THE SITING PUZZLE
BALANCING ECONOMIC AND ENVIRONMENTAL GAINS AND LOSSES*

LAWRENCE E. SUSSKIND

Traditional approaches to the siting of potentially hazardous but regionally necessary facilities are often ineffective and lead to drawn-out legal disputes ultimately satisfactory to none of the parties. Research at MIT over the last decade has indicated five factors that may solve the siting puzzle. Application of these principles do not guarantee that a decision will not be disputed but may enhance the possibility of a wise and durable agreement.

LAWRENCE E. SUSSKIND is a professor in the Department of Urban Studies and Planning at the Massachusetts Institute of Technology and Executive Director of the Program on Negotiation at Harvard Law School.

Traditional approaches to the siting of regionally necessary but locally noxious facilities are not working. The record is unambiguous. It has been practically impossible to site much needed hazardous waste treatment facilities anywhere in the United States. Almost every attempt to site new oil refineries, power plants, resource recovery facilities, radioactive containment areas, prisons, and

*A version of this article was delivered as a paper at the Thirteenth Annual Conference of the State of Illinois Department of Environment and National Resources.

Address correspondence to: Dr. Lawrence E. Susskind, Laboratory of Architecture and Planning, Room 4-209, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139.

0195-9255/85/$3.30

power lines has been stymied. The siting puzzle appears to be more difficult than ever to solve.

Regionally necessary facilities offer only modest benefits to very large numbers of people while imposing rather substantial costs (or at least potential risks) on relatively small numbers of abutters. While the full set of "gains" to all the "gainers" may far outweigh the actual or potential "losses" to the losers, the losers are more inclined to fight to stop such projects than the gainers are inclined to see that they are built (O'Hare et al. 1983). Potential losers will expend large amounts of time, money, and energy to fight against something, while potential gainers will find it hardly worth their while to support a pro-facility organization.

The important thing to remember is that LULUs (Locally Unwanted Land Uses) are, in fact, legitimately undesirable from the standpoint of certain abutters and interest groups. For example, environmental advocacy groups with mostly out-of-state members who have nothing to gain if a new facility is built are likely to oppose such facilities if they generate even the slightest risk to fragile environments, air and water quality, or human health and safety. Even potential gainers may find it logical to oppose a facility in a particular site if it is likely to impose any more losses than gains on them. For each party there is probably at least one other site for the same facility that would produce the advantages while eliminating the costs. Potential losers almost always argue that they are in favor of such regional facilities but "not in their backyards."

Opposition to regionally necessary but locally noxious facilities does not necessarily stem from misunderstanding, misinformation, or unreasonable selfishness. It is very likely that potential losers have made a reasonable calculation about the relative advantages and disadvantages of having a new hazardous waste treatment facility nearby. While they may not have taken the time to become expert on the technologies or the financial intricacies involved, potential abutters are usually adept at figuring potential losses. For example, one doesn't need to be an aviation expert to know that the construction of a new airport in one's own rural residential area bodes ill. Even if the increased access to such an airport might reduce commuting time, local residents will still have to live with increased noise, increased traffic, and a change in the rural quality of the environment. Additional information spelling out the exact gains and losses to the population of the region is not likely to change the personal calculations of those living nearby.

Is it selfish for an individual to pursue his or her own interest? Perhaps, but not unreasonably so. What about local elected officials? Should they support the new airport? If most of the gainers are either people who will move into town after the airport is built or people who will continue to live outside the affected town, why should local officials support it? Would they not be acting irresponsibly if they didn't advocate the interests of those who elected them?

It should now be obvious why public educational campaigns, public participation programs, and appeals to the altruism of the community-at-large are

unlikely to overcome resistance to new facilities or sites proposed through the traditional process.

KEY STEPS IN THE TRADITIONAL SITING PROCESS

The process through which such facilities have traditionally been sited may be divided into seven steps. Each step is outlined briefly below.

- Step 1: An appropriate government agency seeks a mandate to explore the need for a new or expanded facility. Such efforts are typically triggered by a higher level of government, a tragedy of some sort, or the demands of a politician who wants to be identified with "action" on a particular issue.
- Step 2: Once the issue has moved high enough on the public agenda, a committee or a particular body is assigned the task of generating a solution. At this point technical experts are called in and ideas in good currency within professional circles gain special weight.
- Step 3: One of two things happens. Either a single solution is proposed (i.e., to build "that" kind of facility in "that" spot) or a process of some sort is initiated. Still only a small fraction of the public is aware of the issue.
- Step 4: If a single solution is announced, potential losers are galvanized to form organizations and take blocking actions. If a process is proposed, apathy persists a while longer.
- Step 5: As the responsible regulatory or development agency moves ahead, a public educational campaign is mounted. A variety of media presentations are developed to establish the urgent need to take action and to defend the legitimacy of the particular action proposed.
- Step 6: In many instances, the public will be offered an opportunity to participate. A "blue ribbon" committee of community noteables may be appointed to advise the responsible agency. Hearings may be held at which residents and interest group representatives are invited to testify. Finally, residents may be invited to review and comment on various technical documents (such as impact statements). However, participants should not construe such an invitation as a willingness to share decision-making power.
- Step 7: After vigorously defending the logic of its actions, the responsible agency will probably find itself in court. If the opponents are successful in blocking construction, the entire siting process begins again. Meanwhile, whatever need prompted action in the first place remains unmet.

Dennis Dusick has nicknamed this traditional siting process the Decide–Announce–Defend procedure. That says it all.

ALTERNATIVES TO THE TRADITIONAL APPROACH

Among the several reasons why it is important to seek alternatives to the traditional siting process is the very important fact that the courts have turned out to be very bad at making siting decisions. First, the court has even less technical expertise than the other participants in the siting process. Second, the court may be forced to rule on a procedural matter that has almost nothing to do with the substantive merits of the siting alternatives decision. Finally, the court tends to pick a winner and loser; it does not seek to reconcile the legitimate claims of the contending interests. This means that the court takes no responsibility for coming up with a resolution of the underlying conflict.

Research and experimentation on these problems for the past decade at MIT have revealed five factors vital to the improvement of the siting of such facilities. Those involved in the process should

1. emphasize joint fact finding;
2. be inventive about strategies for reducing or spreading risk;
3. stress the enforceability of promises to mitigate adverse effects;
4. experiment with new forms of compensation; and
5. be open to sharing responsibility for monitoring and managing new facilities.

The incorporation of these factors in the siting process will not remove all chances of litigation, but they will sway that large group of residents one might call "guardians."

Most communities seem to be made up of four types of actors; *boosters*, who are likely to favor almost any project that increases tax revenue, creates jobs, or encourages land speculation; *preservationists*, who are likely to oppose almost any project that threatens environmental damage or stands to change the character of the community; *guardians*, who are middle-of-the-roaders able to go either way on any particular project depending on how open and fair the process of decision making seems to them; and *nonparticipants*.

A recent study by Michael Elliot (1984) indicates that up to 50 percent of the residents of a community may be guardians. Two important observations about guardians are that they can be convinced by the quality of an argument (i.e., they attach substantial importance to technical information) and that they care a great deal about the openness and the fairness of the decision-making process. The five factors listed above may make a decision more acceptable to guardians. Each requires some more detailed discussion.

Joint Fact Finding

Guardians are inevitably offended by the suggestion that a siting decision is based on technical judgments that are too complicated for the lay public to understand. Collaborative investigations of the facts surrounding the building of

a proposed facility and its likely impacts can offset "adversary science." Some of the most congenial siting processes have been those that invited all sides to commission jointly the kinds of studies they believed were needed to make a wise decision. If all sides can agree on the objectives of the studies to be undertaken, jointly choose the technical specialists to undertake the studies, and share responsibility for signing off on the necessary research protocols, the chances of maintaining the support of guardians are enhanced.

Joint fact finding may require the intervention of a nonpartisian facilitator or referee to ensure all sides that the process of information gathering is not rigged (Wheeler and Bacow 1984).

Reducing or Spreading Risk

Even if all parties to a siting dispute trust the forecasts that have been made, they all may not respond the same way to the data generated. The technical forecasts might indicate that one group (e.g., abutters) will be put in jeopardy if a project is built. Guardians tend to believe that it is not fair for one group (through no actions of its own) to bear most of the risks associated with a regionally beneficial project. Risk reduction or risk spreading are therefore necessary.

Insurance packages of various kinds can have a salutary effect. If abutters are guaranteed that they will not have to settle for less than the current appraised value of their homes plus inflation, they are less likely to resist a proposed facility. This sort of property value insurance may have to be underwritten by the developer, the state government, or the host locality.

Promises to Mitigate

Most guardians need to be convinced that promises to mitigate unexpected adverse effects will be kept. One way of doing this is to require the posting of a substantial bond. Another way is to empower through prenegotiated contracts an independent actor to hold one or more of the parties to their commitments. A third way is to phase a project so that the later stages proceed only if earlier commitments are honored. Unless the enforceability of promises to mitigate adverse impacts is guaranteed, guardians are likely to oppose projects that pose significant risks in a worst-case situation.

New Forms of Compensation

Much has been written in recent years about the need to tax gainers so that potential losers can be compensated. Donald Hagman and Dean Misczynski called this "windfalls for wipeouts." However, much attention has been paid to monetary compensation and not enough to other trades of "equivalent value."

Compensation to abutters who are not deprived of the right to use their property cannot be required by law. For strategic reasons, however, it makes sense for state government and the developers of regionally necessary facilities to offer to compensate as many losers as possible. It is important to allow the losers to define the terms of compensation.

Compensation might be offered on a contingent basis. If the detractors are correct and certain adverse effects do occur after a facility is built, then compensation as promised could be paid. If the proponents are correct, and the worst effects are avoided, compensation would not have to be paid.

In many instances, guardians seek no compensation for themselves but rather for the community-at-large. All too often, the developer of a proposed facility is not empowered to capture the full set of economic gains associated with a new facility and thus may be reluctant to offer the compensation that a community requests. Under these circumstances, it may be necessary to involve a higher level of government in the taxing and reallocation process.

Shared Responsibility

Shared monitoring and control is very important to guardians. In a study undertaken by the Oak Ridge National Laboratory, residents were asked how they would respond to the siting of a low-level radioactive waste facility in their region. The vast majority were opposed. When asked if their response would be different if promises of mitigation and compensation were guaranteed, more people (but still less than half) said they would be in favor. When told that the locality would share responsibility for monitoring and managing the facility, a majority of residents indicated a willingness to support such a facility.

If members of a community know they can trust the accuracy of regular monitoring reports, they are less likely to oppose the siting of a hazardous waste treatment facility. If they know that the moment a leak or a problem is found they are empowered to halt all operations at the plant (without having to seek a court order), they are much less likely to oppose the construction of the facility in the first place.

Shared responsibility for monitoring and management may be hard for many facility developers and state agencies to imagine. In part this stems from the very paternalistic attitude they have toward local officials and residents. However, no other strategy offers a more telling acknowledgment of the legitimacy of local concerns.

BEYOND DECIDE–ANNOUNCE–DEFEND

It is imperative to incorporate the five techniques listed above into the siting process. This can be done legislatively (as Massachusetts, Wisconsin, and Rhode Island have shown by adopting new hazardous waste facility siting laws with

some of the features discussed above), but changes in statute are not necessarily required. Most existing siting processes include substantial administrative discretion. Additional steps encouraging informal negotiations may be inserted in the existing processes without violating the law.

Joint fact finding can be encouraged through the structuring of impact assessment assistance grants or through the design of the EIA scoping process. Risk-sharing arrangements can be negotiated as separate contracts that go into effect only if the formal decision-making process yields a positive decision on a proposed facility. Memoranda of understanding between agencies and even between levels of government can be worked out as collateral agreements. Self-executing agreements can be contained in court-enforceable contracts. Informally negotiated compensation agreements can be added as extra conditions on a conventional permit. Shared responsibility for monitoring and management can be confirmed in separate letters of agreement. The siting laws do not have to be rewritten to permit informal negotiations, although it may be necessary to find ways around provisions of state administrative procedure acts, sunshine laws, and open meeting laws in order to permit informal negotiations.

Through the use of informal negotiations it may be possible to generate fairer, wiser and more efficient siting agreements. Agencies or developers must put aside the Decide-Announce-Defend procedure and recognize the legitimacy of local concerns.

REFERENCES

O'Hare, M., Bacow, L. and Sanderson, D. 1983. *Facility Siting and Public Opposition*. New York: Van Nostrand.

Elliott, M. 1984. *Coping with Conflicting Perceptions of Risk in Hazardous Waste Facility Siting Disputes*. Dissertation. Cambridge, MA: Massachussetts Institute of Technology.

Wheeler, M. and Bacow, L. 1984. *Environmental Dispute Resolution*. New York: Plenum Publishing Company.

Carnes, S. et al. 1982. *Incentives and the Siting of Radioactive Waste Facilities*. ORNL-5880. Oak Ridge, TN: Oak Ridge National Laboratories.