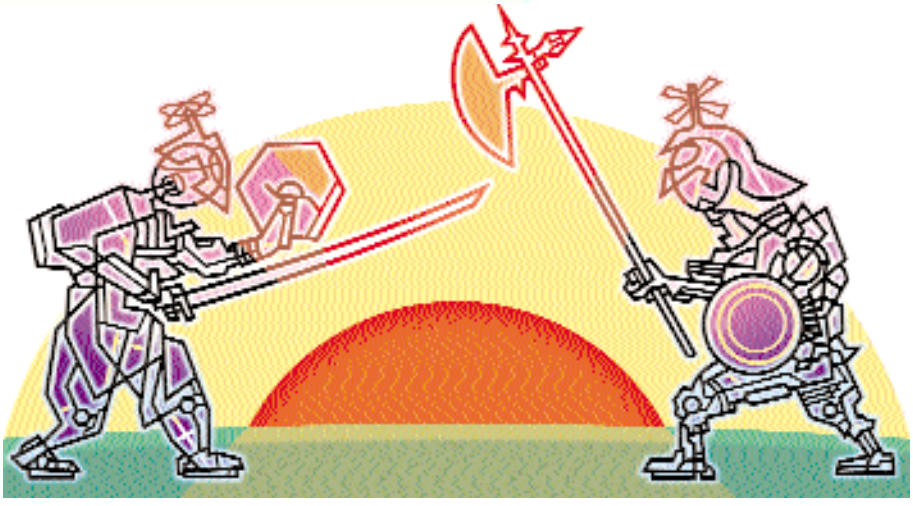
Energy Barriers



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If objective, creative thinking is what we have needed and continue to need to improve our energy situation, Dr. Nader certainly provides very little to lead us out of the morass ("Barriers to thinking new about energy," August/September, pp. 24–27). While decrying what she believes to be the lack of objectivity and the political basis for the decisions of others, she allows her own obvious but unacknowledged desire to wield power, to dictate choices to others, and to exert unearned influence to color statement after statement.

Woven throughout is political correctness and wishful thinking arising from an apparent absence of ever having to produce anything tangible or verifiable to any schedule at an agreed price. Only academics in the soft sciences such as her are so privileged. Of what relevance to the ideas is her bitterness toward males, whites, engineers, and anyone who doesn't instantly accept her "earthy" or "oddball" thinking? Of what significance is the composition of any group if the ideas and concepts are the true issues? What is her motivation to repeatedly jab at the absence of "diversity," the "taboo" subjects, the supposed lack of "freedom to roam mentally"? Would the replacement of these obviously despised beings with some of the "free pass" incompetents who graduated from the "best schools" (Berkeley?) while being unable to compute the available power, cost per kilowatt-hour, or efficiency of an energy source make her giddy with happiness?

Perhaps she should drop her blinders and do some relatively simple arithmetic (but only if she decides to honestly accept the outcome) about the true relative cost of supplying our excessive population with energy. Many of the "taboo" subjects are not taboo, just mathematically nonviable in an economy where materials, energy, labor, time, and money are all in limited supply and every individual insists on getting the maximum benefit in the shortest possible time. Apparently, she already has an inkling of this, since she states "the government has no serious interest in solar," as if all the government had to do was to transfer its power to her so she might pass a law and tax the unwashed to change the fundamental science and economics.

I find her attitude offensive, even deliberately ignorant, and, as presented, certainly not part of any solution. Someone feeding at the public trough owes those who support her far more thorough analysis and much more respect than she has given. She is just as bad as those she stridently accuses of lacking respect for others.

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[*Author replies*: Although Mr. Camp's letter does not request a reply, perhaps he can reread what *The Industrial Physicist* published on page 26, where I note the progress of the past 30 years. There are other examples. Unusual people like David Freeman energized the Sacramento Municipal Utility District (SMUD), which he ran strictly on economic criteria. In 1984, when Sacramento residents voted to close Rancho Seco, a nuclear power plant plagued with technical problems, SMUD moved quickly into renewable energy. It built two of the world's largest utility-owned photovoltaic power plants—20 acres worth. In 1994, SMUD opened its Hedge Solar Stations. Freeman had further success at the Los Angeles Municipal Utility District. At the University of California, Berkeley, Art Rosenfeld worked in conservation technologies like compact fluorescent lamps, which consume only one-fourth the energy of common incandescent lamps.

And would we have imagined Royal Dutch/Shell or British Petroleum taking up the ideas expressed in "The Road Not Taken," by Amory Lovins? Mr. Camp might do well to look at the Rocky Mountain Institute, where Lovins and his staff show "businesses, communities, individuals, and governments how to create more wealth and employment, protect and enhance natural and human capital, [and] increase profit and competitive advantage—largely by doing what they do far more efficiently" (http:/www.rmi.org/). As noted in 1981, the toughest problem will be getting professionals to examine their frames of reference.

Laura Nader]

I am puzzled as to why you reprinted the article entitled "Barriers to Thinking New about Energy" in your otherwise fascinating magazine. From the title, I was looking forward to a stimulating article on how fear, ignorance, and irrational activism are shaping the energy policy against otherwise promising technologies. Instead, the article presented the author's view of why we haven't fully implemented solar power yet. In more than one passage, she laments not hearing the word "solar" at those workshops she regularly attends. In a frame of mind that borders on paranoia, she then concludes that the other attendees "seem to relish something complicated, hazardous, difficult, and risky." Those inherently evil white males must have been talking about getting married when they should have been talking about solar power.

The update she provided for this reprint is no better. Of course, Ronald Reagan gets blamed for most of the so-called lack of progress in—you guessed it—solar power. The genius and hard work of engineers all over the world in improving the efficiency of thousands of modern products get ridiculed as "bricolage." This is a real insult, folks. She even defines the "new" in "thinking new" by defining what is old. "Old" is every known technology (oil, coal, and nuclear) except solar and wind.

Who enjoyed getting beat up by this preachy, condescending, solar-obsessed, left-wing professor? Not me. I didn't appreciate her likening the behavior of male professional groups to the behavior of animals in "the nonhuman primate literature." I don't believe that future energy problems will be solved by "general, earthy thinkers" (whatever that means). I also strongly disagree that considering any energy source except solar, solar, solar, solar, or wind necessarily constitutes a "barrier to thinking."

This article is not science. It is pure nonsense, and it was nonsense in 1981. How can Nader evaluate the energy-related thinking processes of individuals and groups when her mind is so obviously fixated on solar? Nearly every line of thought eventually led to solar. This article should be retitled to something more in line with the narrow view that it presents. Perhaps "Barriers to Thinking Solar about Energy," would be a better title.

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For a high-quality technical magazine that has published several thoughtful energy articles by Ausubel and Grant, I am shocked that you would publish such a sophomoric and, yes, arrogant piece by this anthropologist. Exactly when and what was the NASA conference in Monterey? Why did she feel qualified to critique such a meeting? My advanced degree is in aerospace engineering, and I couldn't imagine offering any opinions at an anthropology conference.

Assuming one is talking about volume

electrical power generation for the future, solar has not been of interest since the early 1970s for three reasons. Photovoltaic solar and wind-turbine devices are serious visual polluters, their real estate requirements are unreasonable, and their kilowatt-hour costs are too high. Both are intermittent and require an existing base of conventional generated power to function. Take away their federal and state subsidies, and there would he no photovoltaic farms and no wind-turbine farms. Not one.

Renewable energy has been championed by Californians since the mid-l970s, but all types of glorious projections by these people went up in smoke last year with the blackouts and high energy costs. No state has tried harder to install renewable energy, and no state has failed so miserably. Here in energy-efficient West Virginia, we pay less than $0.05/kW-h for our residential electricity while Nader pays over $0.12/kW-h, maybe even $0.15/kW-h, in that progressive state. Those people just don't understand energy economics and electricity.

Her sidebar on page 26 reveals even more about her "politically correct" mindset, which has not changed even today—in sum, that those backing the "sunset technologies" (oil, coal, and nuclear) are the new Luddites—an outrageous statement. Isn't she a little confused here? Luddites were a band of workmen in the period 1811–1816 who tried to prevent the use of labor-saving machinery by breaking or burning it. They were named after Ned Lud, a half-wit in England. How does this apply to your accusation, Dr. Nader?

Who says these are sunset technologies? No responsible engineer that I know would even think such a thing. Those three technologies are blossoming in the free-market world as never before because people in the United States and the rest of the world need electricity and transportation **in quantity**. Coal, gas, and nuclear supply over 98% of the electricity in this country at low cost and with unparalleled reliability. Ronald Reagan jerked the thermal panels off the White House roof because they caused roof leaks and were a general nuisance. He stopped the solar energy tax credits and the "safe-efficiency car" because their technologies were too expensive to compete. We are "the least advanced industrial nation in the use of long-distance trains" simply because of our low population density and because the American people do not want to support the massive subsidies required by the Europeans for their trains.

What this scientist really wants is for the government to do it with the advice and consent of her fellow leftists in the university community. Economy be damned; she just cannot stand the thought of the free market's withering gaze on all of these pie-in-the-sky schemes that simply do not work.

But what about the hydrogen fuel cell for transportation? This may be the least thought-out option of all. Fuel cells generate direct-current power, so how will you get alternating-current inverters to have anywhere near the cost and reliability of the piston engine? Where are you going to get hydrogen at a reasonable cost compared to gasoline? Dr. Nader and her friends won't like the answer. Reforming methane is a convenient source for small demonstration quantities of expensive hydrogen, but the natural gas supply in the United States is not a viable source for replacing gasoline in cars. The only volume possibility is to separate hydrogen from low-cost seawater by electrolysis. To do so will require low-cost electricity, and lots of it. Even with our huge electricity-generating grids, many large new power plants must be built to do this job. The cheapest electricity today is nuclear. **A hydrogen economy will require nuclear electricity**.

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[*Author replies*: Both Messrs. Payne and Kohn might benefit from reading *Energy Choices in a Democratic Society*, written by scientists in physics, engineering, and anthropology (National Academy of Sciences, 1980). I attended the Monterey conference and spoke because I was invited to do so. Outsiders can help to enlarge the frame of reference. In 1960, my first public invitation at Berkeley came from the engineering faculty. Why? They thought they might learn something about the groupthink problem from an outsider. After the 1981 "Barriers to Thinking New about Energy" paper, one Nobel laureate wrote that the monumental physicists of the first half of the 20th century knew that "physics can explore only part of reality, and by far the smaller part."

What would happen if federal and state subsidies were removed from the nuclear energy program? I leave it to Mr. Payne to compute. Anthropologists deal in long time spans—millions of years—rather than quarterly reports. From a long time perspective, oil, coal, and nuclear are sunset technologies, either because of limited availability or because of the nuclear waste problem. The scientists who wrote me in 1981 to corroborate or expand on my commentaries were concerned with scientific creativity. The fortress mentality functions to curb the scientific imagination.

Laura Nader] Ω