1 of 2

EARLY SITE PERMIT DEMONSTRATION PROGRAM

SNL/NM--699795-7

Recommendations For Communication Activities And Public Participation in the Early Site Permit Demonstration Program

1/16-93

N P O C
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Prepared by the *Joint Contractors* (Southern Electric International, Commonwealth Research Corporation, and Public Service Corporation of New Jersey), in cooperation with the Electric Power Research Institute, the Nuclear Management and Resources Council, the U.S. Department of Energy and Sandia National Laboratories.

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*Recommendations for
Communication Activities and Public
Participation in the
Early Site Permit Demonstration Program
(ESPDP)*

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EARLY SITE PERMIT DEMONSTRATION PROGRAM (ESPDP)

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**RECOMMENDATIONS FOR
COMMUNICATION ACTIVITIES AND PUBLIC
PARTICIPATION IN THE
EARLY SITE PERMIT DEMONSTRATION PROGRAM
(ESPDP)**

Prepared By Smith & Harroff, Inc.

**Under Subcontract No. ESP - JC - 05
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Recommendations For Communication Activities and Public Participation in the Early Site Permit Demonstration Program (ESPDP)

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SECTION ONE

INTRODUCTION

INTRODUCTION

Background

On October 24, 1992, President Bush signed into law the National Energy Policy Act of 1992. The bill is a sweeping, comprehensive overhaul of the Nation's energy laws, the first in more than a decade. Among other provisions, the National Energy Policy Act reforms the licensing process for new nuclear power plants by adopting a new approach developed by the U.S. Nuclear Regulatory Commission (NRC) in 1989, and upheld in court in 1992. The NRC 10 CFR Part 52 rule is a three-step process that guarantees public participation at each step. The steps are: 1) early site permit approval; 2) standard design certifications; and, 3) combined construction/operating licenses for nuclear power reactors.

Licensing reform increases an organization's ability to respond to future baseload electricity generation needs with less financial risk for ratepayers and the organization. Costly delays can be avoided because design, safety and siting issues will be resolved before a company starts to build a plant. Specifically, early site permit approval allows for site suitability and acceptability issues to be addressed prior to an organization's commitment to build a plant.

In 1991, the Joint Contractors, consisting of subsidiaries of three companies (Commonwealth Edison Company, The Southern Company and Public Service Electric and Gas Company) signed a cost-share contract with Sandia National Labs (SNL) on behalf of the U.S. Department of Energy (DOE) to demonstrate the early site permit approval process. The Early Site Permit Demonstration Program (ESPDP) is a three-phase contract involving: 1) evaluation of existing siting regulations; 2) selection of applicant(s) with candidate sites; and, 3) pursuit of NRC site approval.

Communications and Public Participation in the ESPDP

Responsibility for site-specific activities, including communications and public participation, rests with those organizations selected to try out early site approval. This plan has been prepared to assist those companies (referred to as sponsoring organizations) in planning their communications and public involvement programs. It provides research findings, information and recommendations to be used by organizations as a resource and starting point in developing their own plans.

This plan uses the general term "sponsoring organization" to refer to the company or companies that might demonstrate early site approval. It is likely that the sponsoring organization will include an electric utility company.

The ESPDP is meant to test new NRC regulations for the early approval of sites where nuclear power plants *could* be built in the future. It is not a traditional facility siting program in which site approval is immediately followed by construction. In contrast to traditional facility siting, the outcome is not predetermined and site approval may not be followed by nuclear plant construction. This is an important factor in gaining meaningful public participation and building trust. While some may interpret participation in the ESPDP process as a decision to build a new nuclear power plant, it is not. Many factors must still be considered after an organization receives an early site permit: whether a new nuclear plant can compete with other supply and demand-side alternatives, projected load growth, public opinion and the political/regulatory environment.

Information programs and public participation are essential components of the early site approval process. The process is new and may attract significant national and local attention. This report discusses how an open communications program and public participation effort can be implemented for the benefit of the public and the sponsoring organization(s).

SECTION TWO

PUBLIC PARTICIPATION IN FACILITY SITING: CASE STUDIES AND LESSONS LEARNED

PUBLIC PARTICIPATION IN FACILITY SITING: CASE STUDIES AND LESSONS LEARNED

Introduction

Historically, technical and financial considerations dominated facility siting. Governments and companies made decisions, and citizens trusted the government to protect their interests. This is no longer true. Social scientists and other experts in the field of siting agree that public involvement in the decisionmaking process is vital. The "Decide-Announce-Defend" (DAD) strategy of the past must yield to a more interactive and open approach to siting.

Public involvement can cover a broad spectrum – from simply keeping the public informed to directly involving the public in the decisionmaking and negotiating process. Generally, the level of public participation in each situation is linked to the level *needed* and appropriate in order to reach a legitimate decision with which all stakeholders agree. Each organization must decide how much public participation is required based on past experience.

While the local environment and type of project determine the level of involvement, past experience provides general guidance.

A less-interactive approach to public participation might be used when the benefits to a local community are substantial, or lack of disadvantages obvious to everyone. In such cases, companies can simply keep the public informed and allow opportunity for comment, without involving the public in the actual decisionmaking process.

Most new industrial facilities represent tradeoffs between benefits and disadvantages, however. Here, greater public involvement is appropriate. The community provides input that the company uses to finalize the siting, although the community does not actually make the final siting decision. That remains the company's decision.

Extremely controversial projects may require a more deliberate, shared decisionmaking approach. In such cases, some developers have taken a voluntary approach in which communities are provided with information about the project and are asked to volunteer their interest in examining the project. The project does not proceed until a community agrees to it and the site meets the developer's requirements.

Case Studies

Addendum #1 contains an exhaustive review of the social science literature on siting of industrial facilities prepared by the U.S. Council for Energy Awareness. That report examined more than 70 sources and is the most comprehensive literature survey available today. It has been reviewed and endorsed by major siting experts. (For additional reading, the report contains a bibliography of detailed resources on this subject.) The following case studies cover the spectrum of public participation.

- In the mid-1980s, the Bonneville Power Administration (BPA) in Southern Idaho applied a low-key public information program to the siting of a reinforcement for a 73-mile transmission line. Local government officials were regularly briefed so that they could answer their constituents' questions and the affected communities were kept well informed through radio ads and public service announcements. Though interviews were conducted to locate routes that avoided major land use conflicts and workshops were held so citizens could express their concerns over alternate routes, citizens did not play an active role in the siting process. As a result of the public information program, the final range of alternatives, as well as the preferred alternative, were far different from those originally identified by the agency. BPA developed new route and design alternatives in response to the concerns of agencies and landowners.
- During the mid-1980s, Jersey Central Power & Light sought to determine the public's concerns over building an 18-mile transmission line in their community. In this case, location and design were already set. The main goal of its public information program was to promote a two-way educational forum between the company and the public. The utility also elicited public comment and concern over the project. However, limited opportunities existed for actual changes as a result of any public input and no specific recommendations were provided by the public.

- In 1983 and 1984, GPU Service Corporation and Jersey Central Power & Light Company had to choose, from four sites, where to construct a coal-fired power plant and ancillary facilities. They began their public participation program by forming a Siting Advisory Council (SAC), on which there were 26 active members and five observers. It was their job to prioritize issues by which sites would be evaluated. The utility's ultimate objective was to promote a two-way education forum between the companies and the public. Public meetings were held near each site to discuss the process, but they were much less successful than the SAC. Once the SAC had identified and defined the siting issues, an announcement of the site(s) selected by the companies and based on the prioritization was made. This program was very well received by all participants.
- Pacific Gas and Electric Company was faced with the challenge of routing an 85-mile transmission line through, or adjacent to, a highly productive agricultural area in California in 1985. The company employed a "mid-level" public participation program from the outset. The public was to be kept informed throughout the process and given a chance to participate in the planning process. Citizens were provided with a forum to comment and provide planning input on the project. Also, Route Selection Workshops were held for those interested. Those citizens who attended provided useful information that helped finalize the alternative routes and select the preferred route. The company and the public worked together to identify new issues and resolve them.
- In the early 1980s, the government of the province of Alberta, Canada, began work on the siting of a hazardous waste treatment and disposal facility. From the beginning, communities in the 70 regional jurisdictions in the province were included in the process. The government of Alberta began its public participation program by explaining to the public the need for the facility and gathering information to develop siting criteria. Communities were asked to express an interest in the process and told that they could opt out of it at any time. Of the 70 jurisdictions, 52 responded with a definite interest in participating in the siting process. The public was considered first in this project; technical site characterization was not begun until a community volunteered to participate. In essence, the public involvement process preceded the technical process. When the Alberta government chose a site 125 miles outside of Edmonton, in a community called Swan Hills, one of the other participating communities asked the government to reconsider. The village of Ryley was so disappointed that it even ran a newspaper advertisement claiming its community had a more technically suitable site.
- In 1988, Tampa Electric Company began planning to site two new power plants in an area of Tampa Bay known as Cockroach Bay, a sensitive aquatic preserve. However, when the utility began seeking permits it ran up against some heavy opposition and was forced to abandon its site plans. Quickly,

Tampa Electric formed a task force of 17 community members and asked it to choose an alternate site. The task force was composed of environmentalists, economists, educators and business people. The utility promised to keep the process completely open, thus gaining the participation of prominent members of the community. Tampa Electric also promised to be guided by the task force's decision — and it kept its word. Seventeen months after the task force was formed, a site was chosen 50 miles inland from Tampa Bay, and Tampa Electric promptly took steps to acquire the land. The task force clearly played an aggressive role. Both parties were pleased with the final decision.

- The Taunton Municipal Lighting Company in Massachusetts solicited proposals in 1987 for a new power plant. Because 80 percent of its power comes from oil and natural gas, the company chose coal for this new generating station and selected Silver City Energy (a joint venture between Pacific Gas & Electric, Bechtel Corporation, Baltimore Gas & Electric and Cogeneration Services Corp.) in 1989. To secure approval for the project — a 150 megawatt circulating fluidized bed (CFB) cogeneration facility — Silver City conducted an extensive public relations campaign prior to a public vote. It took a delegation of journalists, citizens and public officials to a CFB plant in California. It conducted public opinion polling, ran advertisements, sought endorsements from the local newspaper and, as Silver City's general manager describes it, ran a political campaign. Last fall the community voted in favor of the plant by a vote of 13,076 to 12,196. Silver City is required to pay Taunton \$2 million annually in lease and tax fees.

Nine Lessons Learned

While early site approval under 10 CFR part 52 is not a traditional power plant siting program, the literature on siting can benefit any company interested in participating in the ESPDP. The following "nine lessons learned" have been taken from a review of the case studies, literature on siting communications and discussions with experts in the fields of public participation and risk communications.

1. **Have a Plan:** Before starting a public participation program, the sponsoring organization should develop a communications and public participation plan. Broad internal agreement and familiarity with the plan within the company will facilitate its implementation.
2. **Communicate Early:** Experience with traditional industrial facility siting efforts shows that opposition is likely if the public feels the project developers

are keeping a low profile and trying to slip the facility into the community. The public should learn about the project from its sponsors and not its critics. This requires an early communications effort that will be sustained throughout the entire process.

If there are risks associated with the project, they should be acknowledged up front. People can accept risks as long as they have confidence that they are understood, taken seriously and controlled — so that public health is safeguarded.

3. **Demonstrate the Need and Explain the Benefits:** Any facility is more likely to be sited successfully if the need for it is clear and the benefits well understood. A description of benefits should be compiled by the project sponsor so that potential host communities can better evaluate the project.
4. **Communicate to All Constituents:** While different audiences will have varying degrees of interest in the project, communications should be as broad-based as possible. Representatives of all affected communities and groups should be identified and invited to participate in the process and learn about it if they choose. A group or community should *not* be excluded from the communications umbrella because it is assumed to favor or oppose the project.
5. **Listen to Constituents:** One consistent message from siting literature is that people must be given the opportunity to become informed, to have their concerns listened to and addressed and to have some control in matters that concern their lives. Information alone is not enough. Communications is a two-way street, and developers can learn quite a lot from the public. The one factor that has led to conflict and failure has been the lack of attention to social considerations. Trust and consensus are reached when developers are committed to listening to the public and working with them to find solutions, i.e., when the public becomes *a partner* in the process.

Audrey Armour of York University says: "I've found that while people may have a fear of a facility, the way in which people experienced the decision-making process — how they felt they were treated — had more to do with their resistance and anger than anything they thought about the facility."¹

6. **Seek Options and Solicit Community Interest:** When a decision is made that a facility can only be built in one place, the impression given is that it is dangerous, even if the risk associated with the facility is lower than other comparable facilities. An "accept it or fight it" set of options leads to greater public anxiety. Encouraging communities to keep an open attitude about a project — by indicating that it is not an irreversible commitment and that there are potential benefits that come with the facility — results in a more accepting attitude. While technical considerations might determine an "ideal" site, social and political considerations suggest that any facility should be made safe enough to be built in numerous locations.
7. **Set Realistic Timetables:** A good siting process allows all parties adequate time to consider the full range of issues associated with the project. Unrealistically short timetables will generate suspicion and hostility. At the same time, realistic timetables do not mean "as long as you want." People will test deadlines and need to learn that they are real.
8. **Have the Right People in the Right Places:** During discussions with siting practitioners, several stressed the importance of having the right people meeting with appropriate groups. Several recalled past experiences in which developers used inappropriate individuals to address and work with citizen groups, opinion leaders or elected officials, resulting in project failure. Adequate training and support are also essential for those individuals who will be representing the project sponsor. Technical, legal, financial and

¹Anita Warren, "Get Out of My Site," *Nuclear Industry*, (Fourth Quarter, 1991), p. 26, see Addendum #2

operations people generally require training in how to effectively interact with the public and the media. Communications professionals on the other hand generally require training in technical, legal, financial and operational issues.

9. **Share Power:** Past experience has taught the public that they have the political ability to block the siting of a facility. According to Peter Sandman, author of Getting to Maybe, "Developers must realize a community's substantial power to slow or stop the siting process. Doing so will reduce community resentment, reduce fear about health threats and put the dialogue on a more frank footing than the classic 'one-down/one-up' pattern that tends to dominate siting discussions."² When power is shared, people feel more a part of the process and their feelings are less likely to be clouded by anger or suspicion. Addendum #3 is a list of negotiation tools taken from Peter Sandman's book, Getting to Maybe.

²Peter M. Sandman, *Getting to Maybe*, (New Brunswick: Environmental Education Fund, Rutgers University, 1988)

SECTION THREE

COMMUNICATIONS AND PUBLIC INVOLVEMENT

- **Research Findings and Communications Theme**
- **Phase One: Application**
- **Phase Two: Selection of Sponsoring Organizations**
- **Phase Three: Site Selection**
- **Phase Four: Early Site Approval**

COMMUNICATIONS AND PUBLIC PARTICIPATION RECOMMENDATIONS

Introduction

The National Energy Policy Act of 1992 encourages states to balance electricity demand and supply through Integrated Resource Planning (IRP). Over half the states already have formal rules in place requiring this. In the future, more and more states will require utilities to analyze supply and demand, including demand-side management and alternative sources of supply, before state regulators will approve decisions and capital spending programs.

Research indicates that the public believes it is important for utilities to plan for future power needs. Indeed the public expects utilities to do so. Experience also shows that the public will want to be involved in these decisions, either directly or through some form of representation. Early site approval represents, therefore, a unique opportunity to involve the public earlier, and more fully, in an organization's planning for future electricity needs.

While the communications challenge will be significant, public support for the general concept of planning for the future can include the idea of reserving land for possible future nuclear power plants.

The role of communications is to inform people so they can make personal decisions about an organization's plans and become involved if they so desire.

Communications can be a catalyst for public participation, which in turn will significantly enhance the exchange of information. Both are important elements for a successful early site approval program.

The consulting firm Dames & Moore, under contract to the Joint Contractors, has developed a technical siting guide for early site approval. It provides for a

systematic, comprehensive site selection process in which three basic criteria (exclusion, avoidance and suitability) are presented via a four-step process. Public participation opportunities are indicated by Dames & Moore at appropriate times during the site selection process.¹

At the request of the Joint Contractors, Smith & Harroff reviewed the Dames & Moore study and attempted to integrate it in this communication/public participation plan. It is important to note, however, that the Dames & Moore four-step process is not *directly* linked to the four-phase approach discussed in this plan. The following outline shows how the two match up during the siting process.

¹Dames & Moore, "Draft Final Siting Guide: Site Selection and Evaluation Criteria For An Early Site Permit Application," November 2, 1992

COMMUNICATIONS AND PUBLIC PARTICIPATION	DAMES & MOORE SITING GUIDE
<p><u>Phase One:</u> <u>Application</u></p> <p>Organization has submitted a proposal to Joint Contractors to become a sponsoring organization</p>	
<p><u>Phase Two:</u> <u>Selection of Sponsoring Organization</u></p> <p>Organization has been selected and will be seeking an early site permit</p>	<p><u>Step One:</u> <u>Early Stage of Siting</u></p> <p>Identifying broad candidate areas -- begins with selection as sponsoring organization</p>
<p><u>Phase Three:</u> <u>Site Selection</u></p> <p>Organization undertakes public participation effort to aid site selection process</p>	<p><u>Step Two:</u> <u>Screening</u></p> <p>Screening candidate areas to find optimum areas</p> <p><u>Step Three:</u> <u>Identification</u></p> <p>Identifying a small number of candidate sites</p> <p><u>Step Four (a):</u> <u>Determine Which Sites are Acceptable</u></p> <p><u>Step Four (b):</u> <u>Select Preferred Site</u></p>
<p><u>Phase Four:</u> <u>Early Site Approval</u></p> <p>Organization announces it has selected a site and will seek a permit</p>	<p><u>Early Site Approval</u></p>

Research Findings and Communications Theme

The nuclear energy industry has been studying public attitudes for many years. Few industries have tracked public opinion so consistently and thoroughly. These studies show that:

- Only a small percentage of Americans have a fixed opinion either for or against nuclear energy.
- Most Americans have an open mind toward the future use of nuclear energy. In fact, 74 percent at least want to preserve the option to build new nuclear power plants in the future (Bruskin/Goldring, September 1992, for the U.S. Council for Energy Awareness).
- While most Americans are open-minded, they are not likely to welcome a new power plant of any kind. Although 74 percent want to preserve the option to build new nuclear power plants in the future, only 18 percent support the idea of starting to build them now. (This is at least partly because people are not convinced that new plants of any kind are needed.)

It is one thing to discuss building a hypothetical plant "somewhere in the United States." It is quite another to discuss building a new plant in someone's own area. All of the NIMBY (Not In My Backyard) feelings associated with any industrial facility, and particular concerns people may have about nuclear energy, will surface. However, information which explains the technology and answers people's questions has been shown to increase favorability toward nuclear energy.

A variety of "good neighbor" activities — including information center activities, plant tours, education programs, relationship-building with the media and opinion leaders and involvement in civic activities — help familiarize the public with nuclear

energy and develop trust in the utility to manage such facilities safely. A national poll last March showed just how effective nuclear power plant information centers have been (Bruskin/Goldring). According to this poll, 16 percent of American adults have visited one of these centers. Almost three-fourths of them (*72 percent*) *said the visit made them feel that nuclear energy is a good way to produce electricity* and 53 percent said the visit *increased* their favorable feelings about nuclear energy.

Public acceptance is greater in some regions of the country than others. Many utilities have worked at establishing good relationships with the people living around existing nuclear plants, through safe performance, environmental stewardship and good communications. They show their involvement by helping to solve community problems.

Public Acceptance and the ESPDP

The nuclear power industry, and others, have conducted or sponsored research on siting new power plants and planning for future electricity needs. They have found that people are unlikely to support the construction of any new power plant unless they are convinced that serious steps have been taken to save energy. At the same time, a majority believes that their electric company should be saving energy and planning for *new* power plants. Research conducted by Cambridge Reports for the Edison Electric Institute in 1990 found that *almost all Americans (85 percent) believe "careful planning for the future needs of the area" is "one of the most important things" they expect from their electric company.*

To summarize:

- Most Americans have an open mind regarding the future use of nuclear energy.
- People must be convinced of the need before they will consider any new power plant.

- People expect their electric company to be both saving energy and planning for new power plants.
- The concept of "planning for the future" is an important activity for an electric company.

Communications Theme for the ESPDP

Based on the research, it appears that **the public would respond favorably to the idea of setting land aside for a potential new nuclear power plant as part of planning for the future, even if no dramatic need is apparent now.** Fortunately, that is exactly the point of early site approval — banking land for the future. Early site approval can thus become a component of an organization's normal power planning process. For utilities currently involved in Integrated Resource Planning, early site approval becomes an element in the mix of supply options to be evaluated. Information on early site approval can be placed appropriately within broader communications on "planning for future" electricity needs.

The general communications theme for the ESPDP can be simply stated as: "Early site approval is one of many activities we are engaged in as part of planning for the future electricity needs of our customers." This general explanation needs two important supplementary points:

- First, early site approval is not a decision to build. Rather, it is a process in which land can be set aside for later consideration as a site for a new nuclear power plant.
- Second, if land is set aside, there will be a series of rigorous steps required (including licensing by the NRC) before a decision is made to build and operate a nuclear plant and the public will be fully involved in that process, too.

To implement this communications theme, this plan identifies four "phases" of communications and public participation:

- Application (organizations submit application or proposal to Joint Contractors showing their interest in the ESPDP)
- Selection of Sponsoring Organization
- Site Selection Process
- Early Site Approval (sponsoring organization seeks a site permit)

Each of these four phases contains five sections: Background, Objectives, Audiences, Messages and Programs. Recommendations on what information best explains an organization's decision to seek early site approval, and what early site approval is, are based on public opinion research related to power plant siting and discussions with facility siting experts.

Considerations for Potential Applicants

In order to engage in an effective public participation program — clearly the intent of the following plan — a sponsoring organization must be aware that a certain level of credibility with the public is required. That is, at least within the sponsoring organization's operating region, it should have a history of positive relations with the public. While this may seem self-evident, it would be virtually impossible to implement a successful communications and public participation program absent some minimal level of public "trust" in the sponsoring organization.

Other characteristics of a sponsoring organization might include an aggressive commitment to demand-side management and a demonstrable need for new generating capacity. The organization's record and credibility on these and other issues with the public, regulators and interest groups, will significantly affect the organization's ability to demonstrate early site approval.

PHASE ONE: APPLICATION TO BECOME SPONSORING ORGANIZATION

Background

During the next several months, organizations can apply to the Joint Contractors to become an ESPDP sponsoring organization. It is at this point that communications with the public and other audiences should begin.

It is likely that the media, groups opposed to nuclear energy and others will be following the ESPDP process and will comment through the local media once it is known which organizations have applied.

Early communications give an organization an opportunity to explain its interest in early site approval *before* some other group or individual does it for them. This demonstrates the organizations commitment to full public participation.

Objectives

The main objective is to encourage support for the idea of going through the early site approval process, as an important planning activity, without asking for support for a nuclear power plant (or, indeed, for a specific site) at this time. This will be accomplished by successfully communicating to specific audiences what early site approval is (and is not), setting an appropriate tone for information-sharing and public involvement and responding to questions. Targeted audiences (such as elected officials) need to be made aware of the organization's plans, and, depending on their expected involvement, must be well-briefed on early site approval.

To accomplish this, and all subsequent steps, the organization should have in place a comprehensive plan. The plan should identify audiences, assign responsibilities and provide for a coordinated campaign. Broad internal agreement and familiarity with the plan within the company will facilitate its implementation.

Audiences

While the general public is the primary audience, it remains to be seen how interested they will be at this early stage. The more sensitive audiences will be elected officials, regulators, key members of the media and other individuals in official positions who may be asked to comment on early site approval. Meetings with the Governor, relevant state legislative committees, Public Utility Commission (PUC) members and key staff, business leaders and other decisionmakers will provide those audiences with an opportunity to have their questions answered before their own opinions are sought.

The public will ultimately make a decision on the concept of future planning based on the totality of *all* the messages they are exposed to. It is unrealistic to expect the sponsoring organization alone to champion early site approval. The support of elected officials and other opinion leaders will be critical.

At the same time, to ensure that accurate information is consistently presented from within the sponsoring organization, internal meetings with company employees and the distribution of internal communication materials are necessary.

Messages

- Part of planning for the future
- Not a decision to build
- The first step in looking at one option, among many options
- Active public participation wanted

Specific messages should be tailored to the local energy situation and must be based on substantive local research. USCEA's national research can be a useful resource, but any organization participating in early site approval should consider an assessment of public attitudes in their service area as well as any contiguous areas.

It is impossible to predict whether or not specific nuclear power issues will surface at this very early stage. The sponsoring organization will have to monitor the situation and act accordingly.

In general, research shows that the public will not accept a decision to build a new power plant unless they are convinced it will be needed. **While early site approval is not a decision to build, information about an organization's planning process and the need for future power plants should precede communications on early site approval and be sustained throughout the program.** Many electric utilities are already engaged in the following activities that communicate the theme of "planning for the future:"

- Investing millions of dollars in energy efficiency programs that postpone the need to build more power plants.
- Studying electricity needs for the area, taking into account population growth, economic growth, jobs and quality of life.
- Studying a wide range of potential ways of meeting electricity needs — including coal, gas, nuclear energy, renewables, energy efficiency and purchased power.

Research also shows that there are convincing reasons why an electric company would want to seek early site approval, which may be incorporated as part of the messages, including:

- Starting early allows more time for citizen participation in the site selection process.

- Starting early allows the electric company to make other plans if no site is found to be suitable as part of early site approval.
- Starting early allows the electric company to be ready to serve future electricity needs without shortages.
- Setting land aside for possible power plant construction would prevent other non-compatible uses from being built nearby.

Furthermore, the public might want to know that certain actions *would* be taken by the local organization as part of early site approval and as part of overall planning for the future. For example, research shows that the following are important messages to communicate:

- Public participation and public information sharing.
- Holding community meetings and establishing telephone hotlines for citizens to express their views and ask questions.
- Creating an independent citizens group that includes experts and representatives of various community interests to work hand-in-hand with the early site permit applicant.

Internal Programs: Employees can be an organization's best ambassadors. They regularly communicate to family, friends and the public. Employee meetings, videos, newsletters, bulletins, internal distribution of external communications materials, posters, etc. are all valuable tools for employee education. Sponsors can also learn *from* its employees about how to engage the community, who matters and what people are asking.

At most electric utilities today, employee communications stress the need to contain costs and provide high-quality customer service. Building understanding of the need to plan for the future, including the possibility of new nuclear power plants, has generally not been a priority. Because of this, a corporate decision to participate in any kind of project relating to nuclear energy could be greeted with confusion.

Therefore, in this phase, the sponsoring organization should begin an employee information program. It should begin with the CEO and extend down through every layer of management deep into the organization's work force.

Whether the audience is internal or external, positive attitudes on early site approval can be fostered by information on the organization's resource planning, as described in the previous section. Information on why an organization would seek early site approval and its commitment to public participation is equally important. These communications should be sustained and reinforced throughout all four phases.

The following checklist outlines a basic program for internal communications as well as utilizing employees in external communications.

Board of Directors and Officers: The organization's Board and officers will have been a part of the decision to submit a proposal as an ESPDP sponsoring organization. These individuals will play a key role in communications with employees and audiences outside of the company. They must be frequently briefed on the organization's plans and provided with the resources necessary to speak on early site approval. Because Board members are from a variety of organizations and are likely to have contacts with local officials and other key audiences, they can be asked to speak out on early site approval. It may be useful to conduct a speaker training session where members of the Board and other officers are taught how to effectively present the early site approval program.

Stockholders: Most organizations have regular communications with stockholders beyond what is required by law. Early site approval represents a time when special communications to stockholders may be appropriate. Stockholders need to be reassured. But, stockholders also can represent a large group of supporters.

Senior-Level Management: Senior executives in the sponsoring organization can serve a unique communications function by virtue of their position. First, they can be used as part of an internal communications effort to inform other employees. Second, as people who are active in their community, in civic groups, churches, etc., they can promote the idea of future planning and early site approval. Outside audiences might include:

- Wall Street investment community
- Local business community, especially major customers
- Local citizens groups
- Media editorial boards
- Schools
- Labor groups

External Programs: The external audience includes the general public, the media, elected officials, regulators and other interested groups or individuals. Within the general public, there are specific audiences that need to be separately considered for specific communications. Organizations that become involved in early site approval will already have a great deal of experience with these audiences. The following is a checklist to use in developing the organization's plan.

The Media: A high priority will need to be placed on early and effective communications with the media. It is through the media that most members

of the public will first learn about the organization's involvement with early site approval. It is important that the press have timely and accurate information upon which to report.

Development of press materials and press briefings should take place as soon as possible after an organization submits a proposal to the Joint Contractors. Outreach to the media should be broad and include energy reporters, columnists, feature writers, editorial boards, etc. (A sample press release can be found in Addendum #4.) It may be useful to conduct media relations training for those who will be interacting with the press.

Advertising and Direct Mail: Advertising and direct mail may be useful mechanisms to communicate on the general subject of planning for the future. Information on demand-side management programs, and planning for future supply needs and options, may be addressed. In addition, advertising and direct mail can alert the public to upcoming opportunities for their involvement.

Elected Officials and Regulators: Elected officials and regulators will interpret public opinion, judge the merits of the project and pay close attention to the positions of a wide range of interest groups and influential or vocal individuals. Consequently, as part of encouraging support for the process of early site approval, without asking for any endorsement of specific power plant options, the following should be considered:

- Early briefings for elected officials, starting with the Governor and key state regulators
- Sharing of public opinion research
- Regular communications through mailings, telephone calls and one-on-one meetings
- Encouraging other interested groups to express their opinions to elected officials

PHASE TWO: SELECTION OF SPONSORING ORGANIZATION

Background

Once an organization is selected, it will begin the process of site selection. Active public participation begins at this point. Dames & Moore provides a detailed description of activities related to the early stage of siting in "Step One" of its report.

The research conducted for this report suggests that the general public, which typically is not attentive to energy issues, will want to be informed and involved in this instance. They will want to understand why the company is seeking early site approval, whether a nuclear power plant will be built on the site, and whether their families, their environment and their property will be protected.

Objective

The main communications objective during this announcement phase is to provide a mechanism for public participation. The public is a partner in the process. Their questions about the potential of having a "banked" site and their role in future decisions about the site need to be discussed. At the same time, communication of messages described in phase one will continue.

The extent of public participation should match the interest of the public. Adequate opportunities should be provided for people to become involved and have their questions answered. At this time, it is important to cultivate an attitude of openness and trust between the organization and its community.

Audiences

Community Leaders: Early in the process, meetings should take place with the elected officials of several communities to see if there is an interest on their part in being considered as an early site permit candidate. Communities must be quickly informed of what the ESPDP is, the benefits of the process and how the sponsoring organization will address concerns from the communities as they arise. This is

similar to a volunteer approach only in that it attempts to interest communities to want to be involved. It is *not* like a volunteer approach which is wide open to literally any community; the early site approval approach would selectively target communities.

General Public: The first general announcement to the public that the organization has now become involved in early site approval will set the tone for future communications. (Sample press release options that use the information strategy discussed earlier can be found in Addenda #5 and #6.)

Messages

- Phase-one messages continue
- Partnership theme and public participation opportunities
- Details about program

The messages in this phase of the program will focus on the ESPDP's purpose and the local company's objectives in participating. These might include:

- **Purpose of Early Site Permit:** Some electric companies believe building new nuclear plants *will* be a viable option for generating electricity in the future and want to be prepared in case it is necessary and desirable. Selecting a location and getting the site approved by the U.S. Nuclear Regulatory Commission (NRC) could take several years. If the site receives approval, the sponsoring organization will set the land aside. Approval to build a nuclear plant would be requested later, if and when it is needed. This process of setting the land aside ahead of time is called *early site approval*. It is not a decision to build. That decision will be based on a number of considerations and requires the approval of federal and state regulatory organizations.
- **What the Local Organization Hopes to Accomplish:** The local organization hopes to obtain NRC approval of a site that *could* be set aside for a nuclear

power plant. The process should ensure selection of a site that is desirable from the point of view of public health and safety, land use, environmental protection and public acceptance. The activity is part of the organization's overall planning for the future, in case a nuclear (or other) power plant may be needed.

- **What the Federal Government and Industry Hope to Accomplish:** To test a new approach to nuclear plant licensing and siting.

Programs

This public communications program will require a coordinated, systematic campaign involving the company's senior executives, information centers, its speakers' bureau, its community relations personnel, its district offices and its liaison to local schools and the educational community, among others. At this phase, communications tools could include:

Advertising and Direct Mail: Advertising and direct mail could explain why early site approval is a part of the organization's efforts to plan for the future (see samples, Addendum #7). This continues messages as described in phase one. It may be appropriate to increase these efforts.

Media Materials: As discussed, sponsoring organizations should give a high priority to providing information to the media. Press packets (press releases, Q&As, fact sheets), op-eds, feature articles and occasional press conferences are all important.

Displays, Exhibits and Brochures: Displays, exhibits and brochures can help inform the public about the ESPDP. They can be used at presentations and conferences. Existing power plant visitor centers may be used as a location for an exhibit about early site approval.

Video: A video presentation on early site approval can explain the program in greater detail than other vehicles, such as advertising. It can be used for internal and external audiences.

At this point in the process, companies may wish to consider additional efforts to involve the public. A Citizens' Advisory Board (CAB) — perhaps selected by the Governor — might be used to establish general guidelines for a public participation program. The company may wish to guarantee that **any community which becomes involved in early site approval does so with the explicit understanding that a nuclear power plant will not be built on an approved site without public involvement and public approval.**

The public participation approaches below might be implemented during Phase Three (the site identification process) and after a site has been selected. However, the spectrum of options needs to be considered by the sponsoring organization and discussed with community leaders during phase two.

Public Participation Program Options

- **Contract Negotiation:** Sponsoring organizations may be willing to negotiate with appointed community negotiators. The result of the negotiation is a binding contract which spells out in detail all the conditions and procedures surrounding early site approval. If no contract is approved, the developer has the right to put his best offer before the community. It is usually the responsibility of the developer to pay for community negotiators. The CAB could be assigned the responsibility of selecting negotiators and determining which communities to involve.
- **Blue Ribbon Panel or Citizen Advisory Group:** It is possible that a community would be willing to turn over decisionmaking responsibility to a group of citizens and experts. Their decision and negotiations with the

developer would guide the future of the project. The group should meet at various key stages and offer recommendations. Their role can range from advising to one of shared-decisionmaking.

- **Workshops and Meetings:** As a project moves ahead, public forums can help to establish a dialogue with the public. During the siting process, workshops and meetings can evolve from a statewide perspective to a more local involvement. A variety of formats can be used.
- **Information Network:** An information network allows for a greater number of people to be involved on a more informal basis than an advisory committee. Instead of attending regular meetings, they can write or telephone their ideas or comments, while being kept informed by mail.
- **Survey Research:** Surveys can be an effective means of gathering and understanding public perceptions. They can be used to determine the effectiveness of the siting effort and suggest changes.
- **Reports:** Most of the work product of the applicant will take the form of reports. Reports can vary greatly in level of technical detail and scope. However, an applicant's reports will be public documents that should strive for clarity for a wide audience.

Major reports should be condensed into summaries for greater public distribution. Minor reports distributed on a more frequent basis can convey a sense of continuity in the early site approval planning process. A similarity in format and consistent use of design elements can help the public identify the reports and, consequently, stay informed. So also will restatement in each report of what early site approval is and its major goals.

Reports should have the dual purpose of informing and fostering public response. A mechanism should be created (telephone numbers, response cards, etc.) that makes the reports interactive.

Obviously, local conditions will determine which approach, or combination of approaches, to use.

PHASE THREE: SITE SELECTION

Background

Site selection is a multi-step process: first, candidate areas will be identified; then, a small number of sites will be found; next, a determination will be made on which sites are acceptable; and finally, a preferred site selected. These are steps 2-4 in the Dames & Moore report.

Objective

During the site selection process, an active public participation program can be implemented based on the level of public interest. As the site selection moves from broad geographical areas to specific sites so, too, will the public participation program start regionally and focus more actively around sites. The main objective is to allow the level of participation appropriate to the level of public interest.

The program should encourage and welcome direct involvement from the public, ensure that all legitimate points of view are heard, work on solutions to problems, and result in the public becoming a partner in the early site approval process. An active communications and public participation program will continue to educate as well as maintain and strengthen the organization's natural base of support in the community.

Audiences

A variety of community groups and individuals will be interested in early site approval. These range from those who have traditionally opposed nuclear power to labor, business or civic organizations that support the plan. The opinions of these individuals and groups often have great credibility with the public. Some will end up supporting the project and some will oppose it. None should do either out of a lack of information and understanding about what early site approval is.

The state's Public Utility Commission, Governor and legislative committees will have been contacted earlier in the process. Their support for the process is critical and ongoing presentations should be given by senior company personnel. If there is an Integrated Resource Planning process, the sponsoring organization can integrate early site approval into the IRP.

Messages

- Phase-one messages continued; more focus around likely site communities
- More information on public participation program
- Feed back public participation activities to all interested audiences

A strong emphasis on phase-one messages (i.e., planning for the future and how early site approval fits in with this planning effort) will be needed. This is especially true for those communities near candidate sites. As the process becomes more focused (i.e., as site selection moves from unfocused "possible sites" to specific candidates), the messages conveyed should focus on:

- Early site approval is not a commitment to build, but an integral step in planning for a range of possibilities in the future. These possibilities may include building a nuclear power plant, but not without many more steps involving public participation.
- The sponsoring organization is committed to a process in which there is ongoing public participation as part of the decision on site selection, and all future steps once site selection is made.

Programs

At the early stage of site selection — screening candidate areas for sites — public information activities may include regional media releases and background reports provided on a regular basis and at key decision points.

When *potential* candidate sites are located, the sponsoring organization(s) can start building local and regional networks of third-party experts. These networks would include experts in health, planning, risk management, land use and other fields. Such people would contribute to the technical siting program by identifying important issues and developing criteria to prioritize issues.

While somewhat beyond the scope of early site approval, there will be legitimate questions about nuclear technology that go far beyond "banking" land. A network of local and regional experts can be used in answering these questions. Other critical activities include:

- Maintaining communication channels with local and regional elected officials so that clear lines of communication are established before the announcement of candidate sites.
- Identifying other interested and affected parties who will need/want to be contacted immediately upon announcement of candidate sites.
- Creating a technical review group (composed of local and regional technical experts from universities, planning commissions and consulting organizations) which can be used to work through difficult issues.

When *actual* candidate sites are identified, more intensive public participation activities are appropriate. Key activities may include:

- Conducting community interviews to identify interested and affected parties and to identify membership for a Community Advisory Board (local CAB) to assist in the development of a local public participation plan.
- Developing a local public participation plan for each candidate site.

- Establishing information repositories within each community which hosts a candidate site that can be accessed by any interested citizen.
- Conducting small meetings, workshops and open houses at the information repositories.
- Organizing and supporting a speakers' bureau, composed of project staff members and advisory and technical review group members, who would be trained to make presentations to local civic and community groups.

At this site-specific stage, the public participation process can become even more interactive and tailored to the site. As the final preferred site is identified, networks will be refined and a more formal mechanism for soliciting public input may be devised, such as:

- Formally designating a site-specific advisory or negotiation group to work out a contract agreement between the community and sponsoring organization.
- Tailoring the public participation plan to the site and putting it out for formal review.
- Starting a site-specific newsletter, telephone hotline and other communication devices.

Schools: While the ESPDP itself is not a long-term effort, the possible construction of a nuclear energy plant is. Young people in schools today will be young community leaders in 10 to 20 years. Teachers themselves are important conduits of information and opinion to their students and within the broader community. Accordingly, sponsoring organizations might consider taking the ESPDP to schools through

presentations, pamphlets and video presentations and perhaps through the development of a "teacher's kit" which presents a program that involves the students in a model siting process exercise.

PHASE FOUR: EARLY SITE APPROVAL

Background

When a site (or sites) has been selected, the organization will submit documentation to the Nuclear Regulatory Commission for a site permit. For the purpose of this plan, Phase Four is the period of time between selecting a site and the NRC's decision to grant an early site permit. Phase Four includes the important communications that take place on the days immediately following an NRC decision to grant an early site permit.

While this plan ends when the NRC makes a permit decision, if a permit is granted, communications and public participation obviously continue. After receiving an early site permit, general information about nuclear power and how it may fit in with future plans, should continue.

Objective

The objective of this phase of the communications and public participation program is to continue to solidify support within the affected communities for holding open all options with respect to the use of the approved site.

Audiences

The audiences for this phase include virtually all of the audiences described in the previous three phases, although some will be more frequently involved than others in communications and public participation activities. Also, although the focus is likely to be on audiences in the region immediately around the selected site, because of the unique nature of early site approval and of nuclear power, the sponsoring organization must remain sensitive to national attention as well.

Principal audiences during Phase Four will include:

- Local community (or communities)
- Elected officials

- Other community leaders (business people, civic organizations)
- Regulators
- Media

The sponsoring organization will need to evaluate the level of interest outside of the site community and act appropriately.

Messages

- Phase-one messages continued
- Provide substantive information on nuclear option
- Benefits of being an early site approval community

While research information gives encouragement to those interested in new nuclear power plants, there is no doubt that people have questions about nuclear power. They are concerned about safety, waste disposal and other issues. It would, therefore, be a mistake to underestimate the communications challenges that face an organization. This will be especially true at the time the organization is notified that it has been granted an early site permit. The messages that are conveyed in this phase should focus on:

1. Support of the concept of planning for future energy needs:
 - There is a long lead time in construction of power plants; therefore, the right thing to do is to plan ahead.
 - Planning is essential in order to keep pace with future needs.
2. Providing substantive information for consideration of the nuclear option.

- Independent scientific organizations and regulators have determined that new advanced-design nuclear energy plants are a safe and reliable option.
- Nuclear energy plants protect the environment because they do not emit greenhouse gases or air pollution.
- The need for a diverse mix of energy sources so that future needs can be adequately met regardless of the world energy situation.

It must be remembered that even at this point, a decision has not been made to build a plant. While general educational information about nuclear energy is important, the focus should remain on the early site approval process. It may be possible to talk more specifically about the benefits of early site approval. While discussions about the economic benefits of constructing a power plant are still premature, there is an important less-tangible benefit — the ability to consider the nuclear power option and plan for the future while there is time to do it right.

It is possible that at some point in the future, a number of utilities will be interested in building nuclear power plants. The move to nuclear could result from problems from other power sources, the need to respond to significant increases in demand for electricity, or other unforeseen events. Should the country wait until the last minute before it initiates licensing procedures that haven't been used for decades? Or, should we plan ahead, test new licensing regulations, bank sites and go through the process in a less urgent fashion?

The organization, or organizations, and the public in the region which demonstrate early site approval will benefit from conducting the process with adequate time to consider all the issues, fully involve the public and prepare itself for its future energy needs.

Programs

At this point, most of the communications with the site community will take place through the public participation process. The local CAB, if it is still in existence, or a similar group, may distribute information to the general public in the form of news releases and reports. Communications more specific to the nuclear energy option will come from the sponsoring organization. It is likely that the site community will have questions about advanced nuclear power plants, such as:

- environmental advantages
- public health and safety
- waste disposal
- economics
- comparison to options
- local benefits

Communications at the state/regional level will likely consist of press releases and media briefings on the progress being made on site approval. Some general communications on phase-one messages and nuclear power issues may be deemed necessary by the sponsoring organization. However, the interest in these types of programs should be evaluated through public opinion research.

Specific program options include:

- **Direct Mail:** Lists developed during the preceding three phases will form the core of a useful database for direct mailings to elected officials, community leaders and interested citizens on issues of nuclear power and the process that will be followed if the organization and community decide to seek a construction/operating license.

- **Internal Communications:** As noted in the first phase, employees of the company can be an effective network for disseminating information about the status of the site and development plans, as well as an active network when visible actions related to the site take place. These employees must be kept informed about the program and should receive regular information through mechanisms such as newsletters and meetings on the status of the project.
- **"Ambassador" Programs/Speakers' Bureau:** Senior executives of the company can serve not only as influential sources of information internally, they should be used in the community as well to give speeches, presentations and other talks to discuss the status of the decisions and the options available.
- **The Media:** Ongoing media relations are necessary so that if a decision to build is made, there will have been an adequate base of knowledge developed with relevant members of the media. Media relations activities could include: one-on-one meetings with appropriate reporters (energy reporters, columnists, feature writers), editorial board meetings and media seminars. The sponsoring organization should also periodically review its informational materials (press releases, Q&As, fact sheets, backgrounders) in order to keep them up-to-date over the course of this potentially lengthy phase. Op-eds and feature articles should be considered at times when attention is likely to be paid to the project.
- **Displays and Exhibits:** Displays, exhibits and other presentational tools should be updated to begin the process of educating the public on the nuclear option. (This may include an updating of the video and visitor center exhibit described in Phase Two.)
- **CAB:** The local CAB, or a similar group, should be maintained as a valuable organization to consult with as the program moves ahead.

Beyond Phase Four

After an early site permit is granted, the organization will have many years in which to consider a decision to build. This may be a difficult time. Although actual development of the approved site may still be quite far in the future, the "banked" site stands as evidence of a potential use. Opponents to the development (whether as a nuclear plant or other use) will continue to try to build support for their position. In a society often characterized as one demanding "immediate gratification," it is much easier to alarm people with descriptions of the "risks" than it will be for the sponsoring organization to convey information about the potential benefits. In order simply to keep its options open, the sponsoring organization must maintain a credible level of involvement in both communications and public participation activities.

	Phase One: Organization submits proposal to Joint Contractors	Phase Two: Organization is selected	Phase Three: Site selection	Phase Four: Site selected, apply for early site permit
Objective	<ul style="list-style-type: none"> • Early communications to general public and key audiences • Seek support for process, not nuclear power • Open attitude 	<ul style="list-style-type: none"> • Provide mechanism for public involvement (announce CAB) • Continue communications on Phase One messages • Discuss program with interested communities 	<ul style="list-style-type: none"> • Implement public participation activities • Increase intensity as process moves from regions to sites • Continue Phase One messages 	<ul style="list-style-type: none"> • Maximize local involvement around a site • Answer questions related to nuclear energy • Maintain some state/regional communications
Audiences	<ul style="list-style-type: none"> • Employees • Elected officials, regulators, opinion leaders • General public 	<ul style="list-style-type: none"> • Community leaders • General public 	<ul style="list-style-type: none"> • Community groups • General public/greater focus from regions to communities 	<ul style="list-style-type: none"> • All shareholders and public in site community • General public in region
Messages	<ul style="list-style-type: none"> • Part of planning for future • Not decision to build • First step in one option, many options under consideration • Active public participation 	<ul style="list-style-type: none"> • Continue Phase One "planning" messages • Partnership theme and public participation opportunities • Provide more details on early site program 	<ul style="list-style-type: none"> • Continue Phase One messages/more focus around likely site communities • More information on public participation program • Feedback public participation activities to other audiences 	<ul style="list-style-type: none"> • Continue Phase One communications • Provide substantive information on nuclear energy option • Benefits to the community of early site approval
Programs	<ul style="list-style-type: none"> • Internal education activities • News media briefings • Briefings for key audiences 	<ul style="list-style-type: none"> • All of Phase One programs continue • New programs (i.e., video, exhibits, direct mail) • Public participation program announced 	<ul style="list-style-type: none"> • General communications activities (press releases, etc.) at regional level • Network building at potential sites • Public participation and communications activities increase at potential site communities 	<ul style="list-style-type: none"> • Ongoing public participation with site community groups • Occasional regional communications (press releases, etc.) as updates

SECTION FOUR

ADDENDA 1-3

- **USCEA Siting Report**
- **Nuclear Industry Article**
- **Negotiation Tools**

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SITING INDUSTRIAL FACILITIES

LESSONS FROM THE SOCIAL SCIENCE LITERATURE

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SITING INDUSTRIAL FACILITIES

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SITING INDUSTRIAL FACILITIES

LESSONS FROM THE SOCIAL SCIENCE LITERATURE

PREFACE

In May 1991, USCEA's Committee on Siting Communications (established under the Nuclear Power Oversight Committee's Strategic Plan) requested a review of the social science literature on siting industrial facilities.

To prepare this report, USCEA compiled an extensive bibliography of siting-related material and collected both published and non-published material for review. A number of members of the siting committee submitted material for incorporation into this document. This review represents information from over 70 sources.

Obviously there are limitations to what can be learned from a literature search. Egon Frech (Atomic Energy of Canada) suggested that much is not yet available in open literature, and that it is difficult to arrive at common principles.

Steve Swanson (Clement International Corporation), who directed the Electric Power Research Institute's risk communication study, said that many people claim to be siting practitioners, when in fact, there is no clearly established field. He cautioned against relying on the literature in many cases.

ACKNOWLEDGEMENTS

It is no simple task to complete a review of this sort. I would like to acknowledge the help of many people, some who I will mention specifically. I am grateful to Loring Mills of Edison Electric Institute, to Egon Frech of Atomic Energy of Canada, and to Steve Swanson of Clement Associates for useful discussions and for providing materials to review. I am grateful to Erin Nagorske for spending many hours tracking down and suggesting books and articles, to Kimberly Wareham and Cathy Clark for pulling together the large siting bibliography, and to USCEA staff members and Harold Finger for reviewing and providing useful input. I would also like to thank researchers whose work I cited--among them John Aheame, Richard Bord, Howard Kunreuther, Michael O'Hare, Peter Sandman, and Spencer Weart--for reviewing and providing additional information, all of which has strengthened this work. And finally, I am most appreciative to Ann Bisconti for sharing her knowledge of research and the literature, for reviewing the content of this paper, and for her vote of confidence. I am convinced that she should head a national Office on Confidence.

EXECUTIVE SUMMARY

UNDERLYING PRINCIPLES TO FACILITY SITING

The literature demonstrates that there is no single "best" solution that can solve the problem of siting facilities. There are a host of techniques that can be employed under varying circumstances. This makes it difficult to draw broad-based lessons from past experience. Some common principles are important, however, regardless of the situation:

- Public acceptance of the facility is needed. Coercion creates outrage which creates strong opposition.
- It must be agreed that the consequences of *not* building the facility would be worse than the consequences of building the facility.
- There must be a clear and agreed upon demonstration of need for the facility.
- Technical "proof" will not be enough to demonstrate need or safety.
- People must be treated with respect and allowed to participate in the process--to become informed, and to decide if they want to negotiate.
- An open face-to-face dialogue among all parties who feel they have an interest or stake in an issue can lead to win-win situations. It can also fail, but the chances of success are greater if dialogue occurs.
- Finding ways to permit choice allows citizens to become a part of the process and establishes trust. Some social scientists say that voluntariness is the key determinant in acceptance.

There are some things that a community will not trade away, including its sense of group identity or "community," and the things citizens like most about their community, such as clean air and water and healthy living. People will also be concerned about their property values. Companies trying to site facilities must reassure or provide guarantees to a community on these issues.

PROBLEMS IN PAST SITING EXPERIENCES

Siting decision-making was historically managed by specialized technical experts who used a "narrowing" process to determine the "best" location. These locations often felt they were singled out unfairly. Companies tried a number of things to accomplish their goal of building the facility, including "educating" the local people to show that the project was safe, would not harm their families, and would instead provide benefits. This old approach is called the "decide-announce-defend" method of facility siting.

Opposition ("educational" groups), many led by women, sprang up across the country and networked to exchange the most effective methods to fend off a developer. This led to confrontational spectacles--perfect for the mass media audience. Political leaders analyzed their support for a project in terms of risk to their political career rather than social need. Each "side" touted its own studies, developed its own "facts," and offered its own scientists to support a case--called adversary science. Researchers have found that the public trusts scientists on technical issues, but when technical issues are confused with political issues, the public challenges everything. In such disputes between "experts," each position is given equal weight regardless of the weight of scientific consensus. Conflicting "facts" caused confusion and conveyed scientific uncertainty. The result was gridlock and delay which, in many cases, resulted in cancellation of the project. This problem has been described as NIMBY (not in my backyard) or LULU (locally unwanted land uses).

"NIMBY"--SYMPTOM OF DEEPER SOCIAL PROBLEMS

Although NIMBY refers specifically to the ability of a relatively small number of people to block a facility that is considered beneficial to the whole, it is generally considered a symptom of other problems. Factors that may have contributed to NIMBY, according to the literature, are:

- demographic shifts and an increase in populated areas;
- a "tower of Babel" effect in which many different "languages" are spoken because of technical specialization;
- an increase in the number of chemicals and elements used in technical processes;
- an increase in the number of needed processing and disposal facilities;
- an increase in information and visual images about industrial (manmade, thus preventable) disasters;
- an increase in government regulation and intervention to prevent harm to citizens;
- decentralization of technical expertise;
- an increase in public disagreements between technical experts (for political and other reasons), which undermine expert credibility;
- an increase in expectations by mass publics that governments should solve problems;
- an overall weakening of trust in industry and government to do what is in the interest of the public;
- a gradual shift to risk prevention in an environment of seemingly "too rapid" change; and
- a crisis of leadership--too few political leaders willing to risk supporting facility siting.

Many of these items reflect society's slowness in adapting social processes to accommodate technological innovation and change. This lag in adaptation is called a "crisis of transformation." Technology which has allowed people to stay more informed has also flooded them with so much information that they can't sort it

out. It has also taught that knowledge is constantly changing and that what is safe today may be toxic tomorrow.

This "crisis of transformation"--the inability to keep up with technological changes-- brings out value conflicts. Four value conflicts seem to form the basic underpinning of the NIMBY reaction:

- Trust in science and technology as problem solvers versus a skepticism of science and technology's ability to do more than create new problems;
- Nature as a resource to be used by God's creatures versus nature as a resource to be protected (the Garden of Eden) by God's creatures;
- Group rights and more government involvement versus individual rights; and
- Disagreements about distributional fairness and who carries the burden of creating social benefits.

The literature shows that opposition to facility siting is a much more complex issue than simply "anti-technological," "anti-industrial," "anti-progress," or "ideological opposition" to specific processes. Facilities of all sorts face many of the same problems stemming from the larger social issues.

MAKING PUBLIC DECISIONS MORE ACCEPTABLE

EARLY PUBLIC INVOLVEMENT IN THE PROCESS: NO SURPRISES

All agree that there must be community involvement in the siting process or the risk of failure will be greater than the risk of success. Early public involvement allows the developer to stay in step with public sentiment and allows the public to stay in step with the developer. Legitimate decisions are often not acceptable to members of the public for reasons that could have been addressed early on in the process. Unless interested members of the public have gone through the same thought and choice process as the developer, they are less likely to understand or accept the legitimacy of the outcome. While there will always be opposition to development projects, a process that seeks inclusion rather than exclusion is generally considered fair and acceptable to most.

This strategy of public involvement departs from the notion of "one true or best way," in favor of a more pluralist approach that attempts to meet the needs of many differing interests. The strategy aims for the "best fit for a given circumstance" rather than "universal truth."

According to the literature, there are many levels of public involvement--from keeping the public informed (public information campaigns and task forces or advisory groups) to listening to the public (having local

representation on planning or siting boards, public meetings, workshops, problem-solving meetings, the use of surveys), to letting the public influence the decision-making process (negotiation, mediation).

Two questions that members of the public will immediately ask when a facility is proposed are:

- Is there a need for the facility? In the energy area, for example, people will ask: *Have conservation and efficiency been seriously pursued and achieved?* In the waste area, they will ask *"Have waste reduction processes been implemented?"*
- Is the proposed facility the best way to meet the need?

If these questions have been answered satisfactorily, it is possible to raise the issue of where to put the facility. Many sociologists believe that the *voluntary* approach to facility siting is the *optimal* solution because a community appoints itself to examine the issues rather than being singled out as a target. In this case, socio-political issues are addressed first, followed by technical engineering issues.

Some sociologists point out that a community must have assurances that, if the community volunteers to study the possibility of siting a facility, they won't be forced to take the facility if they decide against it. Members of the community must understand the process--it must be "transparent"--or the level of mistrust among all participants will increase. Some also note that participatory processes *increase* the need for political leadership.

It is not necessarily easy to secure public participation. There may be distrust among the parties involved, apathy and lack of interest, lack of familiarity with the technology and the potential impact of a project, poor past experiences, and dominating special interests. In addition, individuals must sacrifice time for workshops and meetings. There are those who believe that it will be nearly impossible to get any community interested in hosting a hazardous or radioactive waste facility. Even so, most agree that when a community is signaled out as a potential host without any previous involvement, it will likely respond as a "target"-- with outrage and anger, making the process confrontational and dialogue more difficult.

CONSENSUS BUILDING: FINDING OUT WHAT WE CAN AGREE ON

Many social scientists believe that a primary objective of any siting endeavor should be to attempt to achieve consensus to the degree possible. To achieve this, there is no substitute for direct contact between adversaries. Frequently adversaries have preconceived images of one another, which lead to distortion and intensify the conflict.

The forms of direct dialogue are very important. Court or hearing formats often leave *both* parties dissatisfied, for example. Social scientists say that a neutral third-party facilitator or mediator can make discussions or negotiations more acceptable and fruitful.

Many social scientists believe that it is important that all groups agree from the start that their principal goal is to protect human health and safety and the environment.

NEGOTIATION, MEDIATION, COMPENSATION: TOOLS OF RESOLUTION

The siting process is a long one. It begins by discussing and establishing consensus on issues of need and safety. It ends in more specific negotiations on how to satisfy all parties through various compensation and risk mitigation agreements. While social scientists advocate early negotiations, they caution against over-optimism. Some say that prevention and mitigation issues must be resolved *before* negotiation.

Compensation will be expected in exchange for hosting a facility. Researchers say there are numerous forms that compensation can take, including:

- money in the form of payments to local governments or lower tax rates;
- conditional compensation--unmeasurable costs to the community such as guaranteeing property values or insurance;
- in-kind compensation--measurable costs that can be balanced;
- protection--new emergency planning equipment, training, site monitoring; and
- impact mitigation.

Sociologists advise developers to be sensitive to the fact that attempting to negotiate compensation agreements may offend opponents. Simple cash payments are often inappropriate and are easily characterized as a bribe. It is important to recognize that different exchanges may appeal to different groups within the community. Influential decision-makers tend to view compensation as more important than local power-sharing, while the public and those representing environmental advocacy organizations tend to view local power-sharing as more important.

Although financial rewards are important, the public believes that the need to protect human health and the environment *far* outweighs any financial gains. Compensation is generally not enough to create cooperation. Researchers have found that promise of local oversight in the daily operations of the facility can play an important role in its acceptance.

Other items that a community could require would be assurances that, if they accept one undesirable facility, they won't have to take certain others. Communities may also insist that the negotiations be grounded not only in tort or regulatory law, but also in contract law, which imposes stipulated penalties for specified infractions, with oversight guarantees.

Another difficult problem arises, according to social scientists, when the public lacks trust in local officials. In that case, the community will not recognize the legitimacy of negotiations with their official representatives.

Some believe that siting issues should mainly be resolved at the local level. There are complications in determining what is the "local level," however, because there are people and communities who are not located near the facility but who feel affected by it (they may live downwind, downriver, on a transportation route). In some cases, local acceptance has existed, while state or county opposition has stopped the project.

WHO MIGHT WANT TO HOST AN INDUSTRIAL FACILITY?

According to the literature, certain communities are more likely than others to have an interest in hosting an industrial facility:

- An area that is familiar with the subject, that has a similar facility, or depends on the facility.
- One that has economic and/or social needs that might be met in exchange for hosting the facility. Local officials must clearly communicate why they see an industrial facility as a solution, and in most cases, should obtain public consent to bring the issue to debate.
- One that needs environmental clean-up. This is the "risk reduction strategy," in which the new facility is a tradeoff for eliminating or decreasing an existing risk; and
- One that is already industrialized.

WHERE CAN FACILITIES BE MOST EASILY SITED?

Most sociologists believe that the best community is one that appoints itself to examine the issue. A community will only want to consider accepting an industrial facility if its gain is greater than its loss. Since the process of determining need, understanding the complexity of the subject, and deciding whether or not to negotiate for an exchange is a long and political one, it is useful to work with a community that has:

- A "common language;"
- A political structure that accommodates all viewpoints in the decision-making process;
- A political leadership that will speak up and not permit abuse of an open process; and

- A demonstrated ability to define a community goal, build consensus around an issue (as opposed to splitting into bitter rival camps), and make acceptable decisions.

FILLING THE INFORMATION GAP: YOUR FACTS, MY FACTS, OUR FACTS

The research shows that, because most people don't have the time or interest to search for the information they require to make a decision, communicators must find out what people *want to know* most and package the information in ways that are most functional and *easy to use*.

One of a community's main problems is how to manage the information requirements necessary to answer questions. Each side of an issue appears to present only the facts that are in their interest, and often the "facts" are conflicting.

Researchers point out that there should be a mutually-agreed-upon information base, which is developed collaboratively. Some communities have established community advisory groups to develop an information base and seek consensus on questions.

An example of a collaborative information process conducted at the national level is a citizens' handbook entitled *Siting Hazardous Waste Management Facilities*. It was developed jointly by:

• The Conservation Foundation	• The National Solid Wastes Management Association
• The Chemical Manufacturers Association	• The Office of the Governor of Colorado
• The National Audubon Society	• E.I. DuPont de Nemours and Company
• The Natural Resources Defense Council	• The Chamber of Commerce of the U.S.
• The Keystone Center	• The National Conference of State Legislatures
• Dow Chemical, U.S.A.	• A private attorney
• The Sierra Club	• The League of Women Voters of the U.S.
• Monsanto Company	• The Legal Environmental Assistance Foundation
• The National Wildlife Federation	
• The Environmental Defense Fund	

On issues where there is disagreement, the handbook presents both positions side by side. This document makes it easy for readers to get the whole story and make up their minds.

Some researchers note that opposition groups sometimes make baseless or irrelevant attacks, because they are as effective as legitimate attacks in creating the image of an insensitive and biased developer. Certain

opposition groups, some say, are less concerned about their public image than developers. In such cases, unless a supervisory authority is willing to impose costs on irresponsible behavior, the participation process can degenerate quickly.

EFFECTIVE COMMUNICATIONS: KNOW WHAT THEY THINK, SAY WHAT YOU MEAN

Researchers point out that effective communications require more than a one-way dialogue in which the developer announces his plans and then defends them against criticism. Effective communication requires those who are interested in dialogue to influence the outcome. "Transparency" is essential, to reduce suspicion that the developer is trying to manipulate public desires. When thinking about what information to provide to the various publics, two assumptions are critical, according to the literature: (1) assume you don't know what people think. Find out by asking them; and (2) assume they don't know what you think. Tell them.

Some principles of effective communication include:

- Create a plan--both a strategic plan that has input and support from the industrial organization, and a public participation plan. The Edison Electric Institute has produced a course on public participation and has published a number of "how to" manuals with detailed planning charts. Other guides exist also.
- Make the plan flexible. Recognize that communications and interactive dialogue may change the course of action.
- Initiate dialogue before a specific project is planned or proposed. Don't "drop" your proposal on an unprepared community. Early dialogue is important to trust-building and to understanding whether or not a proposal will create a "tidal wave" or will be received as "something to consider."
- Avoid actions that block interaction and *inhibit* communications, such as the "we know best" approach or the use of formal hearings.
- Establish credibility and trust even if the opposition does not:
 - Demonstrate good faith: actions and images hold significantly more weight than words.
 - Never offer something you can't deliver. If you don't really want input from the community, don't ask for it.
 - Don't twist or massage the facts to make a point.
 - Admit past mistakes.

- Understand personal and community values and priorities, including the need to protect one's family and area of influence.
- Avoid technical jargon and keep the language simple so that everybody can understand. The use of jargon gives the impression that one is hiding the facts.
- Set up interactive channels of communication that work. Don't rely on formal communication channels.
- Maintain a dialogue with elected officials. They will be the first to get attacked.
- Understand research tools and use them. Survey research can be used to determine underlying beliefs and values, to track changes in attitudes, and to determine which ideas and concepts are the most important and most effective in communicating the intended message. Evaluation research can determine the effectiveness of specific communication tools (such as brochures and advertisements).
- Acknowledge that facilities such as those associated with nuclear technology, radiation and hazardous waste are widely feared, and many communities want nothing to do with them. Admit that you are looking for a community that examines the issue, realizes that the facility is safe, and recognizes that it can receive important benefits by hosting the facility.

EXPLAIN BENEFITS, PREVENTION, AND CONTROL TO COMMUNICATE SAFETY

As a result of increased concern about technological risks, social scientists have developed a substantial body of information on how and why people's subjective assessments of risk differ from scientists' assessments. Nuclear energy represents one of the best examples of a low risk that is perceived as a high risk. Many sociologists have focused on communicating risk--that is, how to bring more rational processes of analysis to non-experts as a way to diminish fears caused by qualitative assessments of potential danger.

It may be difficult to decrease the perception of risk by focusing on risk. Because no facility can offer a "zero risk" guarantee, disputes usually focus on the risk of having the facility rather than on the risk of *not* having the facility. Because risk is communicated in an environment of conflict and polarization, it is most useful to facility opponents. They are able to "capture" the information and use it to show that a facility is risky, while ignoring the primary message that the risk is so low there is little cause for concern. Danger and uncertainty then become the main messages that people receive.

The most effective way to communicate safety may not be in terms of risk--that is, "danger not posed"--but rather the benefits gained from the technology and the care with which facilities are operated, monitored and controlled. Visits to operating facilities and the communities in which they operate increases confidence by providing concrete examples of safety. Without a clear understanding of the benefits and controls, as well as some familiarity with the operating record, risk--"danger"-- has no context in which to be judged other than as something to avoid.

Social scientists have found that people's perceptions of risk have as much to do with management issues as with the technology itself. Concerns may include operational management decisions, information access, and the availability of conflict resolution processes between the facility operator and residents. Many experts believe that, when members of the public are taken seriously and are allowed to participate in the decision-making process, they develop the desire and ability to understand the complexities of relative risk.

CONCLUSION

The literature provides many lessons but no single approach or catch-all solution for siting success. There are no easy answers, yet there are many possibilities which may lead to--but do not guarantee--success. Each change in a process produces other changes which may be unanticipated. Most of the proposed "solutions" are items that may be useful in the process of solving the siting problem. Each problem presents different variables and circumstances, and must be addressed with careful examination of the situation and best judgment based on analysis of what has already been tried and tested. A careful yet flexible strategy that seeks inclusion and consensus may facilitate the process of siting a needed industrial facility. Even with need for the facility clearly established and a state-of-the-art participatory communications program to build consensus, the project may be doomed if strong political leadership is missing. "In some ways, the siting problem is a special case of a more general crisis in government and institutional legitimacy. The shortest version of it is that citizens have been taught that problems should be solved for them with no sacrifice or work required, and too many elected leaders have cooperated in a sort of mutual seduction, promising just the sort of painless fix that the crowd demands (but knows will not be forthcoming). What the siting processes enacted in most states really need is a governor who will say, "This facility represents a risk that grownups willingly bear for the common good. It isn't abusive, or exploitative, it won't give your children cancer, and we need it. Grow up." (O'Hare, 1992).

SITING INDUSTRIAL FACILITIES

LESSONS FROM THE SOCIAL SCIENCE LITERATURE

INTRODUCTION

The process of siting an industrial facility has become progressively more complex over the past 30 years. Previously, technical experts determined if a facility was needed, and used a "narrowing" process to determine the "best" location for the facility. The siting criteria were dominated by the technical and financial considerations most important to the developer of the facility.

The public has become increasingly skeptical and suspicious of decisions made by industry and government. Community members raised an increasing number of concerns about industrial facilities, which were, in many cases, regarded as irrational fears by technical experts.

Community action groups organized and networked to combat and block what they viewed as unfair and illegitimate decisions. And they have been successful, not only in blocking illegitimate ones, but also in blocking needed facilities. For example, while most agree that we should build hazardous waste and radioactive waste disposal facilities rather than give up the benefits provided by the industries that create the waste, few want to host such a facility in their community.

A 1989 National Governors' Association report indicated that "local opposition is the number one obstacle to siting and construction of needed hazardous waste management facilities." Even so, the report also showed that during the study period (1980-1986), 71 percent of state permit applications for hazardous waste management facilities were successful, indicating that "siting hazardous waste management facilities may not be the onerous problem environmental managers have feared." (The governors also noted, however, that their finding conflicted with a similar national study for a New York commission that found a success rate of only 31 percent.) The report went on to caution that public concerns about safety may have increased since 1986, making it more difficult to site facilities now than before.

Facility developers devoted little attention to sociopolitical and sociocultural aspects of siting public facilities until it became apparent that neither rational technical analysis, nor the court, could solve the conflicts. Initially, facility developers assumed that if they developed technically sound proposals and met the legal and regulatory requirements, any challenge to their decision could be solved by the court. However, it soon became apparent that the courts were unable to solve the problem, and were in fact used by project opponents as a tactic to delay and stop needed projects.

This social problem, or contradiction, is not limited to power plants. Today, whether trying to site a hospital, nursing home, low-income housing, a prison, or a homeless shelter, it is necessary for a project sponsor to consider not only the technical and regulatory issues, but also a broad array of social and political issues--in other words, an integration of Simon's (1978) "different definitions of rationality." Today, failure to consider the sociological and sociopolitical issues is considered the main reason for siting failure (Williams and Massa, 1983).

Cemea (1991) wrote that "failure to consider the social and cultural context of a project invites inappropriate design at best--and user hostility at worst--but also it usually leads to projects that are ultimately ineffective, wanted neither by their supposed beneficiaries nor by the investing public agencies. Social engineering is as important as technical or financial or economic considerations. Sociocultural planning for economic development is not simply socially desirable; it is demonstrably cost-effective."

Massam (1980) writes in the technical siting book *Spatial Search* that while "formal procedures for handling complex location choice problems have been developed, it must be recognized that their use is limited because frequently they are incomprehensible to interested parties or they fail to include criteria or goals decision-makers believe to be important." He believes that everyone is increasingly concerned about quality of life issues and the impacts of "urbanization, industrialization, changes to the infrastructure, and the provision of social services." He recognized the attempt being made by social scientists to explain "the form, structure, and evolution of the patterns by developing theories of decision-making from observed patterns of activities produced by man's decisions." He cautions, however, that before policymakers "modify the patterns through policy recommendations" they should make sure to examine the impacts of modifications as well as who the changes will most affect.

NIMBY: SYMPTOM OF UNDERLYING SOCIAL CHANGES AND UNRESOLVED "PROBLEMS"

Much has been said about the difficulty of persuading people to accept an industrial facility that it perceives as an "undesirable neighbor," even if they agree that it is useful to society and they benefit in some way from its operation. This is referred to as the NIMBY (not in my backyard) syndrome or complex. The NIMBY reaction is not an ideological response, but a kneejerk reaction generated out of personal concern or anger. It may be important to distinguish between those who are ideologically opposed to a particular industrial process, and those who simply feel that the decision to locate a facility anywhere near their home is unfair.

People protect their interests by organizing a NIMBY reaction. Often, particularly with industrial facilities, opposition centers around the issue of safety. However, many sociologists agree that NIMBY represents much more than a debate over safety. Aaron Wildavsky (1988) argues that "no available evidence about safety and danger is likely to resolve current disputes about the consequences for life of new technology, and that aside from the lack of sufficient knowledge, the main reason is that these conflicts are largely social, not scientific."

Bord (1992) conducted a study in Pennsylvania (centered around the siting of a low-level radioactive waste facility) in which 12 percent of the sample identified themselves as NIMBYs. He found that they were no more knowledgeable about the issue than others, nor did they have higher levels of education than others. He found that self-proclaimed NIMBYs "tended to be disproportionately female, favored local control, and distrusted institutional authority." He says that the issue of trust may be most important.

O'Hare and Sanderson (1992) write that "The NIMBY problem itself is symptomatic of an interdependent web of pessimistic expectations citizens, government, and industry hold of each other and themselves."

Wedge (1984) compares the NIMBY complex to other psychopolitical complexes that have occurred throughout history and which involve a high level of ambiguity, uncertainty and mysterious threat. The less exact the knowledge, he says, the greater the passion. By taking the psychological elements into account, he writes, "we may be able to stop adding fuel to the conflict by such inappropriate devices as responding to powerful fear and outrage with technical facts, or conversely by reacting to bureaucratic processes with forceful emotional appeals."

An old problem: Social power versus individual rights

The numerous social and political changes that have occurred over the past few decades highlights the unresolved relationship between "community" and "individual." The crisis reveals itself as the NIMBY (not in my backyard) phenomenon, and is a crisis of decision-making. Rapid technological change and centralization of

technical processes increases the friction between the individual and the community. Ironically, this friction presents technologists with a non-technical crisis, highlighting the fact that technology must be considered within its context and not in isolation.

Brion (1991) writes that "the NIMBY phenomenon and the problems which it symptomizes arise from the ongoing resolution of basic questions about the role of enterprise and risk-taking that is embedded in the American political practice." He goes on to say that "the issue is nagging because it involves the clash of two incommensurable constitutionally established principles, social power and individual rights. Because no basis is available for establishing a hierarchy among the values associated with these principles, the judiciary has no way of developing a coherent jurisprudence of taking that might relieve it of having to revisit the issue, in an ultimately inconclusive way, each time a fresh clash of these principles comes before them."

Brion (1991) believes that the NIMBY syndrome is a symptom of several problems related to land use. It is a community conflict over "the stability (protection) required for society to function and the progress required to avoid societal stagnation." He also sees "the publicly sanctioned erosion of the property rights of individuals by enterprise" as an underlying problem. He characterizes this as one of conflict between the American myth of equality and the American reality of compromise through small group "capture" which favors those with the most resources. This encounter with the political system's bias leads people to act to protect the myth of the culture by demanding that the bias be equalized. Hence, the conflict. Brion writes that "our ability to engage in useful debate and to reach a workable compromise depends on whether we can develop a language in which to articulate the value of communality. Only by experimenting with communal action can we carry out the debate on communality."

Frictional change: A process of technological innovation and social and political adaptation

Wedge (1984) cites biophysicist John Platt's observation that a crisis of transformation is largely the result of quantum jumps in technological power that challenge our inherited structure of governance and social organization to adapt. Because these structures are unable to solve new problems as quickly as desired, the problem leads to the transformation of these structures. Platt (1969) suggests that the solution lies in our ability to find "the means to connect the pieces together to some present advantage to every participating party." Wedge (1984) believes this involves the use of present-day conflict resolution techniques.

This crisis of transformation can be viewed as "frictional change." It is the ongoing process of technological innovation and social and political adaptation that characterizes modern technological society. This may have been amplified by the advent of communications technologies which (1) provide individuals with increasing quantities of abstracted information identifying and dramatizing problems and possible solutions, (2) provide the

means by which to increase grassroots participation in the political process, and (3) create the impression that problem resolution is too slow. Ironically, the increase in participation can slow the process of resolution as more information is processed and analyzed from varying perspectives and belief systems.

Value disputes: Accelerated change offers increased opportunities to dispute values

Accelerated frictional change may lead to increased opportunities for people to dispute value and ideological disagreements which have been disputed throughout history. Land-use disputes may present one more stage upon which value disputes are acted out. Participation at the grassroots--micro-politics--is perhaps the only area in which citizens can express their civic values in a meaningful way. National and international politics--macro-politics--in many ways bars meaningful participation for the average citizen.

Portney (1991) argues that NIMBY is a symptom of "recurring value conflicts which are deeply rooted in culture." He sees four basic causes of the NIMBY syndrome: (1) the role of science and technology in solving problems arrayed against a skepticism of science and technology's ability to do more than create new problems, (this includes the related question of whether society should determine the direction of science or whether science should determine the direction of society), (2) values about the relationship between nature and society (protecting nature versus using resources for the betterment of mankind), (3) the relationship between government and society (how much involvement government should have in protecting the public good versus individual rights), and (4) distributional fairness (who carries the burden of creating social benefits).

Social Change

Wedge (1984) suggests that fundamental changes in society are responsible for the NIMBY reaction. Many of these changes have been created by technical innovation. He suggests that NIMBY is "a primary struggle between the requirements of industrial civilization and the needs for public health and personal protection." He draws parallels between this current struggle and the labor-management conflicts of the 1920s-30s, and the civil rights struggles of the 1950s-60s, each having lasted two decades and having generated new social mechanisms.

Change in public values: "Postmaterialist" or "Postmodern" attitudes emphasize pluralism

Inglehart (1990) theorizes that intergenerational changes in the values of the older industrial societies have been occurring gradually, leading to profound social changes. The shift, he says, is away from the preoccupation with material well-being and physical security--which was partly brought about through industrialization--and toward greater concern for the quality of life, self-expression, greater sexual freedom, and less formal interpersonal

relations. While these claims have been well-documented in numerous studies, Inglehart adds his belief that "postmaterialist" attitudes are related to the level of affluence and security during the formative period (preadult years) of each generation's lifetime. Advanced industrial countries provided higher levels of affluence and security for the generations that entered their formative years after 1950. As a result, each successive generation developed increasingly higher levels of postmaterialist attitudes. That, in turn, has significant implications for political ties and public policy choices, which are governed by society's value choices.

Calinescu (1991), writing about postmodern values, says that "pluralist thought, while accepting science, felt the need to justify and even borrow models from certain types of activity and experience--religious, moral, legal, political, and increasingly aesthetic--which modern scientism had ignored or dismissed as irrelevant to the search for objective truth."

Postmaterialist or postmodernist values can be observed in various aesthetic mediums as well as philosophical discourse. Hoesterev (1991) suggests that some sort of cultural rupture occurred around 1960. He suggests that the marks of this rupture are discernible across the range of our cultural activities, from social practices to artistic products. Jencks (1991) offers that "the 'death' of modernist architecture and its ideology of progress which offered technical solutions to social problems was seen by everyone in a vivid way." He describes postmodernism as being more participative and pluralistic because it tries to suit the needs of many differing views.

Change in the role of government: Increased public involvement in all aspects of public life

A number of changes were first brought about, or were first visible, in the federal government as it became more involved in every aspect of public life. The principle that people had certain corollary rights was established with an unprecedented mandate for "maximum feasible public participation" under President Johnson's "war on poverty," known as the Economic Opportunity Act of 1964 (Peirce, 1986). Over three-quarters of public participation mandates in federal statute were enacted in the 1970s, many under Richard Nixon (Peirce, 1986). Participation in public processes moved from being a privilege to a democratic right (Peirce, 1986).

Jacob (1990) cites other forms of political participation brought about over the past few decades, including public deliberations, public contestation of agency decisions, the Freedom of Information Act (which took away the control of data), referendums, and the growth in Congressional staffs, which increased oversight. He also writes that new forms of power emerged, including (1) state and local governments, which developed their own sources of authority and expertise, and which followed a trend toward state implementation of environmental legislation, and (2) political action groups.

This era coincided with the National Environmental Policy Act (NEPA) of 1969, establishing environmental values as a principle in planning and carrying out federal programs (Binder, 1990). NEPA requires "the creation and maintenance of conditions under which man and nature can coexist in productive harmony," and requires an environmental impact statement reviewing alternatives to a proposed action (Dolgin and Guilbert, 1974). This information must be circulated for comment to other federal agencies, to state and local governments, and to the public (Dolgin and Guilbert, 1974).

NEPA litigation was used from the start as a mechanism for delay in siting projects (Binder, 1990). Prior to NEPA, the emphasis of a project had been on the benefits it would bring. But for those opposed to a project, the primary concern is the potential risk involved, or the worst case scenario (Binder, 1990). Mazur (1981) concurs with Muller (1966) and Sapolsky (1968) that, if any doubt is raised about the safety of the technology, many prefer to prevent the perceived risk and to err on the side of safety. Mazur concludes that, for this reason, the average dispute works to the advantage of project opponents.

Binder writes, however, that "those seeking to obstruct the application of new technology and processes will have to find a new legal tool to rely on because the court has decided that NEPA is not a safety statute." An example of this, he said, is the court ruling that the space shuttle, Atlantis, carrying the nuclear-powered Galileo probe, had complied with requirements and that it is not the place of the court to decide if the government has made a good risk decision.

Change in the way people understand one another: The "atomization" of society

Ellul (1964) notes the physical separation between the industrial plant and the social group in which the plant is situated, and contrasts this with traditional societies in which the social and the economic aspects of life were "inextricably meshed into a social whole." In a technical society the two aspects are separate. He writes that "the man of today is no longer able to understand his neighbor because his profession is his whole life, and the technical specialization of this life has forced him to live in a closed universe. He no longer understands the vocabulary of others. Nor does he comprehend the underlying motivations of the others."

Kuspit (1991) writes about modernism, describing what he sees as a "Babel-like collapse of...collective language into singular forms that are mutually incomprehensible." He implies that the death of a common language implies the death of effective society, reflecting "the atomization of society into a realm of hyper-individuals, answerable ultimately only to themselves."

Change in information processes: Large amounts of fragmented information may destroy meaning

Baudrillard (1983) believes that the proliferation of information meant to "educate" people has had the opposite effect. He writes that "whatever the political, pedagogical, or cultural content of information, the plan is always to get some meaning across, to keep the masses within reason. In the past, meaning was in short supply and all the revolutionaries offered themselves to produce still more. Today everything has changed: no longer is meaning in short supply, it is produced everywhere, in ever increasing quantities--it is *demand* for meaning which is weakening." Baudrillard believes there is "a rigorous and necessary correlation between increasing amounts of information and loss of meaning, that information is directly destructive of meaning and significance, or neutralizes it." He believes that information is no longer a mode of communicating meaning, but "a mode of constant emulsion, of input-output and of controlled chain reactions, exactly as in atomic simulation chambers."

Change in the type of information we receive: Increased focus on risk and manmade disasters

The perception that mankind has created an environmental crisis is widespread. The waste products of industry have shown up in everyone's backyards. The Environmental Protection Agency estimates that there are 40 million people who live within four miles of areas identified as Superfund sites. "End of the world" prophets regularly declare "industry" as an enemy and carrier of contamination. Erikson (1990) says modern technological processes have created man-made disasters, which, unlike "acts of God," provoke outrage because they are, in principle, preventable. These disasters have grown in size and scale, and are transported into homes as dramatic fragmented bits of information. They have created a new form of dread (Erikson 1990). Gould et al. (1988) say that public awareness of risks has increased.

Change in the way society tries to secure safety: From trial-and-error to prevention

An increase in the public awareness of risks has resulted at least partly from an increase in public involvement in risk-benefit decisions (Gould et al., 1988). Many regulatory policies instituted in government are ones which represent a changed strategy for protecting the public--a strategy of anticipation and prevention (Wildavsky, 1988), as with NEPA. The American Society of Civil Engineers published, in 1972, an article entitled "New Approach to Power Plant Siting" which indicated this change in "private" institutions. It stated that "modern thinking calls for preventative planning rather than adaptive engineering. Industry, being an integral part of man's environment, is often the leader in adopting protective measures designed to conserve the resources of the world for future generation. Those that have chosen to remain behind are being forced to follow by ever increasing regulatory actions brought about by public pressure. The electric utility industry has, fortunately, been one of those that has chosen to lead rather than follow."

"Prevention" may not always be the best strategy (Wildavsky, 1988), particularly when *not* having a particular facility would be irresponsible and unsafe. Gole (1990) shows that if a community understands that maintaining the status quo is worse than changing it they are more likely to support a project.

Change in the perception of scientific knowledge: from "objective" to tentative and political

The proliferation of "rational analyses" which seemingly disagree has perhaps revealed more than ever that knowledge is transitory and ever changing. Kapferer (1990) writes that "the popularization of science has spread the idea that all theories are tentative. The speed of scientific and technical changes makes all knowledge doubtful and certainly impossible when it comes to the order of the world around us. Believing nothing any more, the public can now believe anything."

Theodore Roszak's (1969) view that "objective consciousness" constitutes a myth has in some measure gained popular credence. Conservative writer Alston Chase of *The Washington Times* writes that "We expect too much of science because we think it more rational than it is. And scientists are depressed because they share this guilty secret." He goes on to cite French sociologist Bruno Latour, who wrote in *The Pasteurization of France* that "Pasteur did not succeed because he was right and his opponents were wrong, but because he was a smart politician. He discovered what the public wanted, then found a way to provide it."

Change in who we trust: Disputes between technical experts destroyed expert authority

In the past, the public deferred to the technical experts to solve problems. As the federal and state governments increased their roles, the number of technical experts, as well as the number of different agendas, increased. However, expert authority was discredited partly due to the perception of disagreement between experts as debates were broadcast to the public without regard to the weight of scientific opinion. Balogh (1991) writes that "the nuclear experts' authority was shattered by projecting internal debate beyond the insulated forums that had once contained that debate." He suggests that "competing disciplinary perspectives and organizational missions" within the nuclear community were as much a reason for the conflict as "anti-intellectualism or an attack on science or authority" (Balogh, 1991). Kasperson et al. (1988) found that the consequences of risk include indirect impacts such as lowered confidence in institutions.

The first public intervention against a nuclear power plant (Detroit's Enrico Fermi) took place in 1956 (Alexanderson and Wagner, 1979). Most media coverage at that time treated nuclear energy in a positive light (Mazur 1981). In 1968, local intervenor groups began to protest and organize against nuclear power plants in most locations (Mazur, 1981). An increasing number of periodical articles covered these disputes and carried propaganda put out by both pro- and anti-nuclear groups (Mazur, 1981). An analysis by Mazur found that

public opposition to nuclear power increased as mass media coverage increased (Mazur, 1981). Mazur speculates that the prominence given to disputes *between* technical experts over the risks of the technology makes the technology appear dangerous.

Change in demographics: Move away from population centers

Electric power plants of the past were located within or near the central business districts and industrial areas of the larger cities, many of which were located on large rivers which provided access for fuel transport and minimized transmission costs (Calvert and Heilman, 1972). As these cities grew with the availability of low-cost energy, centralized industrial expansion took place. Land for large facilities became scarce and expensive, forcing utilities to move farther from their "load centers" and out of population areas that had previously accepted the plants as a necessary and needed neighbor (Calvert and Heilman, 1972). People in rural or suburban areas may view a centralized facility that supports large population centers as an unwanted "export" to their area, and may feel resentful. Other changes include an increase in the number of chemicals and elements used in technical processes and an increase in the number of needed processing and disposal facilities. These and other demographic changes may have contributed to the estranged relationship between industrial producer and consumer.

The rise of community action groups: New types of political behavior

The NIMBY reaction is partly the result of "new types of political behavior, often serving as a catalyst mobilizing people to be politically active" (Portney, 1991). Few doubt that increasing numbers of Americans are networked into groups who share values they regard as important. The *National Association of Professional Environmental Communicators Quarterly* (June 1991) wrote that grassroots citizen activist groups have increased from approximately 200 in 1970 to between 17,000-18,000 today.

These groups, with the weight of their voting members, have built varying levels of political power. How-to manuals document the tried and tested methods of achieving political power from the grassroots. Kim Bobo of the Midwest Academy writes in *Organizing for Social Change* that much of this power derives from corporate or elected officials' fear of angry citizens, and the key to getting citizens angry is to find out what people want as individuals and to lead them to a collective victory.

In its community organizing manual, *How to Deal with a Proposed Facility* (October 1987), the Citizen's Clearinghouse for Hazardous Wastes, Inc., advises that companies wanting to site a plant will promise jobs, attempt to convince a community that it is selfish not to accept risks, and label the community a NIMBY, as though it were a mental illness. The manual explains that a community shouldn't feel guilty, that it is not immoral

to have questions about fairness and safety, and urges citizens to remember that even the insurance industry will not take the kind of risk the company is offering.

Environmental Action magazine (Jan./Feb. 1990) advised readers that "national events threaten to take away the forums citizens used to win reform on least-cost utility planning, nuclear power plant costs, and energy efficiency. The magazine is now organizing a national utility accountability network for grassroots education, information and, of course, action on utility issues."

Better organization on the part of opposition groups may, in part, influence individuals to take action against a facility they do not want rather than accepting a facility, especially if the affiliation might help community members accomplish multiple goals and meet personal needs. Folkman and Lazarus (1980) found that an individual's assessment of a situation may determine his response to it. They found that people who feel they can have an impact on a problem are more likely to employ problem-focused coping (strategies to change or alter a situation or problem). Those who feel they cannot alter the situation are apt to employ emotion-focused coping (strategies to regulate one's own emotional response).

According to Spain's research (1984) women are playing an important role in the grassroots movement against locally unwanted land uses (LULUs). She found that women hold more important positions of leadership in environmental organizations than in other recent social movements. In examining the records at the Citizen's Clearinghouse for Hazardous Wastes, she found that nearly two-thirds of all their affiliated grassroots organizations are managed by women. She suggests that women get involved on issues they view as personal, such as the long-term health and well-being of one's family and one's personal reproductive options. She believes that the consequences of radiation and toxic chemicals are greater for women than for men. She also notes that women have traditionally organized in the face of exclusion, and says that women feel excluded from the "technological sphere of society." Spain believes that women "tend to have different attitudes toward 'the establishment,' the federal government, the scientific community, and major companies" than men do.

Whether or not safety concerns or demands for closer scrutiny are reasonable, there is widespread agreement that citizen activism has changed the dynamics of the facility siting process. The changes are painful for industries like electric utilities which, finding their agenda blocked, search for a stable environment in which to accomplish the tasks that fall within their area of expertise and social responsibility.

FRUSTRATED REACTION: STRUGGLE FOR CONTROL BY FORCE OF LAW

Some industries have responded to the NIMBY reaction with "Strategic Lawsuits Against Public Participation" (SLAPPs). The Citizen's Clearinghouse for Hazardous Wastes, Inc. responded with "Operation SLAPP-Back," supporting local groups in countersuing the industries for abuse of process and malicious prosecution. SLAPPs do not solve NIMBY. All the evidence suggests that they make it worse. Brion (1991) writes that "the solution does not lie in the direction of fashioning institutions that will be more immune to the opposition that NIMBY expresses. Instead, any practical solution must defuse this opposition by accommodating the concerns on which it is based."

Portney (1991) agrees with Morell and Magorian (1982), Hadden Veillette (1983) and Brandt (1983) that state pre-emption of local interests is generally not a winning strategy. For political reasons, he says, it is practically impossible to pre-empt local authority. Portney (1991) writes that "pre-emption seems to be increasingly difficult to justify, given its obvious anti-democratic foundation." Some feel, however, that "state override is essential in order to prompt the town to negotiate..." (Schmeidler and Sandman, 1988).

A SLAPP is likely to have the effect of adding gasoline to an already blazing fire. Not involving the community (which believes the facility may be dangerous) and then forcing the community to accept a decision causes outrage at having facilities thrust upon them without consent (Schmeidler and Sandman, 1988).

SEARCH FOR THE PATH TO RESOLUTION

The initial response of developers to the breakdown in the ability to site facilities was to improve the communications process. They believed that if they communicated clearly the public would understand the issue and would agree that the facility was needed and should be sited. Sociologists and communications specialists developed methods to improve communications processes. This, however, did not solve the problem. Increasingly, sociologists came to believe that it was not just the communications processes that had been flawed, but that the method or process of facility siting was itself flawed.

Filling the information gap: your facts, my facts, our facts

Dissemination of information and analysis is critical to a fair assessment of an issue or problem. But, information tends to be ignored, not believed, misunderstood, or "captured" and used counter to the objective of the communication. Peelle (1990) says that "responsiveness to local concerns and information needs remains the major avenue for building trust by proposers," and she advocates collaborative fact-finding as a way to avoid the advocacy science approach. She sees collaborative fact-finding, and some power sharing, as probably necessary to reach a successful and durable outcome.

Jacob (1990) also sees the issue of credibility as one of critical importance. He suggests that an independent review group should be authorized to stop any development until issues are resolved to their satisfaction, and says that the data and studies used to support an analysis is not credible if it is controlled by a group with an interest in promoting a particular result.

Williams and Massa (1983) advise that not providing enough needed information or concealing information can lead to embarrassment and may contribute to failure. Kapferer (1990) writes that "rumors arise when information is scarce. Whenever the public endeavors to understand but receives no official answers, rumors arise. They constitute an informational black market. The fewer the pieces they have, the greater a role the group's unconscious plays in their interpretation; the more pieces they have, the closer their interpretation is to reality." Williams and Massa (1983) advise avoiding technical language outside of industry communications, because it can "impede communication with the public as well as generate suspicion that the real reasoning behind the siting decision is being obscured by jargon." They caution that it is important to distinguish between fact and judgment, noting that "it cannot be presumed that just because factual information is observable and measurable it will not be subject to argument."

Many research methodologies are available to fine-tune the communications process and to lower or avoid the risk of mis-communicating or setting oneself up for "information capture." Jean Durall of Cambridge

Reports/Research International, a survey research firm, said that "a survey of attitudes is just as crucial as all the other types of site surveys that ordinarily are conducted before deciding to build a facility in a specific location. Too often, this essential step is omitted until public opposition develops and threatens to halt the entire process. Since, at that point, the opposition has seized the initiative and defined the argument, the organization wishing to build the facility is at a disadvantage when it comes to communicating on the issues." Survey research can be used to determine underlying beliefs and values, to track changes in attitudes, and to determine which ideas and concepts are said to be the most important and most effective in communicating the intended message. Evaluation research can determine the effectiveness of specific communications tools (such as brochures and advertisements).

Information consumers:

O'Hare, Bacow, and Sanderson (1983) point out that it is important to recognize that information is fundamentally different from other consumer goods. They identify three critical areas of difference. First, each person has his or her own information needs and questions which, when compiled for the whole, would represent a massive amount of information to sift through. Next, "objectivity lies in the eyes of the beholder." Last, the value of information is difficult to assess, making it difficult to judge how much time to spend searching for the specific information needed to answer questions. They say that "supply-side strategies for information provision require someone to guess what someone else would find useful to know," which is practically impossible. They advocate focusing on the "demand-side" by finding out what people want to know most and packaging the information in ways that are most functional and easy to use.

O'Hare et al (1983) identified various categories of information consumers. They note that the categories overlap but can "serve as useful behavioral pattern summaries."

The first type are called "fact respectors" because they form their own opinion, to the degree possible, and expect to do their own data collection and analysis.

The next type, "expertise takers," adopt opinions from individuals who they believe have expertise in an area. They accept an analysis performed by someone they respect. There are two types of "expertise takers"--the "rational expertise taker," who selects the expert he will listen to on the basis of specific criteria (educational qualifications, employment, access to information, honors, etc.), and the "official expertise taker," who selects an expert with official approval ("Staff Director of President's Commission on Energy Safety").

The third type of consumer is an "attitude taker," within which there are two categories: the "ideology taker" who gives more weight to a result that reinforces his established ideology; and the "leadership taker," who tends

to adopt the position of a public individual with whose ideology he sympathizes, without personally reviewing the facts.

The next type of information consumer is the "majority viewer" who takes the same position as a certain group of individuals--"when a bandwagon comes by, they jump aboard."

The last type of information consumer is the "personality taker" who follows a particular opinion leader "because he likes him or her in an irreducibly personal rather than ideological or rational way."

O'Hare et al. say that "every one of these approaches to information use represents an effort on the user's part to balance the cost of obtaining information of various types and at various levels of detail against the benefits to be obtained by doing so. Not only individuals, but also agencies and firms can be placed in one of these categories. Designing information management systems for public choice that ignore the properties of information cause the wrong interests to be served."

Community actors

Professor Lawrence Susskind of the Massachusetts Institute of Technology (MIT) presents a profile of a typical community, in which he shows that most communities are made up of four types of actors: the boosters (10-15 percent), "likely to favor almost any project that increases tax revenue, creates jobs, or encourages land speculation;" the preservationists (15-20 percent), "likely to oppose almost any project that threatens environmental damage or stands to change the character of the community;" the guardians (50 percent), "middle-of-the-roaders who can go either way on any particular project depending on how open and fair the process of decision-making seems to them;" and non-participants (15-25 percent).

Susskind believes that the support of local guardians is particularly important. He urges developers to remember that they examine the quality of an argument ("they attach substantial importance to technical information") and appreciate an open, fair decision-making process.

What community are we talking about?

There are various levels of community--national, state, local--to consider when examining the "players" in a siting decision, and the influences which a decision can have on other areas which might not appear directly impacted.

Stoffle et al. (1990) found that it may be possible to identify what they call the "risk perception shadow," or the "perceptual communities"--people in certain geographical regions who feel they are affected by a project because

of water or air patterns, transportation routes, or other issues not delineated by map or political lines of demarcation. They also found that people's knowledge of a project was directly related to the distance from the center of perceived risk.

It is entirely possible to be confronted with differing opinions and objectives from various communities who are-- or who feel they are--impacted by a potential project. Jacob (1990) writes that "opposition to an undesirable facility may not materialize at the local level where the negative impacts are assumed to be greatest," suggesting that "local and regional patterns of support or opposition ... will be complex and inconsistent, demanding attention to historical and situational characteristics unique to that location."

Explain benefits, prevention, and controls to communicate safety

Risk: technology's paradox

Erikson (1990) shows that while technology has created new benefits, it has also presented a new kind of danger. One of the technological benefits is increased protection against natural disasters, and one of the new kinds of disasters is the result of technology. Technological disasters have become part of the mass consciousness as each event is broadcast live. These disasters, he says, provoke anger, or outrage, unlike a natural disaster ("an act of God"), because they are, in principle, avoidable.

While some researchers have focused on the danger of taking risks, others have focused on the danger of *not* taking risks. Wildavsky (1988) believes that "the richest, longest-lived, best-protected, most resourceful civilization is on its way to becoming the most frightened." He says that "anticipatory strategies ... sacrifice the possibility of doing better on the altar of not doing worse." He feels that "adherents of resilience face a rhetorical disadvantage because by encouraging risk taking they are apparently opposed to safety, offering mainly indirect capacities to cope with the unexpected. Though neither side can offer guarantees against ultimate catastrophe, the making of direct claims to prevent the worst appears to give the anticipator a moral upper hand." Wildavsky questions whether "more uniform and stringent application of anticipatory measures" will make life any safer than the trial-and-error approach, because "safety remains a condition for which we have to search without knowing ahead of time what we will find." He proposes shifting the risk debate from "passive prevention of harm to active search for safety."

"Risk-averters," argue that certain risks are unnecessary or preventable because alternatives exist. They feel that the issue is one of fairness, because often those who decide to accept the risk are not the ones who may suffer the consequences. They point to the 32,000 known toxic waste sites nationwide that pose threats to human health and the estimated 135,000-425,000 potential hazardous waste sites (U.S. General Accounting

Office) which may require remedial cleanup as evidence that people must look out for themselves rather than leaving decisions to "the experts." The Environmental Protection Agency (EPA) has spent \$10 billion over 11 years, to clean up only 63 sites.

The threat is often overblown, however, and many such sites aren't even on EPA's list of top health risks. But hazardous waste sites are rated the number one health threat by the public. Richard J. Guimond, the national Superfund director at the Environmental Protection Agency, points out that "there are 40 million people who live within four miles of areas identified as Superfund sites who don't feel comfortable waiting 20 years until we study the problems."

It is clear that contemporary society has become so technically specialized that it is practically impossible for the layman to feel informed on technical issues. This gulf in knowledge can be a fertile atmosphere in which to stimulate and exploit fear. O'Hare and Sandeson (1992) write that "it may be impossible to conduct a coherent public deliberation about risk with a population ill- and mis-educated about uncertainty and neurotically preoccupied with certain specific and rather baroque hazards to physical health." With nuclear technology, it is relatively easy to elicit a fearful reaction by conjuring up simplistic and stereotypical negative images.

Weart (1991) shows that nuclear energy holds great symbolic power. What began as a "crusade to bring technological utopia," eventually became a symbol of "the worst features of technology, of all the problems of modern bureaucracy, and industrial power."

The gulf between public and scientific assessment of the danger of nuclear energy is perhaps wider than for any other technology. Slovic (1978) compared actual and perceived risks from 30 items ranging from bicycles to pesticides. Although the sample was small and nonrepresentative, the results were instructive. He found that while actuarial estimates put the yearly average risk of death from a nuclear power plant very low on the list (just above mountain climbing), his respondents placed it as the number one risk, while businessmen placed it near the top of the list.

As a result of increased concern about technological risks, Covello (1983) explains that social scientists have developed a substantial body of information on the subject, ranging from the decision-making processes of both scientists and non-scientists and the limitations of the human intellect in thinking about risks, to factors contributing to social conflicts and disputes about technological activities. Most of the research on risk perception has focused on nuclear power (Covello, 1983). The primary focus has attempted to understand why people's subjective assessments of risk are often out of line with the scientists' assessment.

Early research by Starr (1969 and 1972) concluded that U.S. society tolerates greater risks from things that provide greater benefits. Starr also found that risks from voluntary activities are roughly 1,000 times more acceptable than risks from involuntary activities. Slovic, Fischhoff and Lichtenstein (1980) found that catastrophic potential, controllability, familiarity, dread, threat to future generations, delay of effects, observability, novelty, knowledge of science, and the number of people exposed to the hazard influence perceptions of risk. Vlek and Stallen (1981) identified two additional factors which affect perceptions of risk-- the benefits that the technology provides and the level of protection provided through controls.

Covello's (1983) literature review emphasizes that "risks are perceived to be higher if the activity is perceived to be involuntary, catastrophic, not personally controllable, inequitable in the distribution of its risk and benefits, unfamiliar, and highly complex. Other factors influencing risk perceptions are whether the adverse effects are immediate or delayed, whether exposure to the hazard is continuous or occasional, whether the technology is perceived to be necessary or luxury, whether the adverse effects are well-known or uncertain, and whether the activity is certain to be fatal."

Gould et al. (1988) found in their review that "several lines of research...have converged on the following points: (1) fatality estimates are excessively narrow indices of the risks of technology; (2) many nonrisk considerations are, and should be, part of political debates concerning the acceptability of a technology; and (3) the different participants in these debates have fundamentally different values and priorities which shape their definitions and judgments of risk and acceptability" (Pearce, 1978; Slovic, Fischhoff, and Lichtenstein, 1981 and 1984; Otway and Thomas, 1982; Otway and von Winterfeldt, 1982; Perrow, 1982; Hohenemser, Kates and Slovic 1983; Wynne, 1983; von Winterfeldt and Edwards, 1984; Otway, 1985; Slovic, 1986). They point out that "explicit or implicit in these authors' works is the conclusion that the public is not misguided, miseducated, or irrational in its opposition to certain technologies" (Gould et al., 1988).

Subsequent research found that "political, economic, social, and cultural factors are often more important contributors to public assessment of risk than actual danger" (Swanson et al., 1990). Research conducted by the U.S. Council for Energy Awareness confirms that a broad range of factors influence perceptions of risk (Bisconti, 1991). This research has shown that familiarity and awareness of controls increase comfort with nuclear energy (Bisconti, 1991). This supports findings by Maderthaner et al (1978) that "opposition to nuclear facilities decreases as familiarity with these facilities increases."

Portney (1991) writes that risk-mitigating proposals, such as safety inspection and prevention of groundwater contamination, have consistently produced greater positive changes in attitudes toward a facility than economic incentives, even though neither produced very large shifts of opinion. He finds little empirical evidence to show

that it is possible to alter people's attitudes to, and perceptions of, potential health threats from a facility. This suggests that, if the facilities are needed, we must find other strategies to solve this problem.

Others suggest that technological changes can bridge the gap between the scientists' and the public's risk assessments, and some have even advocated changes deemed unnecessary from a scientific point-of-view as a way to increase public acceptance. Advanced nuclear energy plant designs "have been calculated to increase safety a hundred-fold, so that no appreciable release of radioactivity outside the containment structure would be expected in 10 million reactor-years" (Bethe, 1991). It appears, however, that advanced nuclear energy plant designs will be greeted by those dedicated to the opposition of nuclear energy with the same skepticism as current designs, witness the Union of Concerned Scientists' report "Advanced Reactor Study" (1990), which says that these plants would not meet their safety requirements.

Communicating technology's paradox--it's risky business

Risk assessment, a statistical probability analysis using a complex methodology based on established assumptions and judgments, is commonly used to assess the environmental impacts of a technology on a given population. It has been called upon to demonstrate that a facility is, relatively speaking, not dangerous. In many cases, "risk" is communicated in an environment of conflict and polarization and has proven most useful to facility opponents. They are able to "capture" the information and use it to show that a facility is risky, while ignoring the message that the risk is very low.

The authors of *Fighting Toxics* (1990) advise readers that "Risk assessment is the rage in the parts of the scientific community that are allied with the serious chemical polluters. We now hear arguments like 'walking across the street is more dangerous than living next to a toxic dump site' or 'eating bean sprouts and peanut butter is more dangerous than the cancer-causing pesticide residue in food.' These analyses distort the truth, however, by comparing similar volumes of natural versus synthetic material in a way that ignores the total volume of deadly wastes created when synthetics are made, as well as the sheer volume of synthetic chemicals produced. In 1980, some 370 billion pounds of synthetic chemicals were produced (not including nonsynthetic chemical production). In 1987, U.S. industry reported dumping 22 billion pounds of toxic chemicals into the air, water, and land. According to the congressional Office of Technology Assessment, the actual figure may be closer to 400 billion pounds. While we must guard against all health threats, we cannot eliminate naturally occurring materials (such as radon) in some regions of the country. We can, however, exercise control over toxic synthetic materials that pervade our lives. While the threat posed by asbestos, radiation, and heavy metals has received significant attention under law (with improvements still needed), the synthetic chemical industry--which presents the greatest public health threat--remains largely unregulated."

While it is important to acknowledge that nuclear technology is widely feared (Sandman, 1992), it may be difficult to decrease the perception of risk by talking about risk. In the case of nuclear energy, Bisconti (1991) points out that while scientists and engineers want to communicate the facts about low risk and the safety of nuclear energy, the most effective way may not be in terms of risk--that is, "danger not posed"--but instead in terms of the benefits gained from the technology and the care with which plants are operated, monitored and controlled. Without a clear understanding of the benefits and controls, risk--"danger"--has no context in which to be judged other than as something to avoid.

A 1991 study by Gallup for the U.S. Council for Energy Awareness confirmed some popularly held assumptions about radiation. Bisconti and Livingston (1991) write that "the word radiation conjures up fearful images of cancer and war, death and destruction. However, most Americans can name some beneficial uses of radiation, but these uses come to mind far less frequently than the dominant sense of danger. Also, as expected, Americans' perceptions about sources of radiation do not conform with scientific evidence."

"Clearly, scientists and others who attempt to educate the public about the risks and benefits of radiation are not starting with a blank slate," Bisconti and Livingston (1991) write. "The statements they make on the subject compete with information and impressions people derive from many other sources, including the popular media. All of the preconceived notions and competing information and impressions may influence the way the public processes and receives statements about radiation. As a result, some statements intended to reassure the public about the use of radiation or technologies otherwise associated with radiation do not achieve the desired result. Statements that suggest radiation is benign may not be credible. Instead, reminders of beneficial uses of radiation are credible, are consistent with prior knowledge. They appear to demystify radiation and imply that its use is under control. All evidence that radiation is understood and controlled increases the public's confidence. Concrete examples of its beneficial uses such as in medicine--that demonstrate it is being used in a controlled manner--make a stronger case than assertions about such controls."

Bruskin/Goldring Research (March 1992) found that 66% of Americans agreed that if people had a better understanding of nuclear energy they would be more inclined to support the building of nuclear power plants when new electric plants are needed. They also found that 16% of Americans said they had visited a nuclear energy plant or an information center at the plant. Among those who visited the plant, 71% said the visit made them feel the electric company is doing a good job, 72% said the visit made them feel that nuclear energy is a good way to produce electricity, and 53% said the visit made them feel more favorable to nuclear energy than they were before.

These findings support Simon's (1990) point that hands-on demonstrations of responsible use of a technology may be the most effective means to build trust in a local area.

Elliott (1984) found that people's perceptions of risk have as much to do with management issues as with the technology itself. Concerns may include operational management decisions, information access, and the availability of conflict resolution processes between the facility operator and residents.

Most experts believe that when members of the public are taken seriously and are allowed to participate in the decision-making process, they develop a striking desire and ability to understand the complexities of relative risk (Swanson et al., 1990). Most believe that the decision not to involve members of the public in the decision-making process increases the risk of siting failure (Swanson et al., 1990).

Structural problems: Process may be structured for failure

O'Hare, Bacow, and Sanderson (1983) wrote that "the failure of the conventional facility siting process lies in the decision-making and interest-balancing *structure* that frustrates the desires of the participants to cooperate or compete constructively, rather than in any defect in the intelligence or character of the participants." Jacob (1990) seems to agree with this view: "the challenge and responsibility for policymakers is to initiate a widely supported political process capable of producing programs, management structures, and solutions in which all parties have a stake in their success."

While there appear to be few communities seeking out a nuclear energy plant or a low-level nuclear waste facility, it may be possible to create conditions under which this could occur or under which a facility would be acceptable. For example, Peelle (1987) found that the appointment of a monitored retrievable storage (MRS) taskforce for high-level nuclear waste in Oak Ridge, Tennessee, was a successful way to reach consensus that was acceptable to everyone. She cautioned, however, that local acceptance is only one part of a complex set of arrangements in successful siting. The MRS was rejected by the state, which proceeded with a "decide-announce-defend" approach, in which a confrontational battle was waged. The current voluntary process for finding a location for an MRS facility is attracting a considerable amount of interest from various regions and Native American tribes. This experience may provide a model for future siting endeavors.

Process reform: back to the laboratory

Portney (1991) provides a comprehensive examination of the hazardous waste siting approaches taken by the states over the past decade, and classifies them into three groups. The first method, pursued by 12 states, involves the "pre-emption of local authority," in which the siting authority is consolidated into a state agency or a state siting board, which does not have community representatives. This approach is based on the belief that hazardous waste facilities will usually be opposed by the local community, and therefore arms the state agency

with the theoretical power to override local opposition. Portney (1991) writes that pre-emption has generally not been used successfully.

Another approach is a takeoff of the pre-emptive approach, but gives citizens a larger participation role. Portney calls this the "state authority with local input" approach, used by Florida and New Jersey. "Ostensibly, local interests are taken into consideration through participation in the process" because local citizens or local officials are often given positions on a statewide waste management planning council. Portney says this implies that local input is but one of many inputs into the decision-making process.

The third approach characterized by Portney, derived from the "economic theory of compensation" (O'Hare, 1977), is the "local involvement and influence approach." There are at least four states--Connecticut, Rhode Island, Massachusetts and Wisconsin--that use this approach, which gives local officials and citizens considerable influence over the siting process. Portney explains that "one form of this allows local citizens and officials to negotiate with the developer proposing to build a treatment facility," while "another form provides local communities with a veto or near-veto power over siting decisions." This later approach is based on the value-based beliefs that local communities should have power over decisions that will affect them and that people in the proposed host community "experience a very different set of personal benefits and burdens than people elsewhere."

Portney believes that misunderstanding what causes opposition to a facility has spurred new but flawed solutions--"political approaches"--that are unlikely to work. Much of the current focus tries to methodically alter people's subjective assessment of the benefits they might receive relative to the dangers they must live with. This, Portney says, is an impossible task. He points out that "the literature on facility siting is replete with seeming contradictions," and cites the lack of empirical evidence for "quasi-theoretical prescriptions to inform the siting process." He writes that "it seems that for every proposal about how siting should take place, there is empirical evidence that it will not, or does not, work with any degree of consistency in practice."

Negotiation of terms. benefits, and compensation

Samuelson and Zeckhauser (1988) found that people generally try to maintain the status quo. Kottak (1985) found that a general lesson in development follows from a rule formulated by paleontologist A.S. Romer to explain the origin of land-dwelling vertebrates. Romer concluded that legs gradually evolved out of fins *not* to enable vertebrates to live on land full time, but to enable them to move to other water sources when the ones they were in dried up. "In other words, a feature that proved essential to land life originated to maintain an aquatic existence." The lesson of this is that "the goal of stability can be the main impetus for change. Evolution

occurs incrementally as gradually changing systems keep on attempting to maintain themselves (as they gradually change)."

Applying this to economic development, people usually wish to maintain what they have, and any changes usually come out of the concerns of everyday life. Their goals are not abstractions but are concrete objectives, limited and specific, such as getting a child through school or paying the tax collector. Kottak writes that "to ignore these goals and values, for whatever reason, is to invite problems." Workable projects promote change but not overinnovation or revolutionary changes in daily lives. The objective must be to preserve what already exists "while making it function more effectively."

Following Romer's rule, it would seem that compensation and incentives could provide some motivation for a community to embrace an otherwise undesirable change--such as a new industrial facility--assuming that the change could meet local needs without altering the society significantly. However, a community that is not seeking out a benefit being offered in exchange for a facility may be more hesitant than one that has a clear agenda of what it wants and views a facility as a means to achieve that goal. Developers must find communities that understand that they are smarter than others and can achieve their goals because of other communities' fears (Sandman, 1992).

Gregory (1988) compared children and adolescents living near nuclear energy plants to others. She wrote "It was expected that in an area where there was a nuclear power plant either operating or being built, there would be measurable stress effects on children and adolescents. Taken in their entirety, the results of this study nearly turned upside down the expectations of the researcher..." She found that the students living near operating nuclear power plants showed lower levels of anxiety and stress over nuclear energy and radiation than students in other locations. She found the highest level of anxiety and perceived threat from a nuclear energy plant in the locations with no plant. For the siting process this finding presents a certain dilemma, in that the location of the plant may not correlate with the *perception* of personal impact from the plant.

Some people may perceive the costs imposed on them to be greater than they are. It is also likely that some might exaggerate the costs for leverage in negotiation. Goetze (1982) found that people have incentives to mask and exaggerate their actual compensation requirements.

Wedge (1984) insists that there is no substitute for direct contact between the parties in conflict. Indirect contact generates adversary images which "lead to distortion, black and white imaging and other psychological reactions that intensify the conflict," he says. In his view, this implies that all siting issues should be resolved at the local level.

The idea of offering compensation and incentives is based on the belief that a community is opposed to a facility because it feels the risks it would have to live with would be more costly than the benefits gained (Haden and Hazelton, 1980, Mitchell and Carson, 1986). O'Hare (1977) argued that economic incentives could be increased so that perceived benefits would outweigh the perceived risks.

Kunreuther (1986) wrote that "by introducing compensation as an option, the public may begin to evaluate its 'willingness to pay' to avoid a net risk in relation to its 'willingness to accept' a given net risk." He says that policy tools such as compensation might be useful in bringing the two goals of efficiency and equity together, but there are likely to be political and social conflicts that prevent their use.

More than one third of the states have statutory or regulatory provisions for the use of negotiation or mediation in the siting process (Condrón and Sipher, 1983). However, without compensation, the use of negotiation or mediation is likely to be unsuccessful (Condrón and Sipher, 1987).

Inhaber (1991), in a chapter from an unpublished manuscript on siting, writes that finding the true cost of a facility cannot be rationally calculated any more easily than an airline can calculate which passenger to pick to give up his or her seat on an overbooked flight without making the "winner" furious. He argues against a command-and-control system of determining where to site and how much to compensate, saying it is unworkable. He advocates, instead, a voluntary competitive bidding situation, which he calls "the reverse Dutch auction," in which the siting authority would raise the bonus, or benefits, that go with the facility until a qualified volunteer appears, thereby setting the market value. He explains that this method would avoid elements of bribery, since the community would appoint itself, the system is completely public, and the siting is approved by all levels of government.

Kunreuther and Portney (1991) have proposed a "lottery-auction mechanism as a way of meeting equity concerns and striving toward an efficient allocation of resources" as a starting point for dealing with the siting problem. They propose a two-stage procedure. In the first stage, each area knows that if they are randomly drawn in the lottery they will become a potential host community in exchange for a payment. (It is assumed that the communities would be willing to participate in the lottery.) In the second stage, all candidate sites have the opportunity to compete for the site by submitting the lowest bid.

Portney (1991) found in a national survey that 34 percent of people who opposed siting a facility in their city or town changed their minds under one or another of 11 proposals, nine of which were designed to provide economic incentives and the remaining two to offer risk-mitigating proposals. The results indicated that the risk-mitigating proposals produced greater changes in public attitudes than the compensation approaches. However, he notes that none of the proposals generated "any sort of massive shift in public sentiment." Bord (1987) found

that the public considers both compensation and power-sharing options important cooperative measures, and "consistently demonstrates a preference for options which put control of the site in the hands of locals." Freudenberg (1990) says that one reason for public mistrust is that facilities can be and are sometimes poorly managed.

The Massachusetts Hazardous Waste Facility Siting Law, a legislated siting process that was innovative in its time, encourages citizen participation, negotiation, and arbitration between developers and communities on questions of compensation, mitigation, and incentives. It is *not* a voluntary process. Under this process, potential hazardous waste sites were identified by the developer and approved by the state--which could of course be influenced by its citizens through public participation mechanisms and negotiation. The idea was the negotiation could be used to increase the benefits so that an area would be a willing host. However, thus far, the state has been unable to site a facility.

O'Hare and Sanderson (1992), authors of the Massachusetts legislation, write that "In eleven years, five projects have been proposed in different locations in the state and failed; none has been constructed though one proposal is still alive. At least some of these failures were successes of the siting law," since projects that would have been bad for everyone were stopped. However, valid projects have also been stopped. They point out that technical assistance grant money from the state that was to be used as a "source of consulting expertise to empower the community in negotiations" was "used to hire lawyers to litigate against the project and the process, and consultants to make the impact report scope as long and as detailed as possible..."

It appears that the participation and negotiation mechanisms were not useful in promoting a fair process because there was enough opposition in the areas picked by developers that all of the processes set up to encourage discourse were used to stop the process. It appears that it will be, at minimum, difficult to negotiate with a community that has been selected and approved by an authority if the community is not interested in the facility.

Other states relying on compensation-based strategies have not had a better success rate than those using other approaches (Condrón and Sipher, 1987). Research into the effectiveness of compensation as a strategy is limited, and the findings are mixed (Armour, 1990).

While negotiation may be useful, currently it does not begin until late in the process, after potential host areas have been picked and an assessment of the sites is underway or completed (Armour, 1990). Conflict has usually become entrenched by the time a host site has been chosen, and the inclination of affected parties is to "pursue adversarial rather than cooperative strategies for resolving their concerns" (Armour, 1990). Sandman (1992)

points out that many officials will sound excited until they learn of the political costs and then will change their minds fast. He believes that early negotiations need to start skeptically, but willing to listen.

Peelle (1987) believes that local nuclear waste siting acceptance is unlikely anywhere except in existing nuclear host areas or areas that need the economic benefits. However, negotiation may not be possible until a community understands that the facility is safe. Zeiss (1991) says that it is important to determine and show the preventive and mitigation measures *before* trying to force a community to negotiate because people are more concerned about possible negative consequences than about benefits.

Portney (1991) also found that cost/benefit may not as important as local control and mitigation. Research by Lyons et al. found that economic incentives did not strongly influence people's views about living near a hazardous waste facility as much as incentives relating to control (Armour, 1990). The public believes that the protection of human health and the environment far outweighs any monetary gains (Krawetz, 1979). According to Wedge (1984), it is important to recognize explicitly "the human need for safety from intrusion of dangerous substances into their life-space." He notes that "if this were more unequivocally accepted as the principle aim of all parties, the forms of discourse would immediately be altered and all parties would join in maximizing that purpose."

Sandman (1992) points out that it may be important to offer "LULU tradeoffs"--guarantees that if a community accepts one "unwanted" facility it will not have to accept others, or become a "dumping ground" for unwanted facilities. In some places, such as New York City, this idea has been written into law as "fair geographical distribution of sites" (Scharf, 1991). Sandman (1992) also says that it is important to ground siting not just in tort or regulatory law, but also in contract law, which imposes stipulated penalties for specified infractions, with oversight guarantees.

Carnes et al. (1983) found that "however attractive incentives may appear to be on the surface in helping to resolve the social and institutional problems of high-level waste siting, they should not be adopted and applied without prudent analyses." O'Hare et al. (1983) indicate that because simple cash payments are often inappropriate and are easily characterized as a bribe, the variety of compensation alternatives is important to consider. They place compensation possibilities into five categories: (1) money in the form of payments to local governments or lower tax rates, (2) conditional compensation, that is, unmeasurable costs to the community such as guaranteeing property values or insurance, (3) in-kind compensation (measurable costs that can be balanced), (4) protection (new emergency planning equipment, training, site monitoring), and (5) impact mitigation.

According to O'Hare et al (1983), a number of conditions are needed to make an exchange through negotiation possible, including: (1) each group must have something to trade, (2) there must be potential outcomes that will leave each group better off, (3) each group must be convinced that the other will uphold its part of the deal, and (4) each group must believe the above conditions are true (O'Hare, Bacow, and Sanderson, 1983). An experienced mediator may be useful to articulate procedural and substantive concerns, which will allow the parties to design options that respond to their needs (Schmeidler and Sandman, 1988). Wedge (1984) views the use of third parties to facilitate dialogue or mediate between groups as one of the most important social inventions, drawing its effectiveness from the "very absence of decision-making powers," which is reassuring to all parties. Environmental dispute resolution centers exist in Wisconsin, Washington, Virginia, Massachusetts, Illinois, Colorado, and California, and their services may be used in other states.

Bord (1987) found that, while financial incentives are welcome by most communities, this element alone does not establish a strong base for cooperation. He found (1992) that among self-proclaimed NIMBY's involved in the low-level waste siting process in Pennsylvania that the issue centered on a lack of trust and says that the solution to solving this does not lie in economic incentives. Influential decision-makers, he says, tend to consider compensation as more important than local power-sharing, while the public and representatives of environmental organizations tend to consider local power-sharing as more important (Bord, 1987). Another issue that must be addressed is the lack of trust that people feel for their local officials (Bord, 1987). This presents a problem because it may mean that the community will not recognize the legitimacy of negotiations by official representatives (Bord, 1987).

Portney (1991) writes that "we know with 20/20 hindsight that economic theory by itself will not provide sufficient prescriptions to permit successful ... facility siting," and argues that "there is a lack of empirical foundation establishing a causal link between increasing benefits and attitude change." He suggests that attitude changes can only occur as a result of decreases in the costs people perceive they must carry. He says there is little evidence that it is possible to decrease perceived costs.

Public Participation and Consensus Building

A decade ago, the *American Planning Association Journal* published an article by Dennis Ducsik calling upon utilities to give serious consideration to "open" planning to incorporate some form of voluntary citizen participation in the site selection process. Ducsik characterized the traditional siting process, which he termed the "decide-announce-defend" approach, as "one that induces polarization of views and inhibits compromise solutions." Yet he recognized the suspicion with which companies viewed a process that increased public participation.

Ducsik (1981) wrote: "The idea of collaborative siting has been so negatively prejudged that very few companies have been willing to experiment with it, even on a limited basis, and there has been practically no careful evaluation of it in the industry literature. As a consequence ... very little is known as to whether citizen participation might be a viable means of stemming controversy over where to put future power plants."

At the time, most companies were of the position that "legislative reform" would ensure that siting disputes could be settled more expeditiously within the framework of federal and state certification procedures. Few realized that the federal and state governments had already set in motion legislation that was giving more power to citizens and reinforcing the belief that citizens should be informed about, and participate in, decisions that affect them.

Although "open" planning in siting power plants is not yet commonplace, the issue is receiving more attention as utilities begin to plan for new baseload capacity. The Edison Electric Institute, the trade association for investor-owned electric utilities, established a Public Participation Task Force and a Siting and Environmental Planning Task Force to examine the issues. They have published several documents and held workshops to familiarize utilities with the issue.

Most experts now agree that some form of citizen participation in siting public facilities is both necessary and desirable. Although it will probably be demanding and time-consuming, "the risk of protracted battles or of non-approval is far more costly than the time spent to plan in the open" (Williams and Massa, 1983).

One clear message emerges from the literature: people must be given the opportunity to become informed, to have their concerns listened to and addressed, and to have some control in matters that concern their lives. The key factor leading to conflict and failure has been the lack of attention given to social considerations (Williams and Massa, 1983). People who are not given a choice in a decision they feel affects their lives become outraged and set out to stop the project (Schmeidler and Sandman, 1988), and there is little that can alter their course of action. Schmeidler and Sandman (1988) write that "when people feel outraged about a decision--that it is unfair, coercive, and obviously an undesirable outcome for them--they have little incentive to look for merits in it." Participants in siting disputes consistently "act rationally and effectively to serve their interests as they perceive them" (O'Hare, 1983). However, "participatory processes do not reduce the need for political leadership and courage," and may even increase the need (O'Hare and Sanderson, 1992).

Krawetz (1979) found that agencies that successfully sited a facility displayed three characteristics: a commitment to fostering good community relations, to public involvement and access to information, and the cooperative involvement of government, industry, and environmental groups.

Armour (1990) points out that the traditional approach to facility siting is top-down in orientation and leads to the imposition of a decision (Armour, 1990). This approach evokes a "why us?" reaction from the "winning" community. A community has the power to delay siting, make it prohibitively costly, or even stop it altogether. Recognizing this from the beginning by including the community in the decision-making process may be more practical than excluding it (Schmeidler and Sandman, 1988).

Ellis and Disinger (1981) found that "actions that tend to close off effective interactions with the social environment and tend to inhibit communications tend to result in outcomes unfavorable to the agency's interest." Such actions might include "suspicion that the agency is attempting to manipulate public desires," taking actions that imply "we know best," or the use of formal hearings, which tend to be "antithetical to the promotion of good two-way communication."

Peelle and Ellis (1987) found "that public participation must be fostered throughout all stages of the decision-making process; and informal, interactive channels of communications must be kept open and operational. There is also a need to establish a mutually-agreed-upon information base that both citizens and project planners can use to shape their plans and render their opinions. It is very important to initiate these efforts very early in the planning process. Citizen involvement at the front end of a project helps remove elements of secrecy and surprise and often lowers the level of anxiety experienced by host groups. Without communication there can be no meaningful dialogue between citizens and hazardous waste management professionals. Such mechanisms in and of themselves, however, do not guarantee successful siting. They are a means toward an end and not an end in themselves. Only equitable institutional arrangements can lead to legitimized, accepted siting."

Peelle (1987) says that more emphasis must be placed on meeting public demands for waste reduction, recycling, and detoxification, and that disposal of waste "should become the choice of last resort rather than the preferred choice of 'least-cost.'" Schmeidler and Sandman (1988) write that "there is fairly broad agreement that waste management strategy must include waste reduction as well as treatment and disposal. There is also agreement that many existing facilities do not handle wastes adequately and that better procedures and technology can improve both source reduction and waste treatment. However, there is strong disagreement over the extent to which waste management strategy should focus on reduction or on treatment and disposal."

The purpose of public involvement is to transfer knowledge, and "it rests on the recognition that in most cases open discussion has benefits which outweigh any problems of premature disclosure" (Williams and Massa, 1983). Unless the gap between real and perceived consequences is narrowed, "participants can neither protect public interests nor aid the sponsor through informed contribution to the siting process. Without such contributions, the sponsor cannot be forewarned of potential opposition, nor can the sponsor understand the latitude for negotiation and recognize all appropriate project modifications" (Williams and Massa, 1983).

Armour says that "the voluntary approach challenges three premises of conventional practice: that (1) scientific and technical criteria should be the basis for assessing the merits of siting options, (2) the objective should be to first find the technically/environmentally 'best' site, and (3) social acceptance should follow technical acceptance. In voluntary siting, socio-political factors become first-order determinants of site selection and, rather than an optimum site, the goal is to find a technically suitable one. Once social acceptance has been addressed, then emphasis is placed on developing appropriate site-specific engineering, site design, and impact management measures" (Armour, 1990).

Creighton (1986) believes that the important thing is to integrate the participation of the public into the decision making process "as a way of doing business." He notes that "when technical people recognize the need of the public to participate in the political aspects of a decision, they regain the respect of the public for their technical expertise. But as long as the two are confused, the public feels a need to challenge everything, unable to discriminate between the two."

Creighton (1986) says that the appropriateness of any technique depends on what is needed to reach a legitimate decision. During the course of a complex decision it may be desirable to use virtually all the techniques, depending on the stage of the process or the population segment (Creighton 1986) .

While there is no level of public participation that is universally accepted as the "key," access to information and public participation in some form has been associated with most successful facility siting (Houghton, 1989; Krawetz, 1979). The NGA study indicated that data were "inconclusive on the issue of whether public participation promotes successful siting," but pointed out that over 80 percent of successful sitings had some form of public involvement. They suggest that what may matter most "is not the quantity of public participation, but the quality."

Creighton (1986) outlines several levels of public participation. "At the simplest level participation is ... defined as keeping the public informed, or being certain they have 'knowledge about' agency actions" through public information campaigns and task force or advisory groups. Another level is to ensure that the public is "heard" before a decision is made--through public meetings, workshops, problem-solving meetings, the use of surveys. Another level is "having an influence on the process," through conferences, facilitation, and mediation. The next level is achieving agreement on a final decision through problem-solving and negotiation--getting agreement on the final decision."

Because there is little citizen involvement in the decision-making process, Peelle (1990) believes new ways are necessary to involve the public in making legitimate decisions on such issues as safety. Instead of relying on

advocacy science, she suggests the use of Citizen Advisory Groups (CAGs), consisting of all stakeholders, to empower a community to answer its own questions and concerns. She says that CAGs fill an important role in comprehensive public participation programs by recognizing values--not required by law--as an important consideration of the process. She cautions, however, that they are not a substitute for other kinds of public participation actions, such as public hearings, written input to the record, open houses, small group workshops, public information displays in shopping malls, or printed materials and press releases.

Some communities may have more experience in consensus building and resolution of local conflicts. Lack of practice in these vital areas--or a history of local conflicts and division--may be a key indicator of problems to come (Peelle, 1990).

Williams and Massa (1983) write that "achievement of full public participation requires planning and takes effort to counter any one of a series of problems, including distrust, apathy, or disinterest, unfamiliarity with the technology and potential effects of a project, poor past experiences, dominating special interests, and the sacrifices necessary for individuals to spend considerable time in workshops and meetings. It requires consideration not only of why participation is desirable but also of which persons should participate, when their participation is appropriate, and how their participation can be made effective."

They believe that program design must be accomplished at the outset of the study because "it is extremely difficult to insert a participatory component efficiently and credibly into an established siting process without altering the whole process, including revisiting earlier decisions. Further, if citizens' expectations of influencing decisions are raised, they cannot be satisfied merely by participation in a program of education and issue definition" (Williams and Massa, 1983).

Williams and Massa suggest that selection of a participation process and its participants is akin to jury selection--"the aim is to work with a group that overall is fair and impartial, in that it at least represents a balance of interests even if it is not composed solely of fair and impartial individuals. In many cases a program can be conducted more effectively by independent individuals who are experienced in citizen participation than by the project sponsors and planners. Participation experts are not proponents. They understand their audience, and they can help the designers to present what is proposed in understandable terms. Effective participation demands good listening on the part of the sponsor--much can be learned by frequenting the places where people talk and do business, whether in city halls or coffee shops and bars" (Williams and Massa, 1983).

The purpose of public participation is to make the decision-making process legitimate in the eyes of all the stakeholders (Peelle, 1990). It is important to recognize that, unlike technical issues, it may be impossible to

determine the time people require to understand and reach consensus. For this reason, flexibility is needed (Susskind, 1987).

Kunreuther, Aarts and Fitzgerald (1992) systematically conducted a quantitative survey of stakeholders in 29 siting processes. Their findings show that important characteristics of the successful siting cases include: the need for the facility was agreed on; the design of the facility was considered appropriate; trust was high; there was a visible presence of the developer in the community; and there were high levels of public participation and consensus building throughout the process.

A recent example of how public participation can work is Tampa Electric Company, who in 1988 began a traditional power plant siting process. One of the leading sites under consideration was 2,700 acres of coastal and inland property slated for a power plant since the 1960s. Public and environmental outcry against the potential plant site grew swiftly. Heeding the public's environmental concerns and opposition, the company abandoned its site plans in April 1989 and formed a Blue Ribbon public siting task force made up of people from around the state. The task force was made up of people who were carefully chosen over a period of three months because they were respected, were "consensus builders," and they had expertise considered necessary, including business economists, air pollution specialists, hydrology people, land use experts, and environmentalists. It was chaired by the well respected president of the University of Tampa. Company officials committed to keeping the process completely open and to implement the findings. This factor helped garner the participation of very prominent and busy people. The task force had an independent communications person who didn't work with the electric company's communications people. They took an aggressive role to let the community know what was going on. The first step of the task force was to require the electric company to determine if there was really a need for the plant. It was already agreed that a coal plant would be needed because Florida forbids the use of oil for electricity, gas lines were unavailable, and a nuclear energy plant couldn't be built in a reasonable amount of time. Seventeen months later the task force reached its decision, selecting a site on which to build the plant that was acceptable to all.

Other examples of voluntary approaches that have led to successful siting include hazardous waste facilities in Alberta, Canada and in Minnesota (McGlennon, 1983). Sandman (1992) cautions that it is important that voluntary sites have a guarantee that "the fallback is not a coerced site, or at least not a coerced siting in a potential voluntary site that pulled out."

Skepticism that public participation will solve the siting problem remains. Portney (1991) writes that the potential problem with participation is that "in the short run the relationship between people's approval or sense of legitimacy of a given decision process and the results that the process produces often work in the opposite direction. To a large degree, people will often deny the legitimacy of any process that produces a decision to site

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a facility where they do not want it." He suggests that altering risk perceptions and values as well as altering the siting process is not only difficult but may fail. He proposes a new strategy called "risk substitution." "The emphasis of risk substitution is on finding sites in communities where people are already living with what they consider (or perceive) to be high risks." This strategy is founded on the belief that people may be willing to accept new risks if they are substituted for other pre-existing risks they know or believe to be higher than the one proposed. Portney writes that "the appeal of risk substitution strategies is that there is no necessity for people to change the fundamental ways they *perceive* a given set of risks or their values."

Kunreuther and Portney (1991) suggest that "some public laws (e.g. Superfund) could make the receipt of federal funds (e.g. money for cleaning up hazardous-waste sites) contingent upon the identification of new waste-disposal sites."

Brion (1991) states that opposition to facilities "arises from an altogether accurate sense by neighbors that they will unavoidably pay a considerable price for the presence of the facility, a price that functions as an economic subsidy, that, ironically enough, often makes the presence of the facility financially possible. This subsidy comes about through a process of political action from which the neighbors are as a practical matter excluded and that serves, however unconsciously, to institutionalize a substantial measure of heresy into the substance of the decisions that it yields." He proposes the "Special District," which has been used at the grassroots level of our governmental system for generations, as a model for a mechanism capable of carrying out the needed compromise.

O'Hare and Sanderson (1992) argue that, even with participation, there must be a clear sense of political leadership. "The participation that occurs...is not a balanced comparison and presentation of concerns, but, without careful political management, an uncontrolled contest of very differently situated parties. Unless a supervisory authority is willing to impose costs on irresponsible behavior, the process can degenerate into a hostile and occasionally ludicrous circus that repels involvement by the more responsible parties..." They go on to point out that "public officials who have the strength, and can rely on it at the risk of their job amid a clamor of accusations of callousness and corruption, may be too few to support a process of this kind."

O'Hare (1992) writes that "In some ways, the siting problem is a special case of a more general crisis in government and institutional legitimacy. The shortest version of it is that citizens have been taught that problems should be solved for them with no sacrifice or work required, and too many elected leaders have cooperated in a sort of mutual seduction, promising just the sort of painless fix that the crowd demands (but knows will not be forthcoming). What the siting processes enacted in most states really need is a governor who will say, "This facility represents a risk that grownups willingly bear for the common good. It isn't abusive, or exploitative, it won't give your children cancer, and we need it. Grow up." (O'Hare, 1992).

Back to the future: The revisionism continues

In 1971, James Ramey of the U.S. Atomic Energy Commission spoke of public participation in the form of congressional hearings to provide the public with credible and authentic information from the most expert people. He went on to say that "...we are encountering some opposition, much of it from scientists outside the nuclear field who raise basic health and safety questions. In a number of instances, these are people who are not familiar with the data available in the open technical literature. We have been able to resolve the questions of many of those individuals by providing guidance to the literature and through the normal give-and-take of scientist-to-scientist interchanges. Of course, we have also run into opposition led by unqualified people who make their living by playing on the fears of the public, setting themselves up in charge of 'instant' conservation organizations, and stirring up controversy. I am hopeful that we will soon leave this stage, when much of the professed concern for the environment is based on emotionalism rather than the facts. It is time that we got on with meaningful programs to preserve and enhance the world in which we live" (IAEA, 1971).

Ten years later, Dennis Ducsik advocated "open planning" as a way to solve the problems associated with siting. Around the same time, Mazur wrote that he disagreed with the increasing call for public participation in policy decisions regarding science and technology. He advocated the use of "normal" political means to make science and technology policy, saying that he saw no reason to include more public participation in science and technology policy than in other areas.

Today it is somewhat ironic to read Theodore Roszak's *The Making of a Counter Culture* (1969), in which he wrote that "the technocracy is dependent on public deference to the experts. It would surely be a mistake to believe that the technocracy cannot find ways to placate and integrate the shop floor without compromising the continuation of super-scale social processes. 'Participation' could easily become the god-word of our official politics within the next decade; but its reference will be to the sort of 'responsible' collaboration that keeps the technocracy growing."

Today it seems obvious that there are new "players" around the decision-making table who represent varying aspects of public need and concern. Only through processes that encourage *real* public participation can both technical and other information be examined in depth and to the satisfaction of everyone. The arrogance expressed in the past is today widely recognized for what it is--a barrier to prevent participation. Participation is a way of developing trust.

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GET OUT OF

By Anita Warren

ILLUSTRATIONS BY JAMES YANG

**DOES
NIMBY
HAVE
TO SPELL
FAILURE
FOR
ATTEMPTS
TO SITE
FACILITIES?
MAYBE NOT
—WITH THE
RIGHT
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①

When Clean Harbors Inc. tried to site a hazardous waste incinerator in Braintree, Mass., it got more than it bargained for. Angry local residents stopped waste trucks, mobilized by the thousands for street protests, and showed up in Grim Reaper costumes to disrupt public hearings. The company was forced to drop the project.

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In Alberta, Canada, two communities were in hot competition to host a new hazardous chemical waste disposal facility. When the town of Swan Hills was named the winner, Ryley, the losing town, purchased full-page advertisements in the Edmonton Journal to complain about not getting the facility.

What made the difference in these two outcomes?

If you can answer that question, a lot of waste generators, site developers, and state and federal officials are very anxious to talk to you.

That is because efforts to develop new disposal sites almost invariably run afoul of the dread NIMBY (Not In My Back Yard) syndrome. Not that waste facilities are singled out. NIMBY has been the nemesis of countless other LULUs (locally unwanted land uses), from playgrounds to halfway houses to fast food restaurants.

To local residents, NIMBY is a legitimate exercise of their democratic rights. Yet if communities are able to torpedo the development of necessary facilities, like waste disposal sites or power plants, our society faces a serious dilemma.

Yet all may not be hopeless. Industry, social scientists and government regulators

have been taking a hard look at how siting conflicts can be avoided. And they're coming up with some answers.

Up until the early 1960s, local opposition was not a significant problem in facility siting. Governments and companies assumed that siting decisions were far too complex to allow public participation, and so they made the decisions themselves. Citizens rarely argued, for they trusted the government and its experts to protect their health and safety.

But the 1962 publication of Rachel Carson's *The Silent Spring* awakened Americans to the dangers of many toxic substances. Because of well-publicized environmental scares during the 1970s, like Love Canal and Three Mile Island, citizens lost confidence that government would protect them; clearly, they would have to start protecting themselves. They borrowed techniques from the anti-war movement, which had shown that vocal minorities could influence government policy. Thus was NIMBY born.

In the pre-NIMBY era, life was fairly easy for facility developers—even waste disposal site developers. Typically, they would select a disposal site, then announce and justify the decision to a usually docile public. This process, often described as decide-announce-defend, sounds perfectly logical. The trouble is, it no longer works. It has become a formula for NIMBY. Yet many developers and siting agencies are still trying to site facilities much as they did 30 years ago.

Some companies have learned the pitfalls of decide-announce-defend the hard way. In the mid-1980s, Creative Resource Ventures Ltd. of Madison, Wis., decided to develop an industrial waste facility to serve its foundry in Sparta, Mich. The foundry employed a large fraction of the community. Expecting no opposition, CRV announced its decision to the

MY SITE!

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town board, but not to the public. However, word got out. Two hundred angry citizens turned up at a town meeting. The town board, formerly supportive, voted down the facility. "It was typical old-style siting. We did not involve the public at all," said Robert Glebs, president of CRV. "To show you how poorly this was communicated, some of the people speaking against it were employees of the company."

New York state learned a hard lesson about decide-announce-defend in its initial attempt to site a low-level radioactive waste site. The state siting commission hired technical consultants to identify the "best" potential sites, but the consultants balked at sharing with the public—or even the commission—the scientific and technical data on which its decisions were based. When siting commission representatives tried to study the sites further, incensed opponents went to court—and even resorted to physical intimidation—to stop them. The beleaguered commission has now started the siting process from scratch, using a very different approach—and

the secretive consultants have been fired.

Even at its best, decide-announce-defend reflects a corporate/governmental mindset that the public is not competent to share in the highly technical process of site selection and development. At its worst, the assumption that the public can be excluded from information and decision-making can lead even to outright deception.

One of the worst examples occurred in Braintree, Mass. In 1978, a fire and explosion at what was supposed to be a "recycling facility" revealed to townspeople that it was actually a hazardous waste treatment plant. Protesting to the state, the community was told that citizens had no say in the licensing of such facilities. Clean Harbors subsequently acquired and greatly expanded the facility. When the company announced several years later, in 1987, that it wanted to build a rotary kiln hazardous waste incinerator, it faced an understandably hostile community. "There were not good relationships here," says Francis Toland, chairman of the Braintree Board of Selectmen and former citizen-activist.

During the ensuing battle, the company demonstrated its contempt for local opponents by publicly disparaging them as "small potatoes." It allegedly even tried to have several protest leaders fired from their jobs. Moreover, citizens charged that too-close ties between Clean Harbors and the state regulatory agency were being concealed. "We did profiles on all these people, and it looked like a family tree," says Toland. "The process was just as contaminated as the waste they were

citizens in their planning and decision-making," says Armour, "but it is a task they approach reluctantly."

Some industry observers agree. "There's a prevalent notion among many business people that the fewer people who know about what they're trying to do, the easier it will be to accomplish the goal," says Joseph Pokorny, vice president of communications with Chemical Waste Management Inc. in Oak Brook, Ill.

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Eventually the opposition attracted thousands of followers, as well as the support of the media and of state politicians. Clean Harbors failed to win permission to build the incinerator. The company refuses to discuss the experience, calling it "something we want to put behind us."

Although few other companies have resorted to such extremes, there is scarcely an environmental facility developer that has not racked up its share of siting failures due to decide-announce-defend. Why, then, was this approach not abandoned long ago?

Audrey Armour, associate professor of environmental studies at York University in Canada, and a siting consultant to the Canadian government, accuses many site developers, both companies and government agencies, of a "bunker mentality" that makes them "just as resistant to change, distrustful and motivated by fear" as their local adversaries. "They recognize the need to involve

But some companies have recognized the limitations of decide-announce-defend and at least are doing a better job on the "defend" side than they did in the past. Neighborhood meetings, newsletters, press conferences, facility tours, information displays in shopping malls, and newspaper advertising are increasingly used to let the public know why the facility is needed and how the developer or siting agency plans to proceed.

Another approach that has enjoyed some success is to offer economic incentives to the community to host a facility—"a deal they can't refuse," as one consultant puts it. To compensate neighbors of a landfill it is building near Madison, Wis., Creative Resource Ventures is paying a host fee of \$1 to \$1.50 per ton, guaranteeing the property values for nearby homeowners, building a pair of 200-foot wells to protect the water supply, contributing \$20,000 annually for the operation of a nearby park, and paying \$5,000 per year to fund a local citizens' oversight committee.

CRV president Robert Glebs expects the company's incentive payments over the 12-year life of the site to total \$6 million.

But where a developer is seen as "buying its way in," a community can react with resentment. When Clean Harbors offered "big money" to induce Braintree to accept its hazardous waste incinerator, the townspeople "became more infuriated," says Toland. The town of Hinsdale, Mass., described by one of its selectmen as "below the poverty level for the last 10 years," was offered a whopping compensation package by a landfill developer, including enough fees to virtually wipe out the need for property taxes, a \$1.2 million recreation building and \$250,000 annually to be distributed among town residents. Shouting "take your money and go," the town rejected the landfill by a wide margin.

What's more, site developers who offer economic incentives risk being accused of "racist risk management," says Charles Yulish, vice chairman of Holt, Ross & Yulish Inc., an Edison, N.J., public affairs consulting firm. "There are a number of civil rights and other groups who are advancing the belief that hazardous facilities are invariably sited among poor people, especially blacks and Hispanics, and that the risk is forced upon them because they are economically and politically powerless," he says. "You can get all of that constituency to act against a facility if you're trying to bribe a town into taking it."

GAINING TRUST. Although public information campaigns and economic incentive packages have had their share of successes, many social scientists and site developers say they don't always go far enough to overcome public distrust.

"It's still business as usual," says Armour of York University. "It's the same top-down, technocratic, coercive approach that says, 'we're going to pick out a site, but we're going to compensate the residents to make them feel better about the siting decision.'"

Armour and many others believe that NIMBY is too simplistic an explanation for public opposition to siting. Instead, they say the traditional siting process itself—even when embroidered with state-of-the-art public information programs and economic benefits—is largely to blame for creating public opposition.

"I've found that while people may have a fear of a facility, the way in which people experienced the decision-making process—how they felt they were treated—had more to do with their resistance and anger than anything they thought about the facility," says Armour. "When the public feels they have not been given the opportunity to be fully informed, to have their concerns listened to and to exercise their basic democratic rights, they are not very likely to accept recommendations and decisions, even if there are volumes of technical studies substantiating those decisions."

Peter Sandman, director of the Environmental Communication Research Program at Rutgers University, New Brunswick, N.J., agrees. "Most people are apathetic about most risks, like radon, fat in the diet, AIDS. It's very much the exception to find a risk that people are overreacting to, instead of underreacting. There's always a reason, and the reason is always the same: The risk has been managed in a way that has people furious."

OPEN INVITATION. What should be done differently? Increasingly, companies and siting agencies are realizing that much of the answer may lie in public participation. In fact, "public participation" has become something of a buzzword in facility siting. The trouble is, no one is sure what it means: Public hearings? How many? At what stage in the process? What about an on-going citizens' advisory group? Should its purpose be merely informational? Or must the group be involved in actual decision-making? Many state and federal laws require some degree of public participation in siting some kinds of facilities, and some developers think that satisfying the statutory minimum is enough. But savvy developers realize that the legal minimum should be just the starting point.

There is no doubt that public participation is "expensive and time-consuming," says sociologist Elizabeth Peelle of the Oak Ridge National Laboratory research staff in Tennessee. But the payoff can be worth it. Tampa Electric Co. had been planning to site two new power plants on the part of Tampa Bay known as Cockroach Bay, a sensitive aquatic preserve, starting in the mid-1990s. But when the utility sought permits, it

NIMBY

THE KEY TO OVERCOMING NIMBY, SAY MANY EXPERTS, IS TO INCREASE THE PUBLIC'S PERCEPTION OF THE BENEFITS, WHILE REDUCING ITS PERCEPTION OF THE RISKS.

encountered active community opposition to building near the bay. Tampa Electric abandoned its site plans, formed a task force of 17 members of the community—environmentalists, economists, educators, business people—and asked it to choose an alternate site. The company promised to be guided by its selection, and it kept its word. Seven months later, when the task force chose a location 50 miles inland from Tampa Bay, the utility promptly took steps to acquire the land. The result was a happy community—and a happy utility.

Provided that public participation provides genuine two-way communication, a site developer or siting agency can get valuable feedback about what will ease a community's fears. The Pennsylvania Department of Environmental Services heard "loud and clear" the fears of citizens' groups that burying low-level radioactive waste in

the ground could contaminate drinking water, says Bill Dornsife, chief of the department's Division of Nuclear Safety. As a result, the department decided the facility would have to be built above ground. "In terms of performance and intruder protection, it's really no different than an underground facility," says Dornsife. "But just the fact that it's an above-grade facility, versus underground, makes a big difference in the public's mind."

But public participation programs also can backfire, particularly if they are seen as "window dressing," or "a way to dress up the old decide-announce-defend strategy underneath," says Peelle. In those cases, "people become furious. Where it goes sour, it's worse than never having tried anything," she says. "It often provides the energy to do a bang-up NIMBY job."

POWER SHARING. Even if it were possible to carry out public participation programs with textbook precision, they may not be enough. In some areas, particularly where there have been bad siting experiences previously, or there is a high level of distrust, or there is a

history of community dissension, or the facility is perceived as extremely hazardous, it may be necessary to go to the furthest extreme on the public participation spectrum—what Peelle calls "real power sharing" and what other siting experts term the "voluntary approach."

Many experts say the voluntary approach can change the outcome of the risk-benefit analysis the public makes—consciously or unconsciously—when a facility is proposed. If they perceive that the risk of the facility exceeds the benefit, they will oppose it. The key to overcoming NIMBY, say many experts, is to increase the public's perception of the benefits, while reducing its perception of the risks.

It's not that industry hasn't tried to change the way the public looks at risk. Siting developers have worked hard to educate the public to think more like scientists. They believe that if only the public could understand the risk the way the experts do, they would realize the facility is not really that dangerous and would accept it.

However, this approach has rarely worked, says Egon Frech, coordinator of public and government affairs for nuclear fuel and waste management at Atomic Energy of Canada Ltd. Instead, he says, industry needs to understand that the public sees risk very differently than the experts do.

OUTRAGE. "When risk assessors look at risk, they're multiplying magnitude by probability and coming out with something like expected annual mortality," says Sandman of Rutgers. "The problem is that's not what anybody else means by risk." Instead, citizens are much more concerned with what Sandman calls "outrage." Among his "outrage characteristics": Is the risk familiar or unfamiliar? Is the facility perceived as fair or unfair? "In most siting controversies, the public accurately sees that the risks are going to them and the benefits to someone else," says Sandman, "and that unfairness generates outrage."

Perhaps the most important "outrage characteristic" is whether the risk is voluntary or involuntary. Social science research shows if a risk is imposed involuntarily, it is seen as up to 1,000 times less acceptable than it would be if assumed voluntarily. Sandman gives the example of voluntarily skiing down a moun-

tain, versus being shanghaied to the mountain top, having slippery sticks strapped to one's feet and being pushed down the mountain. "One is recreation, the other is assault," he says. "The difference is who decides, whether it's voluntary or coerced."

In siting, too, the distinction is crucial. "As soon as you impose a risk on people, they spend all of their time trying to establish their right to control the risk, to veto," says Frech of Atomic Energy of Canada. "If the imposi-

a terrible trap and a big mistake," agrees Lawrence Susskind, professor of urban and environmental planning at the Massachusetts Institute of Technology and associate director of the Program on Negotiation at Harvard Law School. "It's so easy to argue that I can find a site equally good, therefore it's not the best, therefore you're not credible." Instead, siting authorities should settle for technically acceptable sites and open up the site selection process to non-technical, non-scientific judg-

ONE OF THE
MOST IMPORTANT
WAYS TO EMPOWER
A COMMUNITY IS
TO GIVE IT A
SAY IN SITE
SELECTION—THE
RIGHT TO SAY
YES OR NO.

tion of the risk is removed—if it is made voluntary—the perception of the risk will be reduced dramatically, and it may be possible to avoid the NIMBY reaction."

This can be done, say experts, by "empowering" communities—giving them the right to say yes or no to the site. "Complete power leads to essentially zero outrage," says Sandman. In the ideal situation, he says, "both buyer and seller have to say yes, or there's no deal. Everybody's free to walk at any time until the deal is transacted."

One of the most important ways to empower a community is to give it a say in site selection. Developers commonly make the mistake of siting a facility solely on technical grounds. "It is very difficult to try to prove to a suspicious public that any one site is technically the best. That is why traditional siting processes usually become mired in technical arguments that arise because of political frustration," says Frech.

"The notion of technical best—the best—is

ments—like the public's perception of what is fair.

Connecticut's recent "blindfold" selection of the three "best" sites for a low-level radioactive waste disposal facility is a good example of what not to do, says Susskind. "[The state] argued that because it was a technical study, they were not going to involve anyone, they were just going to have it done by technical consultants," says Susskind. The three towns, not knowing they had been under consideration, were told of their selection just 15 minutes before it was announced publicly to the entire state. "That's a prescription for just the reaction they've got and will have: They'll be in court forever," says Susskind.

Another way to give control to a community is to involve it in facility management. This can be especially effective in communities that do not trust the integrity or competence of the siting proponents; Sandman calls it "replacing trust with accountability." Together, developers and the community set

standards for how the facility will be run, particularly its environmental impacts. A citizens' group is created to monitor or receive regular reports on these impacts and is given the power to shut down the facility, if standards are breached, without having to go to court. The offer of shared management has been known to win over many siting opponents. "Once you make the offer, all the air goes out of the balloon," says Susskind.

The idea of sharing power can be frighten-

cal process preceded the technical process. In 1984, the Alberta government chose Swan Hills, 125 miles northwest of Edmonton, as the host site. One of its disappointed rivals, the village of Ryley, asked the government to reconsider. It even ran a newspaper advertisement claiming, ironically, that it offered a more technically suitable site.

Browning-Ferris Industries is trying the voluntary approach to siting landfills in New York State. It sent information packages to

**THE OFFER
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ing to many developers and siting agencies. "It's something developers don't want to accept. It's kind of scary," says Peelle of Oak Ridge National Laboratory. "We all feel better if we have all the power in our own hands." But some developers, frustrated by the futility of old siting methods, are trying this new approach. "They threw up their hands," says Susskind. "They didn't know what else to do."

Perhaps the most successful example is the voluntary siting of a hazardous waste treatment and disposal facility in the Canadian province of Alberta. In the early 1980s, the government of Alberta began to work with the public to show the need for a hazardous waste facility and to develop siting criteria. Communities were asked to express an interest and told that they could opt out of the process at any time. Out of some 70 regional jurisdictions in the province, 52 asked to be included in the siting program. Nowhere was technical site characterization begun until the community had formally invited it; the politi-

1,000 town supervisors and county executives in July 1990; so far it has received 44 invitations to make public presentations. "We start with no pre-selected site. We would only look for a site after the community decides it wants to be our partner," says Rob Raylman, director of BFI's New York State Community Partnership Program. Raylman says the company doesn't know if this approach will work but believes it has far more potential than its former method—decide-announce-defend—which "was not successful in the past."

Another benefit of an open, voluntary approach to siting, say some experts, is that it can help draw the teeth of national organizations that supply manpower and know-how to local NIMBY groups. These organizations include Greenpeace and the Arlington, Va.-based Citizens' Clearinghouse for Hazardous Waste. "National activist groups are in the outrage business. But they don't create it; they nurture it, harvest it, stick a microphone in front of it," says Sandman of Rutgers. "The

last thing they want is to go into a community where the developer is bargaining with the public in good faith."

Will the voluntary approach work for facilities the public views as most risky of all: radioactive waste sites? That remains to be seen. It is being tried in Port Hope, Ontario, where the government is trying to site a facility for soil contaminated with low levels of radiation. In a previous siting attempt by a private developer, the people of Port Hope had vehemently opposed the facility. But in the current siting effort, which uses the voluntary approach, Port Hope is vying to become the host site. Why the turnaround? "They said this process is perhaps the most democratic thing they've ever seen, very different from the last time," said Armour of York University. "They felt that, finally, they had some control in the process."

U.S. Nuclear Waste Negotiator David Leroy, whose mission is to find a state or Indian tribe willing to host a repository or monitored retrievable storage facility (MRS), is betting that the voluntary approach will work in the United States. States and Indian tribes wanting more information about the siting process will be eligible for \$100,000 U.S. Department of Energy "feasibility grants"—with no strings attached—to investigate whatever siting issues they consider most important. States or tribes may opt out of the process at any time. Economic benefits will be available to the community ultimately selected, although, Leroy says, "I'm not talking about traveling from airport to airport with a bag of money. The American people are not and will not be motivated by fiscal bribery," but rather, by "a fair, sensitive and open process."

In this welter of theories and approaches to siting—most of which have racked up both successes and failures—how can a developer or government agency be sure what will succeed? Unfortunately, there is no magic formula. "It's not like there are two or three tricks, and if you just get them right, everything just falls into place," says Sandman of Rutgers. "It's complicated. You can do everything right and still not have it work."

"There's a Holy Grail search for a scientific, right way to do it, but what you really have is an art," says Yulish of Holt, Ross & Yulish.

"I fear some academics are bringing too much of a desire to assign numerical, scientific values and replicability to what's being done. Unfortunately, this fits with the bias of most engineers and project managers who are responsible for siting."

Yulish says each siting attempt must begin with in-depth research on potential host communities. Among the variables to be considered are the community's demographics, economics, politics, current public issues and its experience with other siting attempts. "You have to fine-tune your strategy so it uniquely fits the location you're considering," says Yulish. "You have to wander around and use the right kind of eyes and ears to learn what's really going on there."

THE X-FACTOR. Often, the answer will involve not just one approach, but a combination of several—unique facility design, community compensation, some degree of public participation—or even other approaches.

"Experience shows there's an X-factor that defies the conventional wisdom," he says. "That's why creativity and flexibility are so important."

Yulish faults developers for unwillingness to take "a bold thrust" in dealing with siting problems. For example, he says, why not build "a bold waste facility that would overcome people's concerns—a concrete and steel pyramid—another wonder of the world, rather than a pariah." It may be a winning idea, but few developers are ready to be quite that innovative.

To Sandman of Rutgers, what will defeat the NIMBY monster is not only innovation, but courage and persistence. He fears that as developers gingerly move away from decide-announce-defend to try some of the more participatory approaches, "they'll try it for a little while and then get scared. They still have too much faith in coercion, despite the fact that it works less and less," he says, "and too little faith in democracy, despite the fact that it works more and more." □

"THERE'S A HOLY GRAIL SEARCH FOR A SCIENTIFIC, RIGHT WAY TO DO IT," SAYS CHARLES YULISH. "BUT WHAT YOU REALLY HAVE IS AN ART."

Addendum #3 — Negotiation Tools

- **Delphi Methodology:** A formal technique for encouraging consensus through successive rounds of position-taking.
- **Role Playing:** Playing out the stereotyped roles of participants.
- **Gaming-Simulation:** This a variation on role playing, in which the participants interact not just with each other but with a complex simulation of the situation they confront.
- **Coorientation:** This is a tool to help participants come to grips with their misunderstandings of each other's positions. A series of questions is presented to all participants. First, they answer the questions themselves, then they predict the answers of the other participants and responses are shared.
- **Efficacy-Building:** This is a collection of techniques designed to increase a group's sense of its own power.
- **Focus Groups:** A focus group is a handful of individuals selected as typical of a particular constituency. The focus group participates in guided discussion of a pre-determined set of topics.
- **Fact-Finding, Mediation and Arbitration:** These are all third party interventions in conflict situations.
- **Participatory Planning:** This is the label sometimes given to a collection of techniques for making public participation more useful to the decisionmaker and more satisfying to the public.
- **Feeling Acceptance:** A technique for interacting with people who feel strongly about the topic at hand. It involves identifying and acknowledging the feeling, then separating it from the issue that aroused it and only then addressing the issue itself.
- **Behavioral Commitment:** Also known as "foot-in-the-door," it asks people to take small steps that will symbolize movement in the desired direction.

SECTION FIVE

ADDENDA 4-8

- **Press Releases**
- **Sample Ads**
- **Q&A**

ABC Electric Hopes To Demonstrate New Nuclear Energy Siting Process

ABC Electric has expressed interest in becoming a part of an innovative, future oriented program that will test new siting regulations recently announced by the Nuclear Regulatory Commission. "Our interest in the program does not mean we are planning to build a nuclear power plant," said John Jones, Chairman and President of ABC Electric Company. "What it does mean is that our country's electrical utilities and our government realize that we must begin planning now to make sure that when a light switch is thrown in an American home, the light bulb will continue to glow."

The Early Site Permit Demonstration Program (ESPDP) is a way for the energy industry, and other interested parties, to try out the provisions of new nuclear power licensing regulations. Jones explained that the company has advised the joint industry/government group responsible for the program that it is interested in the program and believes it is important.

Jones added that the ESPDP can be an innovative and exciting part of our planning effort. "It is an honest, sincere attempt to bring the public — through citizen advisory groups and other outreach efforts — together with the electrical industry to develop a common vision of the future as it relates to electric power."

ABC Electric has invested \$42 million dollars in energy efficiency. Even so, over the past five years, demand for electricity has been growing by 2 percent a year. "We are studying all of our options for meeting electricity needs — coal, gas, nuclear energy, renewables, energy efficiency and purchased power. At the same time, we are trying to refine our ability to predict how much electricity will be needed in the future," Jones explained.

A decision on whether or not ABC Electric is selected to demonstrate the program will be made by March 1993.

"Because this program is a demonstration of the new early site approval regulation, and not a decision to build, we hope people keep an open mind about it. Not only will we continually provide the public with information as the project evolves, but through citizen advisory groups, town meetings, and an energy hotline, we will aggressively seek public participation in the process," added Jones.

Anyone interested in learning more about the ESPDP can call 1-800-xxx-xxxx and request more information.

####

ABC ELECTRIC COMPANY TO SEEK GOVERNMENT APPROVAL OF POSSIBLE NUCLEAR POWER PLANT SITE

ABC Electric Company announced today that it has been awarded a \$20 million contract by the U.S. government to test new regulations the utility could use to set aside land for a new nuclear power plant it may build in the future.

"We may need to build a new nuclear power plant to meet our customers' electricity needs in the years ahead and we want to be prepared in case this plant is needed," said ABC Electric Chairman John Jones.

New U.S. Nuclear Regulatory Commission (NRC) regulations allow electric utility companies to offer a potential plant site for review and approval before it is needed. This process can take several years. NRC approval to build a plant on the site could be sought later.

Jones added that ABC Electric will involve its customers in the process of selecting the site that it will use to try out the NRC regulations. "We want our customers to be partners in the process of selecting the site we set aside. To do this, we will form an advisory committee of customers and siting experts that will work with us in the technical evaluations of potential sites and in the final choice of the site."

At the same time, ABC Electric is selecting a site it will use to test the NRC's regulations, the utility is also beginning a major study of its customers' future electricity needs. "To continue to provide an adequate, reliable supply of electricity and assure the quality of our environment, we need to look ahead as to how the population and economy of our area will grow," Jones said.

"We've already cut power demand 11 percent by investing \$42 million to help homeowners and businesses use electricity smarter and we want to delay building new plants by getting even more customers to use electricity from today's plants more efficiently," Jones said. "But if we need to build new plants, a wide variety of fuels is the best way to meet our customers' future power needs. We will keep all our options open — including coal, gas, solar, wind power and nuclear power."

Nuclear power will be considered, Jones said, because "advanced-design nuclear plants are a safe and reliable option" that have important environmental benefits. "Nuclear plants do not burn anything, so they don't pollute the air," he added. "They are the cleanest, large-scale power source available to us."

ABC Electric currently operates the Midvale and Riverwood nuclear units in addition to its three coal plants and four natural gas-fired units.

To comment on or to obtain more information about ABC Electric's early site approval project, call toll-free (1-800) xxx-xxxx.

ABC ELECTRIC COMPANY WILL SEEK PUBLIC INPUT ON MEETING AREA'S FUTURE POWER NEEDS IN "ENERGY 2000" STUDY

ABC Electric Company today kicked off ENERGY 2000, a two-year, \$7 million study to determine its customers' future electricity needs and get public input on how these needs can be met through greater energy conservation and new power sources.

ABC Electric Chairman John Jones says that ENERGY 2000 will help the company develop its plans for the future. "To continue to provide an adequate, reliable supply of electricity and assure the quality of our environment, we need to look ahead to how the population and economy of our area will grow," Jones said.

The ENERGY 2000 study will build on the success of ABC Electric's \$42 million investment in helping customers use electricity more efficiently. "We've cut power demand by 11 percent because our customers are using electricity smarter in their homes and businesses," Jones said.

Jones said that ENERGY 2000 will balance conservation with the need for new power sources. "Conservation has helped delay building new power plants," he said. "At the same time, we're working to get the most from the electricity our current plants produce, we must keep in mind that building new power plants is a long process. That's why we need to start planning for our future needs today."

Jones said that public input on energy planning decisions will be a top priority in the ENERGY 2000 study. "We want our customers to be partners with us in looking at our energy future," he explained. "To do this, we will form an advisory committee of customers and technical experts to advise us on our future options."

One of ABC Electric's first actions in the ENERGY 2000 study is a new \$20 million contract with the U.S. Department of Energy to test new regulations that utilities nationwide can use to set aside land for possible future nuclear power plants.

The new regulations, developed by the U.S. Nuclear Regulatory Commission (NRC), allow electric utility companies to offer potential plant sites for government review and approval before it is needed. Under this process, which can take up to several years, ABC Electric and the ENERGY 2000 advisory committee will consider all possible plant sites in the area the company serves and then select one location for the government to review. If the site is approved, the land could be reserved for a future nuclear plant.

Jones said that ABC Electric's effort to obtain government approval for a nuclear plant site does not commit the company to building a nuclear unit. "We will seek NRC approval to build a nuclear power plant only if and when it is needed," he stated.

Nuclear power, Jones added, will be just one option among all the power sources that ENERGY 2000 will consider. "If we need to build new power plants, we can't rule out any power source, because keeping all of our fuel options open is the best way to assure that customers will have a reliable supply of electricity," he said. "Our first goal is to increase energy efficiency and we'll also look at the newest technologies in coal, natural gas, nuclear gas, nuclear and renewable sources such as hydropower, solar and wind."

Nuclear power should be considered in future planning, Jones said, "because advanced-design nuclear plants are a safe and reliable option" with important environmental benefits. "Nuclear plants do not burn anything so they don't pollute the air," he added. "They are the cleanest, large-scale power source available to us."

ABC Electric currently operates the Midvale and Riverwood nuclear units in addition to its three coal plants and four gas-fired units.

For information on the ENERGY 2000 study, or to get involved, contact ABC Electric's Customer Affairs office at (1-800) xxx-xxxx.

Addendum #7: Sample Print Ads

It is likely that sponsoring organizations will have in place advertising programs that communicate the theme of "planning for the future." Messages might include the organizations demand side management program, studies of electricity needs of the area and research into different ways of meeting electricity needs. With these programs in place, advertising on early site approval can become a component of an organization's normal power planning communications.

Advertising on early site approval can follow the phased communications approach described in the communications and public participation plan. The sample print ads on the following pages use the early site approval communication messages. Obviously, advertising might also include electronic ads which follow a similar approach.

Phase One: Print Ad

Headline:

**STRAIGHT TALK ON ENERGY
Planning for the Future**

Subhead:

**No matter how hard you try to make it work
Sometimes it's just not enough.**

Graphic:

Photo of a large family seated around a too small dining room table.

Copy:

For the past several years, the nation's electric companies have been using every trick in the book to supply electricity without building major new facilities. Promoting conservation, using alternative supply methods such as solar, wind, and geothermal have gotten us just so far. But in the not too distant future, our existing methods of supplying electricity will not meet demand.

Eventually, we will need to build new power plants. Rather than waiting for the inevitable and face a crisis, ABC Electric is beginning today to plan for tomorrow's needs. We are about to undertake an exhaustive look at all the options—solar, coal, gas, and new advanced nuclear power plants.

As we go about this study, we will be asking you, our customers, neighbors and friends, to participate in the process with us. ABC Electric wants to approach this as a collective effort to determine what is best for our continued economic growth and safety. We will be in touch with you in one way or another as we go through this process – soliciting your questions, probing your thoughts and concerns, and researching and answering the questions you raise. In the meantime, if you have any questions or comments, please write to:

Ms. Jerry Smith
Power Planning
ABC Electric
(street address)
(city/state/zip)
(1-800) xxx-xxxx

**ABC ELECTRIC
PLANNING FOR TODAY AND TOMORROW**

Phase Two: Print Ad

NOTE: Advertising at this point could include a number of messages on the different aspects of planning for the future. There will probably be ads on demand-side management programs, electricity growth, the benefits derived from new uses of electricity, and research and development into new sources of electricity. Early site approval could be just one ad in a series that deal with initiatives into supply side options.

Headline:

**STRAIGHT TALK ON ENERGY
Finding a Place to Build**

Subhead:

Early Site Approval

Graphic:

Photo-collage of maps.

Copy:

Most of you are aware of ABC Electric's major planning effort to prepare for our local electricity needs. Our present capacity will not be able to meet future demand and at some point we will have to build a new power plant. This plant might be coal, oil, gas or nuclear.

As part of our planning effort, we are participating in a new government program called "Early Site Approval". Early site approval is a national program in which land can be set aside or "banked" for later consideration as a site for a new power plant including a possible nuclear plant. It is *not* a decision to build. If land is set aside, there will be a series of rigorous steps taken (including licensing by federal and state agencies) before a decision is made to build a nuclear plant.

Benefits of Early Site Approval

Selecting a location and getting the site approved for a possible nuclear power plant could take several years. Early site approval lets a company start early, locate an approved site and then request to actually build a plant later, if and when it is needed.

This unique — forward thinking-process has obvious advantages. One advantage of early site approval is that it allows more time to make other plans if no site is found to be suitable. Early site approval helps us better determine what our power plant options are.

You Can Be A Partner in the Process

Early site approval allows more time for you and all our neighbors to participate in the site selection process. As part of the process, we will be holding public meetings and finding other ways to involve the public. We encourage you to express your views and ask questions.

Every customer of electricity has a stake in our energy future. If you are interested in becoming a partner with us as we take a careful look at meeting future energy needs, call us. We want to include you in the process.

Call: Ms. Jerry Smith
Power Planning
ABC Electric
(1-800) xxx-xxxx

**ABC ELECTRIC
PLANNING FOR TODAY AND TOMORROW**

Phase Three: Print Ad

Headline:

**STRAIGHT TALK ON ENERGY
Making Decisions - Together**

Subhead:

No one pushes this group around.

Graphic:

Photo of Citizens Advisory Board.

Copy:

ABC Electric is planning for tomorrow. New generating plants will be needed and all options are on the table, including nuclear. The "Early Site Approval" process identifies and sets aside or "banks" land on which to build a new power plant. ABC Electric asked community leaders to form a committee to work with them in this process. This committee is independent, smart, and tough. If the land under consideration doesn't measure up, that's it. Tim Porter, Chairman of the Governor's "Citizen's Advisory Board on Early Site Approval" talks about his interest in the program.

"Two ideas are key to early site approval. The first is the belief that we must plan ahead and make certain we have adequate supplies of clean and economical electricity. The second is the need to keep all our options open so we can pick the best."

The "Early Site Approval" process is *not* a decision to build. If land is set aside and a decision made to build a nuclear plant, there will be a series of rigorous steps taken (including licensing by federal and state agencies) before a decision is finally made.

"Early site approval helps to keep our options open by taking an intelligent and thorough look at nuclear power. If it is decided that nuclear power is not the way to go, so be it. At least we gave it a fair and comprehensive look."

If you have questions or comments, call or write:

Ms. Jerry Smith
Power Planning
ABC Electric
(street address)
(city/state/zip)
(1-800) xxx-xxxx

Phase Four: Print Ad

Headline:

STRAIGHT TALK ON ENERGY The Nuclear Option

Subhead:

Things do change for the better.

Graphic:

Photo of a model T Ford.

Copy:

If technology wasn't constantly improving, we'd still be using a hand crank to start our cars. From computers to automobiles to power plants, engineers and scientists work to make technology safer and more efficient. Today, there are 111 operating nuclear power plants in the U.S. But nuclear generating technology has advanced from when these plants were built.

Advanced Designs

Today's nuclear power plants have new safety systems, some of which rely on natural forces like gravity instead of mechanical parts to operate. They are more automatic and easier to operate. Nuclear power plants have benefited from years of operating experience and engineering improvements. Bottom line? A safer, environmentally clean, more efficient way to produce electricity.

We Learn From Our Experiences

After the accident at Three Mile Island, the industry established the Institute of Nuclear Power Operations, which monitors all U.S. nuclear power plants. This monitoring is in addition to strict government regulations. Plant operators must pass rigorous tests every two years. So the nuclear power plants that are already built are being operated with a great deal of attention paid to safety.

Environmental Benefits and Energy Independence

Nuclear power helps protect the environment because it does not emit greenhouse gases. Using nuclear power also cuts U.S. dependence on foreign oil because it replaces oil in the production of electricity. And the electricity from nuclear power has replaced the burning of fossil fuels in many manufacturing facilities. Some day the widespread use of electric vehicles can further reduce our dependence on foreign oil.

At a minimum, we as a nation need to keep the nuclear power option open.

For additional information, please call or write:

Ms. Jerry Smith
Power Planning
ABC Electric
(street address)
(city/state/zip)
(1-800) xxx-xxxx

**ABC ELECTRIC
PLANNING FOR TODAY AND TOMORROW**

Q&A on Public Participation

- Q. What will the role of the public be in the early site approval?
- A. Through the sponsoring organization's communication activities and public participation program, the public will be kept informed and involved in early site approval. I think the public must be a partner in the process. I would encourage people to learn everything they can about early site approval and ask questions about it.

- Q. What say will the public have in the actual decision to build a nuclear power plant?
- A. First of all, early site approval is not a traditional siting effort. There will not necessarily be a decision on whether or not to build a nuclear power plant during the early site approval process.

However, it is my opinion that public support is essential. We have no interest in building any kind of power plant unless the public agrees that it is needed, is appropriately sited and is the best technology available. Furthermore, I believe that people will be supportive of early site approval once they know what it is. The early site approval program just keeps the nuclear energy option open. And I think that, along with the other efforts we are involved in, like energy conservation and efficiency, we are doing the smart thing by planning for the future.

- Q. Why would the public support this activity?
- A. Early site approval is a natural part of planning for the future electricity needs of customers. The concept of approving a site for a nuclear power plant, and then banking that site, is a prudent idea. It doesn't commit the organization to build it; it just keeps the option open.
- Q. What kind of public participation approach would you recommend?
- A. That decision really belongs to the public or their representatives. The possibilities include Citizen Advisory Boards, public meetings, negotiations with the public on benefits for the host community and a variety of other actions aimed at informing and involving the public. As a first step, we are encouraging the Governor to appoint a Citizens' Advisory Board, made up of experts and people from the community, to begin working with us.
- Q. Will changes to the Clean Air Act help boost nuclear energy?

A. It is possible that the Clean Air Act will increase the cost of electricity generated from coal-fired power plants. However, no one can predict ten years from now what the cost of natural gas, coal or other sources of energy will be. That is why we are interested in early site approval for a possible nuclear power plant. It keeps our options open.

Q. Why is the utility industry interested in the future of nuclear power after all the problems and expense of past projects.

A. When it comes to cost, you can not look at just one or two plants. There are 111 operating nuclear plants in the U.S. generating 22% of our electricity. The cost of that electricity is very competitive.

One of the reasons we are interested is to keep the nuclear power option open in an uncertain world — a world in which Middle East conflict can cause shortages of oil, air pollution regulations can drive up the cost of burning fossil fuels and a host of other uncertainties.

There are other good reasons. We need a vital nuclear power industry to maintain the existing nuclear power infrastructure and stay competitive with other countries. We have programs to work on like radioactive waste disposal technology and extending the life of existing nuclear power plants. We are selling nuclear power plants in other countries like Korea. All these are important to our economy.

All these things are important. But, the bottom line is nuclear power is today an important source of reliable and economical electricity and the option must be kept alive for future generations of electricity customers.

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