



[richardheinberg.com](http://richardheinberg.com)

*MuseLetter #210 / November 2009 by Richard Heinberg*

## 1. Dilemma & Denial

A couple of weeks ago Jerry Mander and I were discussing the best word to use in the heading for the back cover copy of a new short book being co-published by International Forum on Globalization and Post Carbon Institute, *Searching for a Miracle: "Net Energy" and the Fate of Industrial Societies* (I wrote the main text, Jerry wrote the Foreword). Jerry liked the word "conundrum," while I argued for "dilemma." We were in basic agreement, though, about a word we *didn't* want: "problem." Problems can be solved; humanity's energy and environmental crises will not be "solved," in the sense that there is no realistic strategy that will enable us to continue, as we have for the past few decades, to enjoy continuous growth in population and in consumption of resources and use of energy. If we are to survive, we will have to accept profound and fundamental changes to our economies and lifestyles.

The word *dilemma* characterizes a situation in which one must choose between two disagreeable options. This is a good description of the human condition in the early 21st century. Had our species foreseen and begun to adapt to resource limits back in the 1950s or even the '70s, the transition to non-growing, sustainable levels of population and consumption might have been fairly painless. But now there really are no easy paths from here to a workable future.

This is not how we would like things to be. We want *problems* with *solutions*.

Problem: climate change. Solution: renewable energy.

Problem: poverty. Solution: more economic growth (a rising tide will lift all boats, we are told).

Problem: slow economic growth. Solution: more cheap energy (i.e., coal).

As should already be evident, the "problem" mindset can be maintained, in the current instance, only by narrowing our focus to just one variable. As soon as we begin to take multiple variables into account—population, economic instability and inequality, climate change, resource depletion, limits to capital investment—it quickly becomes apparent that some "solutions" just exacerbate other "problems."

So it's powerfully tempting just to ignore some of the limitations and

trade-offs we face. Many environmentalists, viewing the human predicament almost solely through the lens of climate change, see our choice as follows:

- Dead planet and dead fossil-fueled economy
- vs. living planet and thriving renewables-based economy.

Framed this way, the correct choice is obvious. But economists who see continued growth as the key to ending poverty, and who understand that the build-out of renewable energy sources is currently constrained by practical limits, might frame our choice this way:

- Dead energy-constrained economy incapable of solving its problems
- vs. thriving, problem-solving economy weaning itself from fossil fuels only as quickly as alternative energy sources are capable of picking up the slack.

Well, when you put it *that way* . . . naturally, option two looks better. But in both cases the preferable second option is unrealistic, because factors that have been omitted from the framing of the problem preclude that option's realization.

A more comprehensive statement of our choice might be this:

- Dead planet and dead economy (if insufficient effort is mustered toward reducing carbon emissions, population, and consumption)
- vs. crippled planet (so much climate change, and so many species extinctions are already in the pipeline and cannot now be averted, that a healthy planet is just no longer a real possibility, for at least the next many decades) and sharply downsized economy (if we *do* reduce carbon emissions, population, and consumption, that will constitute a form of economic contraction that will mean the end of prosperity as we have come to think of it).

That, friends, is a *dilemma*. Yes, the second option is still mightily preferable, as it is our only realistic survival option; but it's a very tough sell for policy makers at every level, and for the general public as well. Ugh. Let's pretend there's a third option. It's far more palatable simply to ignore a few factors, assume we have only a "problem," and then set out to "solve" it.

Now, it is true that within our overall dilemma there exist many problems (the relatively high cost of commercial solar panels is a problem that probably can be addressed with further research, as is bird and bat mortality from wind turbines). But we shouldn't let the existence of these "trees" distract us from the necessity of dealing with the "forest" in which they grow.

In effect, discounting limiting factors (ignoring the "forest" while focusing only on one or two "trees") constitutes by far the most

popular and acceptable form of denial. Very few people would actually deny the notion that there is *something* wrong in the world, but framing the situation as a *problem* rather than a *dilemma* enables us to avoid harsh reality while appearing not to do so. Indeed, the energetic pursuit of problem solving enables one to strike a heroic pose.

## Science and Politics

Denial can sometimes take blatant and irrational forms—especially here in the politically polarized and increasingly bonkers U.S. of A. Here's a recent example (*caution: rant ahead!*).

A few days ago my wife Janet and I attended a talk by author Bill McKibben here in Santa Rosa. Bill has been on a more-or-less perpetual lecture tour for the past few months promoting his ad-hoc organization [350.org](http://350.org), which is mounting a world-wide effort to persuade the international community to adopt 350 parts per million of atmospheric CO<sub>2</sub> as its official target in emissions reduction efforts. The number comes from analyses by climate scientist James Hansen of NASA, who has concluded that this is the highest number that will enable us to continue to enjoy "a planet similar to the one on which civilization developed."

Bill's lecture was informative and compelling, and Janet and I came away inspired to take the [350.org](http://350.org) message into our community however we can.

The next day Janet happened to be volunteering as a Master Gardener. For those who don't know, the Master Gardener program is a Cooperative Extension program of the University of California system, offering free science-based advice to the general public on nearly all aspects of home gardening. Janet mentioned to a female senior volunteer that it might be good for the program to give more attention to promoting ways that gardeners can help reduce greenhouse gas emissions. The woman replied that Master Gardeners aren't allowed to engage in "political" activities while acting in their official capacity, and that anthropogenic climate change is "politics" rather than science; she then went on to make a few comments about how some parts of the world are actually cooling, and how scientists disagree on what's really going on.

Janet was dumbfounded (as was I when she related the story to me). Yet the senior Master Gardener's attitude reflects the majority opinion in the U.S., according to many polls. Janet immediately emailed her a few choice articles from [www.realclimate.org](http://www.realclimate.org)—a website run by climate scientists. Of course, in reality the situation is nearly the opposite of "climate change is politics": indeed, the scientific consensus that humans' combustion of fossil fuels is driving the great majority of observed climate change is overwhelming. Even Jim Hansen's suggestion that 350 ppm must be the highest permissible number for atmospheric CO<sub>2</sub> concentrations if we want to avert catastrophic impacts is entirely science-based, and the evidence and reasoning behind the number were published in a peer-reviewed journal. Instead, it is the well-funded effort to *doubt and question* climate science that is political—an example of denial that happens to

suit the purposes of the fossil fuel industry and its friends on the political right.

Yes, I know: there is politics in science too (for examples, read Thomas Kuhn's classic 1962 book, *The Structure of Scientific Revolutions*). Scientists do sometimes let herd instincts overwhelm critical thinking abilities. And absolute certainty regarding the degree of anthropogenic contribution to climate change is impossible to achieve: we can't run repeated controlled experiments with the entire planet, changing one variable at a time. But the accumulating evidence that the bulk of observed climate instability is due to human action is overwhelmingly persuasive—and the vast majority of scientists accept it as such. As far as I have been able to tell, the objections of skeptics have been satisfactorily addressed. Spend an hour or so at [www.realclimate.org](http://www.realclimate.org), then spend an equivalent amount of time exploring a representative climate skeptic website (for example, [www.climate-skeptic.com](http://www.climate-skeptic.com)), then go back and forth matching assertions with evidence. Which one smells more like science, which more like polemics?

Come on, people. Surely as a society we can get beyond this "debate." If we don't do so soon, it will be too *late* in the gravest possible sense of that phrase. (*End of rant.*)

### **Dilemma Adaptation**

The hard fact is, denial is part of our human repertoire of responses. It's adaptive, up to a point. We all want and need to avoid pitfalls, but doing so takes effort, so we need some sort of filter to help us sort real threats from spurious or inconsequential ones. Denial is also an understandable response to information that is so profoundly unsettling that it would be psychologically damaging to us if we were to deal with it head on. But what's adaptive in one situation can be fatal in another.

I'm thinking a lot about adaptation these days as I read Nicholas Wade's *Before the Dawn: Recovering the Lost History of Our Ancestors*. The book is a summary of recent evidence from the science of genetics about human origins and evolution—subjects that in the past have been largely the province of archaeology and anthropology.

The new genetic evidence suggests that human beings have continued to evolve right up to the present. Much of that evolution has occurred at the level of culture. But even within the past few centuries, new gene sequences have appeared in parts of the human population. Indeed, Wade suggests that cultural and biological evolution are now proceeding together: for example, genes that tend to make us more peaceful, social, and cooperative are being selected for, because those are characteristics that help us get along in densely populated urban societies.

These recent findings and the speculation surrounding them somewhat undercut ideas advanced in recent years by evolutionary psychologists, who have proceeded under the assumption that we modern humans still have the minds of Paleolithic hunters. The

genetic evidence suggests instead that our brains, digestive systems, and immune systems are all subtly adapting to our altered environments.

The news that we humans can adapt rapidly, not only culturally but even physiologically, is certainly welcome: we *need* to change dramatically if we are to survive. But just how rapidly *can* we adapt? Can we, crucially, overcome our tendency toward denial before we've pushed the climate too far?

Characteristics are selected for when they permit an organism to leave more offspring. If we persist in denial, we may leave *no* surviving offspring, or very few. We've reached a point, or encountered a situation, where denial is not adaptive. We're on the horns of history's greatest dilemma, and only by accepting the options actually available, and pursuing the less-awful option with creativity and compassion, will we stand a chance.

There's no guarantee that we will. Many societies have failed to adapt. Maybe we will too. But on the other hand, perhaps the very act of discussing our dilemma in frank terms shows that, somewhere among our species, denial is being overcome and adaptation is trying to happen.

## 2. Address to the ASPO International Conference 2009 (Denver, Colorado)

I'm happy to have the opportunity to spend the next few minutes sharing some personal thoughts on the subjects that bring us together for this excellent event—thoughts based on my experience, during the past few years, of trying to get the message of Peak Oil out to an ever-wider audience.

First, I should mention that I didn't come to this subject out of any interest in oil *per se*. I have no background in the oil industry or journalism either; indeed, I can't claim to be anything more than an incorrigibly persistent independent writer on environmental subjects. But back in the early 1970s I was powerfully impacted by the *Limits to Growth* report of the Club of Rome, and, like many thousands of others, began to see the path of our growth-based industrial society as inherently unsustainable and wrong-headed. As you will recall, in the "standard run" reference scenario of that report, industrial activity stalls out sometime in the first couple of decades of the 21st century, and food production and population then go into decline.

We were, it was suddenly evident, headed toward a cliff—but at that time the cliff was still somewhere just over the horizon.

In 1998, I read Colin Campbell and Jean Laherrere's crucial article in *Scientific American*, titled "The End of Cheap Oil." The article stuck with me like a mind worm. I quickly realized that oil depletion was likely to be the limiting factor or trigger that would shift the world system from growth to contraction or collapse, a process that would continue until the human economy could once again fit within the constraints of the planet's renewable productive capacities, by then

severely reduced by resource depletion, soil erosion, and environmental pollution. Further, these two petroleum geologists were forecasting the peaking of oil production for a fairly proximate date: around 2010—just over a decade hence.

Back in the last years of the 1990s, most of the discussion about Peak Oil seemed to be taking place in the EnergyResources Yahoo discussion group (which continues to this day with moderator Tom Robertson), and “Brainfood,” an occasional email posting from Jay Hanson, who would later go on to create the [www.Dieoff.com](http://www.Dieoff.com) website. I devoured these materials and found myself spending hours a day absorbing information about energy history, the oil industry, and oil geopolitics.

By 2003, I had published my first book on the subject, *The Party's Over*. It was well received, eventually selling over 50,000 copies in North America, with translations in six languages, and I quickly found myself in demand as a speaker. In the years since, I have given between 300 and 400 lectures on Peak oil to audiences ranging from organic farmers to representatives of the packaging industry; from peace activists to insurance executives to high school students to earth-moving equipment manufacturers.

More books followed, along with interviews with *Time* magazine, Good Morning America, NPR, BBC, al Jazeera, the History Channel, and on and on.

All of this may sound like quite an accomplishment for an otherwise uncredentialed, introverted word geek, yet I assure you that on the ladder of public recognition, Richard Heinberg continues to occupy a very low and obscure rung—which is actually just fine by me, as the point of all this effort is not to acquire fame (which I assure you, from my limited exposure to it, is largely a nuisance), but simply to get the word out. And other more capable individuals are probably going to have to gain far more media prominence than I have in order to accomplish that.

The experiences of those years, with frequent travel and contact with a wide variety of audiences, lead me now to reflect on what has worked in getting the Peak Oil warning across, and what hasn't. Certainly I think all of us would agree that high oil prices create a window of opportunity, a teachable moment, while low prices and news of big new oil discoveries tend to deflate interest in our message. That being the case, it's useful, as a presenter, to have constantly updated information, to keep presentations topical, and to anticipate likely questions and objections based on recent news stories.

Of course, each presenter has a unique profile of strengths and weaknesses, and it's important to know your strengths—whether they be facility with humor, experience in the industry, or skill at data analysis—and make the most of them. Further advice that I might give about how to be a successful Peak Oil communicator is likely to descend even further to the level of mere platitude, but platitudes occasionally have their place.

Here's one: Make definite assertions. If you're not quotable or

memorable, you will not be quoted or remembered. But back your assertions up with evidence.

Know your audience. If you are speaking to people who have never heard of Peak Oil before, your primary objective is to be credible while raising awareness and concern. If you are speaking to an audience of the already worried, your goal may be to bring shared understanding to a new level, or to connect it with specific current events.

Be prepared to answer questions. Nothing raises your credibility as much as the act of effectively and elegantly de-fusing what might initially seem to be a killer objection. In my experience, this is largely just a matter of being conversant with the facts, and then being sufficiently quick on your feet. The answers are there, and the objections of the Peak Oil skeptics generally fall apart quickly under even a few moments' careful analysis.

An example comes to mind: a few months ago I was debating a prominent oil economist before a large audience at an international business school in Madrid. This economist insisted that the world will have plenty of oil to provide for increasing rates of consumption until at least the middle of the century. One of his main arguments was that most of the world has been insufficiently explored: far more oil wells have been drilled in North America than elsewhere, and if similar drilling rates could be achieved in Africa, the Polar regions, and the vast ocean basins, we could find enormous quantities of new oil, thus rendering Peak Oil concerns pointless and even quaint. It's easy to see how persuasive such an argument can be for a novice audience. However, as I pointed out then, North America is where the oil industry started: in the early 20th century, wildcatters were drilling scattershot, with no understanding of the geophysics of proper well spacing. Therefore far more wells were drilled on this continent than were actually needed. The rest of the world will never be drilled in the same way, and especially not now that exploratory wells can cost hundreds of millions of dollars apiece. Lower drilling rates are a reflection of better exploration technology, and also of the paucity of promising new places to drill.

I could cite other critiques and objections from the skeptics, but few of them are much more credible than the one just mentioned.

Parenthetically, I would suggest, as others have done before, that it might be a good idea for one of our organizations to build and maintain a robust website, or set of pages on an existing site, specifically to address each of the standard misconceptions and objections raised by the Peak Oil skeptics. This would need to be updated frequently to answer whatever fresh nonsense might be spewing from the editorial pages of, for example, the *New York Times*. Matt Savinar did a good initial job of this on his website [www.lifeaftertheoilcrash.net](http://www.lifeaftertheoilcrash.net), but that was a few years ago and it constitutes only a first draft of what's really needed. This could be a useful area of collaboration for many of our experts and all our existing Peak Oil organizations, and many relevant articles already exist in the Oil Drum archives. With regard to the issue of climate change, the website [www.realclimate.org](http://www.realclimate.org) already does an excellent job at debunking skeptics, and we might learn from their successes.

But back to my chronology. By January 2008 I had moved on from my teaching job (actually, my college went broke) and was working full-time for Post Carbon Institute. And by 2009 I was also working closely with Transition US. I'll have more to say about those organizations and some others in a moment.

Meanwhile, the ground shifted beneath our feet. As we all know, the global economy began contracting last year—though that's just a nice, abstract way to put it. Industrial production fell. Corporations downsized or disappeared. Fifty trillion dollars in global capital vaporized in stock market crashes, bankruptcies, foreclosures, and defaults. Millions of people lost employment and housing. Globalization went into reverse.

Also, in 2008 the oil price spiked 50 percent higher, in inflation-adjusted terms, than at any point in previous history. It would be an enormous oversimplification to say that the oil price spike "caused" the world recession, but the fact that the price spike and the economic crisis occurred at the same time is hardly meaningless coincidence.

In effect, we are seeing a vindication of what many of us have been predicting for a long time. Even if it is still technically possible in the next few years for the oil industry to exceed its July 2008 production levels, the world economy has entered a trap from which there is no exit. The oil price that the petroleum industry needs in order to justify developing a new marginal barrel's worth of production capacity is now nearly as high as the price that is known, on the basis of recent history, to trigger further economic contraction. We have reached a fundamental limit to growth, and its name is Peak Oil.

But in some ways this doesn't feel like vindication at all. In 2008, with the oil price nudging close to \$150 a barrel, the real and metaphorical phones at ASPO, Oil Drum, and Post Carbon Institute were ringing off the hook; yet today, we see op eds in prominent periodicals reassuring us that new oil discoveries in the Gulf of Mexico and Brazil make the Peak Oil argument moot. The irony could hardly be more bitter or discouraging.

What has really happened, of course, is not that Peak Oil has been disproven or made irrelevant; but rather, that the issue has become more grave and complex.

There is still the need on our part to convey to the general public and policy makers that the technical data support the Peak Oil, and now also, by the way, the Peak Coal, theses—that need today, in fact, is greater than ever before. But now there is also the requirement to connect the issue of fossil fuel depletion with climate change, the financial crisis, and a score of indices of environmental decline—the other limits to growth. We must continue seeking to influence policy makers, but we also must respond to the needs of local governments and grassroots community groups that have already come to understand the problem and want to do something about it.

So while it's useful to look back at what worked so far and what

hasn't, it's probably even more important now to try to intuit the demands of circumstance in the next few months and years. We are in an entirely new economic period, and we must adapt our thinking and our messages accordingly.

It's in view of this new economic landscape that I would like to go back now to a discussion of the two organizations I mentioned a moment ago, with which I find myself working.

Post Carbon Institute has gone through a process of learning and change over its short period of existence, and has arrived at a strategy that seems both reasonable and promising: We are positioning ourselves as a think tank for the transition. We have assembled a stable of about 30 Fellows, each with expertise in one of several relevant areas: Anthony Perl for transportation, Bill McKibben for climate change, Sandra Postel for water issues, David Fridley for renewable energy assessment, David Hughes for fossil fuel depletion, Wes Jackson and Michael Bomford in the areas of food and agriculture, Bill Ryerson on population, Josh Farley on steady-state economics—plus David Orr, Erika Allen, Gloria Flora, Chris Martenson, Majora Carter, Rob Hopkins, Tom Whipple, and others. Our goal is to provide a steady stream of communications products—papers, books, videos, and lectures—that show the links between the resource, environmental, population, and economic crises of our time, while also pointing to inspiring examples and strategies for reducing consumption, preserving biodiversity, and building community.

The other organization I mentioned, Transition US, is the United States support hub for Transition Initiatives. Often known as Transition Towns, these phenomenal entities first sprang up in the UK, seeded by the brilliant work of Permaculture teacher Rob Hopkins. They are grass-roots community self-organizing efforts, and they operate from the optimistic premise that life can be better without fossil fuels. Post Carbon Institute and the Transition Initiatives are working in ever-closer collaboration, one organization providing communications materials, the other a method of delivery to early-adopting individuals and communities.

So far, so good. But is this enough? What should we be trying to do? Whom should we be trying to reach? What are we up against?

The apparent fact that the world has reached the end of economic growth as we have known it is momentous information. It needs to get to as many people as possible, and as soon as possible, if we collectively are going to be able to plan for contraction and manage the transition away from fossil fuels without succumbing to rapid, chaotic civilizational collapse. Of course, chaotic collapse may occur in any case, but it seems pointless to concede that dismal outcome before we have done all we can to preserve as much as possible of both nature and human culture, and to maximize the survival chances of both our species and the rest of the biosphere.

But however certain we may be of the importance of what we have to communicate, that's no guarantee that policy makers or the mainstream media will perceive our message as being relevant, interesting, or even particularly credible.

As communicators, we have our work cut out for us. We have very limited resources in terms of funding and organizational capacity. And we haven't much time. Now that the world economy is in an unprecedented and probably terminal phase of contraction, future events are more uncertain than ever. What will happen to the value of the US dollar if oil importing and exporting nations move to denominate their trade in a basket of currencies, or if the US tries to deal with ballooning deficits by attempting to borrow much more from its trading partners? And what will ensue from Iran's insistence on developing nuclear power and perhaps weaponry, while other nations insist that this cannot be permitted to happen? Perhaps neither of these threats to stability will prove serious. But these are only two examples out of a dozen that could be cited, so that many credible future scenarios branching outward from current circumstances lead to deepening international chaos. That means we may have only a few years at best in which to gain significant traction. We do not have the luxury of a couple of decades or more in which to patiently build networks of the required organizations—including foundations, think tanks, schools, and media outlets. So we have to be extremely strategic with the resources that we do have.

What are those? Our organizations have received some initial funding, but as of now it is coming from only a few sources, while for the vast majority of other funders Peak Oil is hardly even a recognizable issue. We have the groups I've mentioned, and a few more, including Community Solutions. And there is plenty of work for all of them to do. Everyone who is concerned about the issues we discuss here should be supporting these organizations or websites, and the organizations themselves need to find ways to cooperate more and to develop coordinated strategies.

For example, what is our collective message if the oil price spikes again—which it could do if the value of the dollar nosedives, or if NATO organizes an embargo of Iran? On the other hand, what is our message if the price of oil remains moderate or low—as is likely if economic activity remains so depressed as to keep oil demand falling faster than oil production capacity?

And what would help us most to get our answers to those questions out to the media—a press office? A public relations firm? A Washington bureau?

Most likely, we'll need all of those and more. If we are to be successful, we will have to use every communications tool available: books, newspapers, magazines, reports, scientific papers, press releases, op-eds, how-to manuals, websites, social networking technologies, YouTube, documentaries, radio, and maybe even billboards. Some of these we can develop in-house, but we will also need to find increasingly effective ways of inserting our message into mainstream media programs, publications, and discussions. This means developing contacts in prominent media outlets, and that in turn requires public relations skills. This is largely the province of full-time professionals, whose services we will need to engage, and that in turn will most likely translate to the need for more funding, and therefore for professional fund raisers (or "development directors," as they're known in the trade), who can in turn educate funders.

In short, while we must expand our capacity quickly, we have the beginnings of the institutions we need: with The Oil Drum and Energy Bulletin, we have robust websites; with Tom Whipple's and Steve Andrews's "Peak Oil Review," published by ASPO, we have amazingly concise, content-rich weekly updates that give any careful reader about as much knowledge of these issues as world leaders and market insiders have—in some cases, more. Also thanks to ASPO, and until recently also to Community Solutions, we have had yearly conferences where we can get together to learn, regroup and compare notes. With Post Carbon Institute, we have an identified cadre of experts who can be called upon to comment on developments in all aspects of the emerging world crisis, and who can point to adaptive strategies and best practices. With Community Solutions, there is a rapidly growing mine of practical information for local groups to increase energy efficiency. And with Transition Towns, we have an organizing strategy that brings together local businesses, concerned citizens, and town governments in efforts to Power Down. We have already done a lot with the resources available to us.

Yet events will not stop to applaud us for these achievements. The emerging crisis far exceeds our current ability to respond to it. If the survivors of Hurricane Katrina required help to rebuild their homes and their lives, soon the inhabitants of every town and city in this nation and around the world will be in equally dire straits. Increasingly, the need will be less for technical analysis, and more for practical knowledge of how to get by when there are few or no jobs, when there is rampant homelessness, when the necessities of life have become unaffordable or unavailable, when banks and businesses of all kinds are failing.

We cannot fill those needs directly. But we can help both policy makers and the general public realign their thinking. If humanity spends the next few years in failed efforts to re-start growth in the conventional sense, the prognosis is not good, because time and resources will be wasted in an effort to do what cannot and should not be done. In the opinion of many, this has already happened with the enormous Wall Street bailouts. And that's what will continue to happen unless the message somehow is both transmitted and received that growth is over, and that our highly adaptable species must rapidly and cooperatively downsize nearly all its activities. Yes, we need alternative energy sources, better insulated buildings, and maybe even a few electric cars. But none of these things will enable us to cling to an expanding consumer culture serving a growing population. We have entered the century of transition, decline, contraction—choose your favorite word. It is the century of limits. And we must learn quickly to get by with less—ultimately, much less—of just about everything—in order to live within those limits.

It is a tough message. But it's the truth, and somebody has to utter it. I guess it's our job, because we are the ones who have shown up.