ass for about two decades. Since 1999, these fields have entered depletion. Meanwhile, worldwide discovery of new oil has steadily declined to insignificant levels in 2003 and 2004.

Some "cornucopians" claim that the Earth has something like a creamy nougat center of "abiotic" oil that will naturally replenish the great oil fields of the world. The facts speak differently. There has been no replacement whatsoever of oil already extracted from the fields of America or any other place.

Now we are faced with the global oil-production peak. The best estimates of when this will actually happen have been somewhere between now and 2010. In 2004, however, after demand from burgeoning China and India shot up, and revelations that Shell Oil wildly misstated its reserves, and Saudi Arabia proved incapable of goosing up its production despite promises to do so, the most knowledgeable experts revised their predictions and now concur that 2005 is apt to be the year of all-time global peak production.

It will change everything about how we live.

To aggravate matters, American natural-gas production is also declining, at five percent a year, despite frenetic new drilling, and with the potential of much steeper declines ahead. Because of the oil crises of the 1970s, the nuclear-plant disasters at Three Mile Island and Chernobyl and the acid-rain problem, the U.S. chose to make gas its first choice for electric-power generation. The result was that just about every power plant built after 1980 has to run on gas. Half the homes in America are heated with gas. To further complicate matters, gas isn't easy to import. Here in North America, it is distributed through a vast pipeline network. Gas imported from overseas would have to be compressed at minus-260 degrees Fahrenheit in pressurized tanker ships and unloaded (re-gasified) at special terminals, of which few exist in America. Moreover, the first attempts to site new terminals have met furious opposition because they are such ripe targets for terrorism.

Some other things about the global energy predicament are poorly understood by the public and even our leaders. This is going to be a permanent energy crisis, and these energy problems will synergize with the disruptions of climate change, epidemic disease and population overshoot to produce higher orders of trouble.

We will have to accommodate ourselves to fundamentally changed conditions.

No combination of alternative fuels will allow us to run American life the way we have been used to running it, or even a substantial fraction of it. The wonders of steady technological progress achieved through the reign of cheap oil have lulled us into a kind of Jiminy Cricket syndrome, leading many Americans to believe that anything we wish for hard enough will come true. These days, even people who ought to know better are wishing ardently for a seamless transition from fossil fuels to their putative replacements.

The widely touted "hydrogen economy" is a particularly cruel hoax. We are not going to replace the U.S. automobile and truck fleet with vehicles run on fuel cells. For one thing, the current generation of fuel cells is largely designed to run on hydrogen obtained from natural gas. The other way to get hydrogen in the quantities wished for would be electrolysis of water using power from hundreds of nuclear plants. Apart from the dim prospect of our building that many nuclear plants soon enough, there are also numerous severe problems with hydrogen's nature as an element that present forbidding obstacles to its use as a replacement for oil and gas, especially in storage and transport.

Wishful notions about rescuing our way of life with "renewables" are also unrealistic. Solar-electric systems and wind turbines face not only the enormous problem of scale but the fact that the components require substantial amounts of energy to manufacture and the probability that they can't be manufactured at all without the underlying support platform of a fossil-fuel economy. We will surely use solar and wind technology to generate some electricity for a period ahead but probably at a very local and small scale.

Virtually all "biomass" schemes for using plants to create liquid fuels cannot be scaled up to even a fraction of the level at which things are currently run. What's more, these schemes are predicated on using oil and gas "inputs" (fertilizers, weed-killers) to grow the biomass crops that would be converted into ethanol or bio-diesel fuels. This is a net energy loser -- you might as well just burn the inputs and not bother with the biomass products. Proposals to distill trash and waste into oil by means of thermal depolymerization depend on the huge waste stream produced by a cheap oil and gas economy in the first place.

Coal is far less versatile than oil and gas, extant in less abundant supplies than many people assume and fraught with huge ecological drawbacks -- as a contributor to greenhouse "global warming" gases and many health and toxicity issues ranging from widespread mercury poisoning to acid rain. You can make synthetic oil from coal, but the only time this was tried on a large scale was by the Nazis under wartime conditions, using impressive amounts of slave labor.

If we wish to keep the lights on in America after 2020, we may indeed have to resort to nuclear power, with all its practical problems and eco-conundrums. Under optimal conditions, it could take ten years to get a new generation of nuclear power plants into operation, and the price may be beyond our means. Uranium is also a resource in finite supply. We are no closer to the more difficult project of atomic fusion, by the way, than we were in the 1970s.

The upshot of all this is that we are entering a historical period of potentially great instability, turbulence and hardship. Obviously, geopolitical maneuvering around the world's richest energy regions has already led to war and promises more international military conflict. Since the Middle East contains two-thirds of the world's remaining oil supplies, the U.S. has attempted desperately to stabilize the region by, in effect, opening a big police station in Iraq. The intent was not just to secure Iraq's oil but to modify and influence the behavior of neighboring states around the Persian Gulf, especially Iran and Saudi Arabia. The results have been far from entirely positive, and our future prospects in that part of the world are not something we can feel altogether confident about.

And then there is the issue of China, which, in 2004, became the world's second-greatest consumer of oil, surpassing Japan. China's surging industrial growth has made it increasingly dependent on the imports we are counting on. If China wanted to, it could easily walk into some of these places -- the Middle East, former Soviet republics in central Asia -- and extend its hegemony by force. Is America prepared to contest for this oil in an Asian land war with the Chinese army? I doubt it. Nor can the U.S. military occupy regions of the Eastern Hemisphere indefinitely, or hope to

secure either the terrain or the oil infrastructure of one distant, unfriendly country after another. A likely scenario is that the U.S. could exhaust and bankrupt itself trying to do this, and be forced to withdraw back into our own hemisphere, having lost access to most of the world's remaining oil in the process.

We know that our national leaders are hardly uninformed about this predicament. President George W. Bush has been briefed on the dangers of the oil-peak situation as long ago as before the 2000 election and repeatedly since then. In March, the Department of Energy released a report that officially acknowledges for the first time that peak oil is for real and states plainly that "the world has never faced a problem like this. Without massive mitigation more than a decade before the fact, the problem will be pervasive and will not be temporary."

Most of all, the Long Emergency will require us to make other arrangements for the way we live in the United States. America is in a special predicament due to a set of unfortunate choices we made as a society in the twentieth century. Perhaps the worst was to let our towns and cities rot away and to replace them with suburbia, which had the additional side effect of trashing a lot of the best farmland in America. Suburbia will come to be regarded as the greatest misallocation of resources in the history of the world. It has a tragic destiny. The psychology of previous investment suggests that we will defend our drive-in utopia long after it has become a terrible liability.

Before long, the suburbs will fail us in practical terms. We made the ongoing development of housing subdivisions, highway strips, fried-food shacks and shopping malls the basis of our economy, and when we have to stop making more of those things, the bottom will fall out.

The circumstances of the Long Emergency will require us to downscale and re-scale virtually everything we do and how we do it, from the kind of communities we physically inhabit to the way we grow our food to the way we work and trade the products of our work. Our lives will become profoundly and intensely local. Daily life will be far less about mobility and much more about staying where you are. Anything organized on the large scale, whether it is government or a corporate business enterprise such as Wal-Mart, will wither as the cheap energy props that support bigness fall away. The turbulence of the Long Emergency will produce a lot of economic losers, and many of these will be members of an angry and aggrieved former middle class.

Food production is going to be an enormous problem in the Long Emergency. As industrial agriculture fails due to a scarcity of oil- and gas-based inputs, we will certainly have to grow more of our food closer to where we live, and do it on a smaller scale. The American economy of the mid-twenty-first century may actually center on agriculture, not information, not high tech, not "services" like real estate sales or hawking cheeseburgers to tourists. Farming. This is no doubt a startling, radical idea, and it raises extremely difficult questions about the reallocation of land and the nature of work. The relentless subdividing of land in the late twentieth century has destroyed the contiguity and integrity of the rural landscape in most places. The process of readjustment is apt to be disorderly and improvisational. Food production will necessarily be much more labor-intensive than it has been for decades. We can anticipate the re-formation of a native-born American farm-laboring class. It will be composed largely of the aforementioned economic losers who had to relinquish their grip on the American dream. These masses of disentitled people may enter into quasi-feudal social relations with those who own land in exchange for food and physical security. But their sense of grievance will remain fresh, and if mistreated they may simply seize that land.

The way that commerce is currently organized in America will not survive far into the Long Emergency. Wal-Mart's "warehouse on wheels" won't be such a bargain in a non-cheap-oil economy. The national chain stores' 12,000-mile manufacturing supply lines could easily be interrupted by military contests over oil and by internal conflict in the nations that have been supplying us with ultra-cheap manufactured goods, because they, too, will be struggling with similar issues of energy famine and all the disorders that go with it.

As these things occur, America will have to make other arrangements for the manufacture, distribution and sale of ordinary goods. They will probably be made on a "cottage industry" basis rather than the factory system we once had, since the scale of available energy will be much lower -- and we are not going to replay the twentieth century. Tens of thousands of the common products we enjoy today, from paints to pharmaceuticals, are made out of oil. They will become increasingly scarce or unavailable. The selling of things will have to be reorganized at the local scale. It will

have to be based on moving merchandise shorter distances. It is almost certain to result in higher costs for the things we buy and far fewer choices.

The automobile will be a diminished presence in our lives, to say the least. With gasoline in short supply, not to mention tax revenue, our roads will surely suffer. The interstate highway system is more delicate than the public realizes. If the "level of service" (as traffic engineers call it) is not maintained to the highest degree, problems multiply and escalate quickly. The system does not tolerate partial failure. The interstates are either in excellent condition, or they quickly fall apart.

America today has a railroad system that the Bulgarians would be ashamed of. Neither of the two major presidential candidates in 2004 mentioned railroads, but if we don't refurbish our rail system, then there may be no long-range travel or transport of goods at all a few decades from now. The commercial aviation industry, already on its knees financially, is likely to vanish. The sheer cost of maintaining gigantic airports may not justify the operation of a much-reduced air-travel fleet. Railroads are far more energy efficient than cars, trucks or airplanes, and they can be run on anything from wood to electricity. The rail-bed infrastructure is also far more economical to maintain than our highway network.

The successful regions in the twenty-first century will be the ones surrounded by viable farming hinterlands that can reconstitute locally sustainable economies on an armature of civic cohesion. Small towns and smaller cities have better prospects than the big cities, which will probably have to contract substantially. The process will be painful and tumultuous. In many American cities, such as Cleveland, Detroit and St. Louis, that process is already well advanced. Others have further to fall. New York and Chicago face extraordinary difficulties, being oversupplied with gigantic buildings out of scale with the reality of declining energy supplies. Their former agricultural hinterlands have long been paved over. They will be encysted in a surrounding fabric of necrotic suburbia that will only amplify and reinforce the cities' problems. Still, our cities occupy important sites. Some kind of urban entities will exist where they are in the future, but probably not the colossi of twentieth-century industrialism.

Some regions of the country will do better than others in the Long Emergency. The Southwest will suffer in proportion to the degree that it prospered during the cheap-oil blowout of the late twentieth century. I predict that Sunbelt states like Arizona and Nevada will become significantly depopulated, since the region will be short of water as well as gasoline and natural gas. Imagine Phoenix without cheap air conditioning.

I'm not optimistic about the Southeast, either, for different reasons. I think it will be subject to substantial levels of violence as the grievances of the formerly middle class boil over and collide with the delusions of Pentecostal Christian extremism. The latent encoded behavior of Southern culture includes an outsized notion of individualism and the belief that firearms ought to be used in the defense of it. This is a poor recipe for civic cohesion.

The Mountain States and Great Plains will face an array of problems, from poor farming potential to water shortages to population loss. The Pacific Northwest, New England and the Upper Midwest have somewhat better prospects. I regard them as less likely to fall into lawlessness, anarchy or despotism and more likely to salvage the bits and pieces of our best social traditions and keep them in operation at some level.

These are daunting and even dreadful prospects. The Long Emergency is going to be a tremendous trauma for the human race. We will not believe that this is happening to us, that 200 years of modernity can be brought to its knees by a world-wide power shortage. The survivors will have to cultivate a religion of hope -- that is, a deep and comprehensive belief that humanity is worth carrying on. If there is any positive side to stark changes coming our way, it may be in the benefits of close communal relations, of having to really work intimately (and physically) with our neighbors, to be part of an enterprise that really matters and to be fully engaged in meaningful social enactments instead of being merely entertained to avoid boredom. Years from now, when we hear singing at all, we will hear ourselves, and we will sing with our whole hearts.

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