

Raising the Question

On a number of occasions in the late 1970s while the author was working at Oak Ridge National Laboratory, he found himself engaged in the almost ritualized exchange of air travelers in which passengers in adjacent seats explore each other's employment, destinations, and cities of origin. On hearing that I was doing work on renewable energy systems at Oak Ridge, and apparently taking me for one of those elusive "experts" to whom we so often hear reference, an unexpected spark of more than ritualistic interest would often appear and my fellow traveler would ask; "Are solar energy systems really cost competitive?" or, perhaps, "When are those solar energy systems going to become cost competitive?"

These were very awkward questions for someone fresh out of graduate school and much steeped in concerns about "externalities," especially the environmental effects of energy production that are not "priced" or otherwise taken into account in ordinary market exchanges. (The air pollution from coal combustion for electric power production would be an example of an "externality" because the electricity user traditionally does not pay for the costs of that pollution in his or her monthly electric bill.) In making energy and other choices, "cost competitiveness" can be a complex and ambiguous standard. My fellow passengers were asking what they clearly took to be simple, direct, and even technical questions hoping, perhaps, for a more sim-

ple, direct, and unbiased answer (from a real live expert) than they felt they had been able to cull from conflicting media and political exchanges. The standard answer to these questions at the time (perhaps still today) was that except for certain residential space and water heating applications, solar energy systems were not, and were not soon likely to be, cost competitive with other sources of energy. But giving the standard answers left the potentially critical issue of the appropriateness of the questions themselves unaddressed.

Awkward from the start, these little airline exchanges became increasingly disturbing. How was it that everyone seemed to be asking the same one or two questions? Whose questions were these anyway? Were they in fact arising spontaneously and independently as the only logical issues to be probed?

Even more disturbingly, whose responsibility was it to decide whether or not these were the appropriate questions to ask? Was this my job as a public servant, or was this the responsibility of those asking the questions? Were the answers to these apparently simple questions going to be determinative in shaping the energy choices of the individuals I had talked with—or determinative in the selection of an energy future for society as a whole? And if so, who was responsible for those decisions?

How were we to know whether or not a “cost competitive” energy system was the best or wisest choice for the individual or for society? Who was to determine the degree to which “cost competitiveness” and “wisdom” overlapped?

Most people, airline passengers or otherwise, probably do not feel they have time for the complications and confusion introduced by this enumeration of questions about the question (nor was I, at the time, at all equipped to define, let alone suggest answers to, most of these concerns). This fact in itself, however, is suggestive of the influence of processes of socialization and social control—and of the possibility of related failures of omission or commission in the exercise of responsibility for choosing energy futures—that were, perhaps, the origin of my discomfort.

Social Control?

In his book, *The Informed Heart: Autonomy in a Mass Age*, psychologist Bruno Bettelheim¹ draws on his experience as a prisoner in a Nazi concentration camp to provide starkly focused illustrations of a variety of mechanisms of social control and to comment in often less explicit terms on modern life in a “mass age.” Reading this book some years after leaving Oak Ridge National Laboratory to return to graduate study, I was often reminded of the exchanges I had had on airplanes regarding the cost competitiveness of solar energy systems. In reading the following passages, for example, I was reminded of the feeling I had had that I was actually being asked by my airplane interlocutors what they should do (a question I felt I had no business answering).

When social change is rapid, there is not enough time to develop the new attitudes needed for dealing with an ever changing environment in terms of one’s own personality. This makes the individual “confused” and uncertain. The more this happens, the more he watches to see how others meet the new challenge and tries to copy their behavior. But this copied behavior, not being in line with his own make-up, weakens his integration and he grows less and less able to respond with autonomy to new change.

What we now fear is a mass society in which people no longer react spontaneously and autonomously to the vagaries of life, but are ready to accept uncritically the solutions that others offer; we fear also that those solutions are geared only to technological progress, disregarding the greater integration it requires.

. . . It is hard to say where exactly in this evolution of the mass state we now stand.²

To what degree were those asking the cost competitiveness question actually seeking new information and to what extent were they asking, as a child might more appropriately ask, “What should I do in this situation?” Did the questions they asked stem from their own “integrated” personalities or were these the questions their neighbors

asked? Were they indicative of “autonomous” reactions to new technical possibilities or did they arise from an acquiescence to a mass age and an abandonment of efforts to deal with “the vagaries of life” from an integrated base of personal principles, values, and attitudes?

At another point in his book, Bettelheim describes one of many extreme forms of social control employed in the concentration camps.

Among the worst mistakes a prisoner could make was to watch (to notice) another prisoner’s mistreatment. There the SS seemed totally irrational, but only seemed so. For example, if an SS man was killing off a prisoner and other prisoners dared to look at what was going on in front of their eyes he would instantly go after them, too. But only seconds later the same SS would call the same prisoners’ attention to what lay in store for anyone who dared to disobey, drawing their attention to the killing as a warning example. This was no contradiction, it was simply an impressive lesson that said: you may notice only what we wish you to notice, but you invite death if you notice things on your own volition. . . . the prisoner was not to have a will of his own.

. . . To know only what those in authority allow one to know is, more or less, all the infant can do. To be able to make one’s own observations and to draw pertinent conclusions from them is where independent existence begins. To forbid oneself to make observations, and take only the observations of others in their stead, is relegating to nonuse one’s own powers of reasoning, and the even more basic power of perception.

. . . Knowing that . . . an emotional reaction [to mistreatment of prisoners] was tantamount to suicide, and being unable at times not to react emotionally when observing what went on, left only one way out: not to observe, so as not to react. So both powers, those of observation and of reaction, had to be blocked out voluntarily as an act of preservation. But if one gives up observing, reacting, and taking action, one gives up living one’s own life. And this is exactly what the SS wanted to happen.³

Analogies between such extreme forms of social control and possible social control of attitudes regarding energy alternatives may seem too

farfetched to consider. Bettelheim's description makes the particular mechanism employed here very clear, however. In its blandest form in the context of energy issues, one might ask, "Are all spontaneous reactions to energy alternatives received equally in society?" Is an inchoate or even a cogently articulated noneconomic attraction for renewable energy alternatives taken to be valid in our society, or are certain "rational" reactions more acceptable than other "less rational" reactions? Were some of those asking the question on the airplane (e.g., those who seemed to take a "more than ritualistic" conversational interest in my work on renewables) actually seeking *permission* for their spontaneous sense of attraction for renewable alternatives? Or, having already accepted others' definitions of what observations are and are not pertinent and what logic is to be applied in proceeding from observation to choice of action, were they simply hoping that someone would go through the final motions also—that is, assess the costs and energy outputs and apply the requisite (economic) logic—for them? Although the sanctions are surely less extreme in this case, is the question asked on the airplane not indicative of a similar abandonment of independent capacities for observation and reaction?

Precedence of Economic Argument

While there is room for debate over the degree to which economic calculations actually shape individual and social energy decisions, the established precedence of economic over other forms of argument seems beyond question. One of the clearest statements of this precedence has been provided by a National Research Council study, *Energy Use: The Human Dimension*,⁴ completed in 1984. Its authors begin by describing four logical alternative views of energy. There is the "commodity" or economic view, under which energy consists simply of "energy forms or energy sources that can be developed and sold to consumers." But energy can also be viewed as an ecological resource. Under this view, energy sources are classified as renewable or nonrenewable and the effects of extraction and use on soil, water and air quality, on climate, and on biological communities are taken

into consideration. As another possibility, energy can be viewed as a social necessity; according to this view, energy for cooking, lighting, home heating, transportation, and other essential uses is taken first to be a basic right in any just and equitable society. Finally, the study authors describe a view of energy as a strategic material. If one adopts this view, the critically important attributes of energy sources become geographical location, political stability and orientation of source nations, and the availability of domestic or other reliable substitutes in the event of a cutoff of specific sources. While each of these views has logical appeal and rests on a set of values with broad if not universal appeal, the commodity view is dominant.

The four basic conceptions of energy do not have equally strong support, either in the political arena or among policy analysts. In most aspects of the national policy process, the commodity view is dominant. Dominance of a particular view of energy does not mean that it is the only view given consideration, but that other views must make special claims before being taken seriously. And in most U.S. energy policy debates, the burden of proof still remains on those who assert that energy should be treated as something other than an ordinary commodity. When these advocates succeed, they do so by winning exceptional treatment for particular situations rather than by changing the dominant perspective.⁵

All reactions to our energy alternatives clearly are *not* treated equally. Surely one would have to expect summary dismissal, in fact, of any reactions not yet in a form as cogently communicated as the preceding ones when even the latter face an uphill battle in any struggle for exceptions to the dominance of the commodity view. Rightly or wrongly, instincts, intuitions, aesthetic preferences—if indeed they were ever seriously advanced in policy making settings—would be dismissed as impractical indulgences, not even to be explored in the face of the cold hard “facts” of economic analysis.⁶

That our attitudes and reactions to particular energy alternatives are shaped by processes of socialization and by a variety of forms of social control seems beyond denial and certainly should come as no

great surprise, given the ubiquitousness of the processes involved. These processes seem so “natural,” for the most part, in fact, that they are nearly transparent,⁷ calling attention to themselves, if at all, only in exceptional cases when they become explicit or begin to be overtly coercive. In his preface to the NRC study referred to earlier, for instance, the study chairman applauds the Department of Energy (which funded the study) for recognizing the potential of the noneconomic social sciences for informing energy policy. But he also quotes from DOE’s charge to the committee defining the committee’s purpose and task: “*Economic paradigms, together with assessments of the potential contributions of new and existing technologies, will continue to provide the basis for the analysis of alternative public policies relating both to energy production and consumption. At the same time, there is considerable evidence to suggest that the noneconomic behavioral and social sciences can contribute significantly to such analyses.*”⁸ This charge clearly states that economic (and engineering) views are and will remain dominant and that the behavioral and social scientists who will be conducting the study being commissioned must restrict their investigations to ways in which they might contribute within the framework established by the dominance of these views. While this position may be generally implicit in research of this sort, such an explicit restriction in the commissioning of academic research may give us pause. Socialization is one thing; more or less explicit instructions as to permissible and impermissible avenues of thought and investigation may be quite another.

Effective Conspiracy and Other Questions

I do not mean to suggest any sort of clearly defined conspiracy here. Nor do I intend to suggest that economic treatments of energy options are necessarily unwise or inferior to other views of these issues, whether the latter are cogently stated and widely supported or as yet inchoate in the minds of a handful of individuals. One must surely be “practical” at some level about energy matters in a sense that attends to the “affordability” or “sustainability” aspects of “economic” considerations, if not to classical cost competitiveness.

Any discussion of processes of socialization or social control does, however, raise another important collection of questions about who stands to benefit and who stands to lose from the results of the process. It may be that any society is identifiable as such only because of the existence of such processes—without some sort of socialization and control, no coherent “society” could be identified.⁹ But any particular pattern implies winners and losers or a particular distribution of benefits and costs. It is worth asking how this distribution might shift if, for example, the view of energy as an ecological resource were to displace the commodity view. If the cost effectiveness question asked on the airplane is in some measure a product of socialization, who gains and who loses; if it were to be replaced by some other question as a result of some modification in the socialization process, how would the distribution of benefits and costs be altered?

The *effects* of conspiracy do not require that any explicit conspiracy exist. It may be that “What we see here instead is an ongoing social process in which scientific knowledge, technological invention, . . . corporate profit [and perhaps other forces] reinforce each other in deeply entrenched patterns, patterns that bear the unmistakable stamp of political and economic power.”¹⁰ *Effective conspiracy* in the sense of widely shared perspectives of established interests acting in society *as if there were* a conspiracy among those interests may well be worth considering. Even in their most innocuous manifestations, routine processes of socialization themselves amount to a kind of effective conspiracy to reinforce certain possibilities and outcomes, and block or deny others. Energy outcomes must inevitably be affected, for example, by the fact that utility executives with no direct incentive to encourage energy efficiency improvements long shared certain interests with private firms in the business of building large coal and nuclear power plants. Officials of the big three auto manufacturers, who may also serve as advisers to the Department of Energy and to the engineering schools whose graduates they employ, can not be expected to have an overwhelming interest in the development even of electric vehicles, to say nothing of more radical alternatives involving actual reduction in the use of personal vehicles. Corporate interests

and economic efficiency are generally best assured, at least in the short run, if government and consumers behave “rationally”—that is, if they make choices on the basis of the same economic comparisons that corporations use in their decision making. Indeed, anyone with an interest in the nation’s economy, has a certain stake in recovering full returns on the investment of social resources that has been made in existing patterns of life *before* entertaining suggestions for any substantial change in those patterns. And that stake is inevitably reflected in our educational system, in our research priorities, and in public decision making generally, in ways that may have the effects of conspiracy even in the absence of explicit collusion or abusive intent.¹¹

If the cost effectiveness question itself is in some measure an artifact of socialization and control processes—for example, of an abdication of choice resulting from acquiescence to rapid technological change or of pressures to accept certain observations and attitudes and reject others—what does this say, again, about the wisdom of the choices that emerge? If social controls are involved, whether as an implicit or explicit outcome of particular coalitions of interests, or even if those controls emanate from a somehow disinterested, self-generating social auto-pilot,¹² are humanity’s broadest interests best served by the results of those controls? Is the decision making process even “democratic” or are established interests conditioning our responses to the point that we are no longer able to act freely in the sense that true democracy requires?¹³

How, indeed, do we determine a wise course of action with respect to energy and the future? How do we determine what is appropriate either as individuals or in actions taken in the name of society as a whole? Are the traditional questions enough? Are they appropriate and do they in fact guarantee “optimal” outcomes? Or do we need to look more carefully, ask and answer a host of questions about the question, and explore broadly ranging territories of thought and experience not ordinarily thought to bear any relation to the choice of fuels used in the heating of our homes or animation of the production systems fundamental to modern Western patterns of life?

A Note on Expectations

If this chapter is doing its job, it should now have the reader at least mildly intrigued by the twist it begins to give to the old hat energy problem.

Be warned, however; this book will *not* be describing The Solution. To the contrary, much of the intent in trying to tease out an alternative definition of the problem is precisely to drop the matter squarely in the reader's lap unresolved. At best, this book will take the advice of Elting E. Morison and make only a "start from the particular case." ". . . In the beginning, [Morison suggests,] think small; don't go after the entire scheme of things head-on. Such a thought, [Morison continues] parenthetically, runs somewhat against the American grain. We tend to look for the big picture, the city set on a hill, the great society, the whole long line of the new frontier, a glory that will transfigure you and me—and if not soonest at least by tomorrow afternoon."¹⁴

At the slightest sign of hope it is somehow difficult in the modern world not to make a mental dash for the whole enchilada. Whether this habit is indicative of laziness or of a subtle (to me inappropriate) pessimism, it will not be indulged here. Unwary readers, even those intrigued by the twists just imparted to the definition of the problem, will be disappointed by the incompleteness of the solutions or, more accurately, the approach to solutions we come to in the end.

Our mental habit of expecting The Solution may reflect acceptance of, or a belief in, mass society. We seem to hope, almost breathlessly at times, that Tatum, or Washington, or the Democrats, or some other savior, will finally "get things figured out" and that we can all then fall in line as we finally implement The Solution. Yet we should be warned away, even if only through informal observation and recognition of the fact that people often have very different perceptions of the world we live in.¹⁵

As we proceed through the analysis of succeeding chapters in this book, I mean to preserve and even enhance hopes that, in spite of human differences, we may continue to learn from one another. I will continue also in the hope that we may remain united in a sustained respect for each other's views, and in our attempts to get as little as

possible in each other's way when differences do arise. Retaining these hopes, I mean specifically to question the notion either that we must all adopt the same Solution to the energy problem or that any individual, party, or government could conceive or describe The Solution in the first place. Such notions may well be repressive by their very nature, aggravating rather than helping to alleviate our problems at the outset.

This book will ultimately arrive at the "particular case" of the home power movement in which growing numbers of participants are installing their own renewable electric power systems. On the basis of the reconfiguration of the energy problem that occupies the first portions of the book, the home power movement will be described as one that is strictly "irrational" by traditional standards, but eminently "reasonable" and understandable from a broadened perspective. In "explaining" (and at a personal level, supporting and applauding) this innovative behavior, however, we will *not* become involved in a litany of renewable energy success stories. I wish to avoid even the political leverage of such a "pep rally" approach to the energy problem.¹⁶ Such an approach can be a useful aid to the enthusiasm sometimes necessary to innovative action, but it, like other hollow images of The Solution, ultimately implies at least a partial disengagement from the gore and the guts of the problem.

This is not to say that I believe that home power systems could never become attractive to the great mass of energy end users, even to those who now wish to think no further about their energy systems than the flick of a switch. (At this writing, Southern California Edison, one of the nation's larger electric utilities, is moving to offer home power systems as an option to its customers; who knows what new preferences may yet emerge from a new regime of implemented and observable technologies?) Nor in calling attention to particular departures from conventional wisdom, first in theory then in practice, do I mean to suggest encouragement for every harebrained idea. In attempting to open discussion a bit to consideration of unconventional alternatives, I do not mean to suggest that we abandon our best understanding of what is and is not physically and materially possible, of

what may or may not be “sustainable” in the long run, or (certainly) of what is and is not desirable from a human perspective.

Merely taking the effort to develop an alternative theoretical and practical perspective carries with it an implicit element of “advocacy” (though perhaps no more so than acceptance of traditional perspectives). At a certain level, this book can, in fact, be read as personal advocacy and technical argument for “solutions” like home power. Taken in this way, however, the book probably is not worth very much. The more important object here will be to present an alternative view of the energy problem and eventually describe a new body of practice in the handling of that problem, *not* because that practice offers The Solution, but because it appears to reflect a unique engagement with what I argue is the real issue raised by energy choices—How do we wish to live in the world? It provides us with a new place to stand and observe the landscape. As a single, certainly limited illustration of the scope of technical and sociocultural possibility, it yet opens up to us the range of that very possibility and the content and significance of the question, How do we wish to live in the world? In the end here, the intent is not to offer The Solution nor to entertain or sustain any illusion that The Solution has been found, but to drop the matter of energy more squarely in the reader’s lap where ultimately and inevitably it must lie, burden that it may be.