

Public Acceptance of Nuclear Power: Déjà vu All over Again?

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Introduction

Recent developments make prospects for the renewal of nuclear energy look more promising now than at any point in the past several decades. The growing scientific consensus is that global climate change is an established reality due to human activities (anthropogenic in the language of climate research). This, combined with the accumulating evidence of health effects due to gaseous and particulate emissions from the burning of fossil fuels, appears to make the nuclear option not only the most effective means for addressing the growing worldwide demand for electricity, but also an environmental bonus.

This potential has attracted considerable recent interest. *Nuclear News* devoted its November 2000 issue to the topic, the Electric Power Research Institute heralded “nuclear’s new lease on life”¹, a June 2000 workshop on the topic was held at Stanford University², and *Science* magazine published a pre-workshop article by the core Stanford group³. The Stanford group performed this optimistic thought experiment: they projected the worldwide generation of nuclear energy to 3300 GW-year/year in 2050 from the 259 GW-year/year in 1997. The projection was based upon the assumption of reaching 50% of France’s current per capita production. It amounts to a compounded growth rate of 5% per year, an apparently modest rate of increase. However, it represents more than a tenfold increase over the period, and calls for the building of approximately 60 nuclear power plants *per year*.

The central question is whether such a remarkable rate of growth is feasible—especially in view of the verity that, with the exception of painfully few countries like France, nuclear power is deadlocked everywhere. Not a single nuclear reactor has been ordered in the United States since 1978, Germany is actively considering a phase out of nuclear power, as is Sweden, and Japan is rethinking its grand design for nuclear power because of the September 1999 accident in Tokai, mura, Ibaraki Prefecture.

To properly address the nuclear feasibility question, we must first recognize a distinct asymmetry between two sides of nuclear power: the scientific/technical side and the institutional side (including public acceptance). The first side of nuclear power has enjoyed considerable progress, including the potential of a new generation of safer reactors. This progress, in part, fuels the renewed enthusiasm for nuclear power.

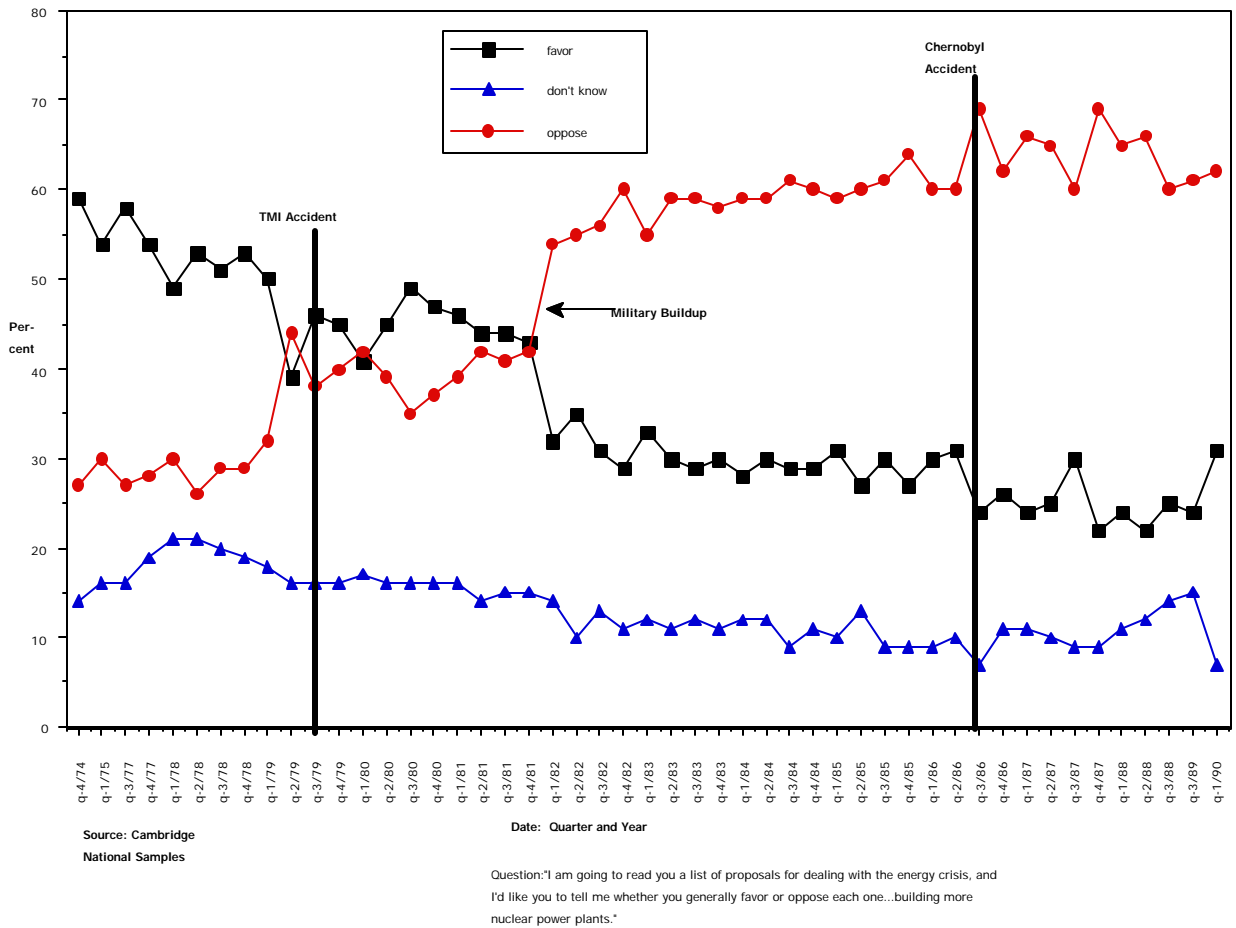
In contrast, the public acceptance side of nuclear power has barely attracted any attention at all. Decades ago, there were clear signs that all was not right with nuclear power. Indeed, at the very height of enthusiasm for nuclear power in this country, a shifting public mood suggested that more sobering times were approaching. For example, even before the last nuclear reactor was ordered in the U.S., Alvin Weinberg, doyen of America’s nuclear development, reflected on the changes in nuclear’s fortunes: “The public perception and acceptance of nuclear energy appears to be the question we missed rather badly in the very early days. This issue has emerged as the most critical question concerning the future of nuclear energy”⁴.

So, presumably a key lesson learned from early mistakes was that public acceptance was crucial to nuclear success. Was this lesson learned? If it was, it has all but been forgotten by the promoters of nuclear’s renewal and, as noted above, this deciding issue has been eclipsed by a focus on the scientific and technical features of nuclear power. I support my argument with selected time-series of public opinion data.

What has been the historical mood of the public on this technology?

To address this question we can examine the longest running time series⁵ asking about nuclear power in general.

Figure 1. Public Attitudes Toward Building Nuclear Power Plants in the United States

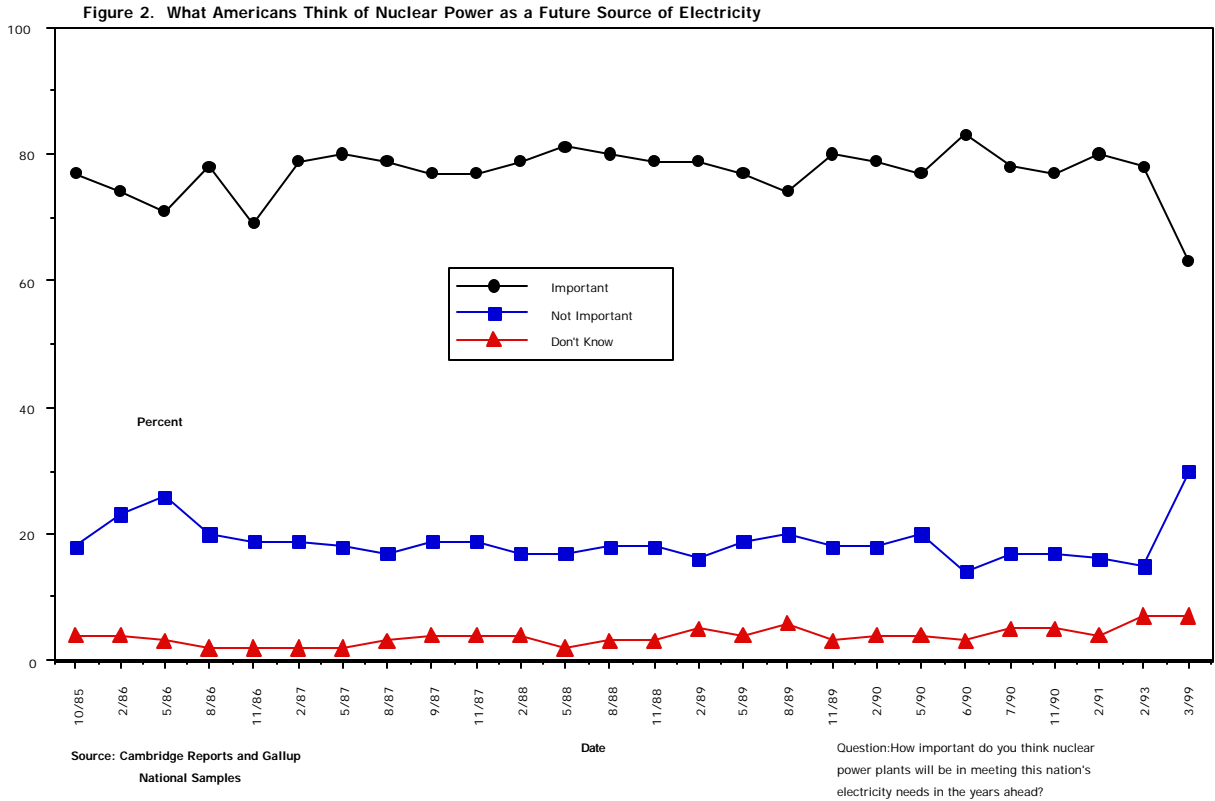


Briefly, a vast majority of the public supported nuclear power prior to the Three Mile Island (TMI) accident, but became ambivalent after the accident. That ambivalence disappeared with the Chernobyl accident that crystallized opposition by a vast majority of the public—a position, according to available empirical evidence, that has remained virtually unchanged since. For example, a March 1999 national poll showed that when asked about building more nuclear power plants in the U.S., 60% opposed, 26% favored, and 14% were undecided.

One important point to note is that the TMI accident had a significant impact in dampening public enthusiasm for nuclear power. And TMI remains deeply embedded in the public conscience as evidenced, for example, by unstructured solicitations about the technology in studies by psychologists. This is at sharp odds with proponents of nuclear power who, like Bertram Wolfe, argue “TMI should be looked at as a success”⁶.

What do Americans think about nuclear power as a future source of electricity?

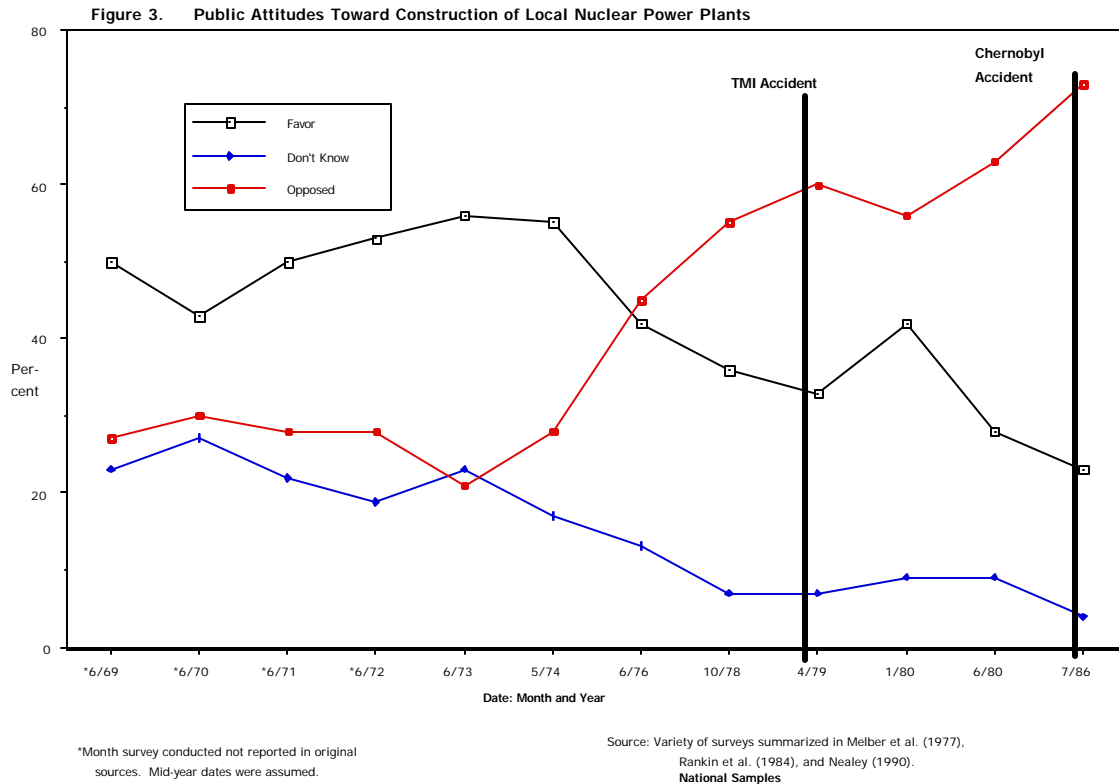
A comparable time series is available to address this question.



The evident pattern here is that the vast majorities of Americans consistently believe that nuclear power will be a very important source of electricity in the future. Proponents have seized upon this finding as support for the view that it is only a radical fringe of Americans who oppose nuclear power, whereas the overwhelming majority of the citizenry favors the technology. For example, Gene Preston concludes: “One encouraging sign is that public attitudes are shifting. A poll conducted in the United States in February 2000 [no reference provided] shows more than 60 percent support for nuclear power...and in Canada an earlier poll revealed that 77% of respondents thought the use of nuclear energy to generate electricity would increase over the next 50 years...”⁷

This interpretation of public attitude may be correct, but logical problems face this interpretation. First, the data asking about the building of nuclear power plants now has an anchored time perspective, the present—which is also the time of likely experience for many people. In contrast, the data asking about building plants in the future has no fixed anchor point, since—by definition—the future is just that, an unspecified time later, not now. Second, in virtually every survey where the underpinnings of general attitudes toward nuclear are explored, people continue to express great concerns about the safety of nuclear power and about high-level nuclear wastes. An acceptable solution to the disposal of high-level wastes still eludes the nation.

Third, the "Not in My Backyard" phenomenon is not only pervasive, but also even more pronounced for nuclear facilities. A third time series affirms this conclusion.



What is evident from these data is that Americans are strongly opposed to the siting of a nuclear power plant in their community. Even more noteworthy is the fact that this majority opposition emerged even before the TMI accident. In view of this pattern, where would 60 nuclear plants (the Stanford group projection) be sited each year?

Might not the American public be more favorably inclined toward nuclear power if they weighed its environmental benefits against its risks? Over a decade ago, when global warming was not the media event it is now, Gallup Surveys asked (in 1990 and 1991) (i) whether respondents believed that using nuclear energy would cut greenhouse gas emissions and air pollution, or (ii) would they favor using nuclear energy if it would cut greenhouse gases and air pollution? Both questions were answered in the affirmative: by majorities to the first question and vast majorities to the second. However, recent poll data indicated a considerable change in public mood. A national sample of Americans was asked in March 1999 whether it would favor nuclear power as a means “for dealing with the pollution that causes climate change.” Fourteen percent strongly favored, 28% favored, 23% somewhat opposed, 32% strongly opposed, and 3% did not respond. Given this tradeoff, a majority (55%) versus (42%) still opposes the use of nuclear energy.

Conclusion

How can we interpret these data, especially what seems to be an apparent contradiction in public views (no nuclear now, but we expect it to be important in the future)? I interpret the data to reflect one of the nation’s most basic values: pragmatism. Past accidents, misrepresentations by the nuclear industry (safe operations, cheap electricity, wastes pose no insurmountable problems), and a growing mistrust of many institutions, especially institutions associated with nuclear power, such as the DOE, have made the public apprehensive about the technology. And all signs indicate that this apprehension runs deep. On the other hand, Americans support the idea of leaving the nuclear option open, perhaps as a trump card against future energy shortages or as the only demonstrated energy alternative for dealing with global warming. In summary, while the public may support this technology in the future; there is little basis to say that the future is now. Under these circumstances, it seems

unwise to exaggerate nuclear's potential in the coming century, especially to the neglect of alternatives for addressing the issues of pollution and global warming.

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¹ Moore, Taylor "License Renewal Revitalizes the Nuclear Industry," *EPRI Journal* Fall: 8-17 (2000).

² See <http://www.stanford.edu/~Sailor>

³ Sailor, William C., David Bodansky, Chaim Braun, Steve Fetter, & Bob van der Zwaan. "A Nuclear Solution to Climate Change?" *Science* **288** 1177-1178 (2000).

⁴ Weinberg, Alvin. "The Maturity and Future of Nuclear Energy." *American Scientist* **64** 16-21, (1976).

⁵ A comparable opinion series by the Harris organization shows a virtually identical pattern.

⁶ Nuclear News "Nuclear Power in the 21st Century," November, 52 (2000).

⁷ *ibid*, p66.