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The authors of this paper take sole responsibility for the material and points of view presented. Nothing in this paper should be construed as an official policy statement of the Massachusetts Institute of Technology, the National Governors' Conference or the United States Department of Energy.

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In the boomtowns of the early American West, people who sought to “strike it rich” gave little thought to the impact a gold rush or an oil find might have on existing settlements. Today, though, many westerners oppose further development of coal and other mineral resources because they fear that the rapid growth induced by such investments will reduce the quality of local public services and destroy their current lifestyles. While domestic energy development promises new jobs, less reliance on foreign energy sources, and a stimulus to economic growth, it is also sure to cause additional air and water pollution, intensify the competition for land and water resources, and disrupt the fiscal and social organization of many communities.

The MIT Energy Impacts Project, funded by the United States Department of Energy, began as an inquiry into the nature of the energy boomtown problem confronting the western states in America. We are now investigating strategies for calculating the “social costs” of energy development and compensating communities and individuals who bear the brunt of continued efforts to exploit energy resources in the United States. We are not concerned primarily with facilitating the construction of additional energy facilities; rather, we want to see appropriate facilities developed rapidly and properly and inappropriate projects stopped quickly.

Case studies of Wyoming, Colorado, North Dakota, and Texas have provided an in-depth look at various approaches to managing the social and economic side effects of energy development. With the help of the National Governors’ Conference and the governors of each of our case study states, we have tried to pinpoint the problems of energy impacted communities and to learn how each state has responded to them. Several supplementary studies have been completed exploring related issues such as methods for forecasting the local impacts of energy development, federal programs and proposals for assisting impacted communities, and opportunities for company-community cooperation in mitigating the impacts of energy development.

Our findings are organized as follows: (1) the boomtown problem; (2) the dilemmas of energy facility siting; (3) the arguments for compensating impacted individuals and communities; (4) an “auction” approach to pricing the impacts of energy development and selecting sites; (5) assignment of local, state and national responsibilities; and (6) a review of unresolved issues.

We are particularly excited about the concept of auctioning off sites for energy development. We feel that the existing hurdles to calculating the intangible costs of community disruption associated with rapid growth can be overcome through the auction process. This method of facility siting, linked with strategies for compensating impacted individuals and communities, provides a vehicle for overcoming legitimate opposition to energy development from those who suffer the social and economic impacts. Some elected officials have suggested that energy impacted areas ought to receive unrestricted federal grants-in-aid, but these would not be nearly as effective or as fair as the compensation mechanisms we propose. Credit for the development of the auction concept belongs to Professor Michael O’Hare, who will supervise phase II of the MIT Energy Impacts Project. During the second phase of the project, we will refine and apply the auction concept.

Our research team received substantial assistance from Edward Helminski, Energy Director for the National Governors’ Conference; James Monaghan, Advisor to Colorado Governor Richard Lamm; James Liverman, Acting Assistant Secretary for Environment, U.S. Department of Energy; and Paul Gerhardt (Division of Technology Overview) and Jeffrey Swinebroad (Division of Biomedical and Environmental Research) U.S. Department of Energy.
The Boomtown Problem and Its Causes

Rock Springs and Gillette, Wyoming, are two examples of current energy boomtowns. While there is no such thing as a typical case of boomtown development, they have come to symbolize, both inside and outside of Wyoming, some of the worst aspects of energy development.

The boom in the Rock Springs area began in 1970 with the construction of the Jim Bridger power plant and the simultaneous expansion of the trona mining industry in Sweetwater County; the combined development caused a dramatic increase in the area’s population. The Jim Bridger plant was built by Pacific Power and Light with the Bechtel Corporation as principal contractor. Bechtel expected construction employment to peak at 1300 in 1974. In the summer of 1973 the work force already totalled 3,000. Construction and operating employment at the trona mines also skyrocketed.

The rapid influx of workers, their families, and support personnel placed severe demands on Rock Springs and nearby Green River, causing or aggravating shortages of housing, health services, and retail goods. It placed severe demands on local schools, roads, water and sewer systems, and public safety agencies; and caused tensions between recent immigrants and long-time residents.

The principal research on Rock Springs has been published by Gilmore and Duff at the Denver Research Institute (DRI). The DRI researchers describe a “problem triangle” or vicious cycle in which, after a large initial influx of workers: (1) local institutions and markets respond slowly to increased demands, (2) the imbalance between demand and supply “degrades the quality of life,” and (3) workers in all industries are less productive and more prone to absenteeism or turnover, which in turn slows the response of local institutions to the influx of workers. The DRI researchers reason that the cycle can be broken only by improving the quality of life in boomtown areas.

Some academicians and public officials are skeptical. It is not clear that the quality of life has actually declined for newcomers. Workers receive substantial salaries and, in fact, choose to move to a boomtown area because of the income they can amass. Some of the adverse conditions are offset by this income earning potential; moreover, high turnover in the construction and mining industries can be attributed to a number of factors; firms look for workers with substantially the same skills, so workers change jobs freely if the pay looks better or if they dislike their foremen; most recruiting is done through national unions (often in California), many workers are ultimately intimidated by the weather in the Rocky Mountains; many workers intend to come to the area for only a short time and will leave no matter how much the quality of life improves. Declines in productivity might be better explained by the need for continuous hiring of inexperienced workers than by the quality of life factors discussed by Gilmore and Duff.

The Gillette area is experiencing its second boom in a decade. The first resulted from oil and natural gas drilling and caused the population to increase from 3,500 to 7,200 between 1967 and 1970. The present boom is coal-based. The 1978 population was approximately 9,000 (it is in the nature of boomtowns that these estimates are very crude) and is projected to rise to 35,000 by 1985 under the most extensive development scenario which foresees completion of a coal gasification complex. The population will be substantially less if coal is shipped elsewhere for conversion.

The oil boom has not left Campbell County and its school district without revenues to cope with impending development since all mineral production is assessed at 100% of value for local tax purposes. All the schools in the area are new and the county is involved in recreation projects to meet the needs of a growing population. The county has also expanded its police, fire, and social services. The City of Gillette, however, does not control the mineral tax base of the county and has far fewer resources with which to prepare for growth.

Gillette has had many of the same problems that faced Rock Springs. The Mayor of Gillette points out, though, that what may seem to be problems to the outside observer are not necessarily viewed as problems by those involved. For instance, some observers have decried the concentration of mobile homes in Gillette. The Mayor believes that this is a function of the relative youth of the population and reflects the fact that young married couples can only afford mobile homes wherever they live, not just in Gillette.

There are some serious problems facing Gillette. Foremost is the need to construct and repair streets, water and sewer systems. Unfortunately, major capital investments cannot be undertaken when the income to pay for them is uncertain. This uncertainty is caused, in part, by litigation against the energy developers in the Gillette area. Once the suit is settled, development will most likely occur at a rapid pace. The infrastructure, though, will not be
in place when it is most sorely needed.

Both Rock Springs and Gillette are important, symbolically, to the citizens of Wyoming. The national media have treated them in a non-complimentary fashion, to the resentment of many who live in the two towns. The attitudes of people in the rest of the state are equally non-complimentary. While they do not blame the people of Rock Springs and Gillette for what has happened, they feel the experiences of these two towns indicate what needs to be avoided. Individuals in other energy-rich areas have commented that they do not want their towns to “end up like Rock Springs,” and that they “would not like to live in Gillette.” While present conditions in Rock Springs and Gillette are not as serious as some of the stories circulated by the media, or by word of mouth, suggest, residents of boomtowns and their local officials do face some serious problems.

Boomtowns represent different problems to different groups. There are positive aspects of energy development, but even some of those have negative side effects. Our case studies and the literature on boomtowns reveal eight components of the boomtown problem:

1. Social Disruption. Energy development causes sudden changes in the population mix and patterns of everyday life. These in turn cause social problems and social conflicts. Rates of alcoholism, drug abuse, mental illness, divorce and juvenile delinquency increase. While many of these problems are experienced by newcomers unaccustomed to their living conditions, long time residents are the ones most affected by the disruption. For example, long time residents are more likely to become alcoholics or suffer from mental illness than newcomers.

2. Public Service Needs. Americans have come to expect certain basic public services such as roads, water, schools, police and fire protection, and social welfare assistance. During rapid growth these services are often overburdened, or unavailable to some groups. In addition, public services which a town did not provide before may be necessary to support energy development or to cope with its side effects (i.e., counseling may be needed for those suffering from community disruption). New residents sometimes expect more or different services than long time residents. Tax rates must often increase to cover the cost of providing new or expanded services. The lead time needed to design and build new facilities means that the costs are borne by those who live in the area before the boomtown population has actually arrived.

3. Shortage of Private Goods and Services. During a boom the private market rarely keeps pace with the demand for goods and services, especially housing. In some cases, housing shortages can restrict energy development; one hundred families recently found no housing when transferred to an oil boomtown and had to be transferred back to their previous positions.

4. Inflation. Excess demand triggers inflation in prices, wages and rents. While price increases are welcomed by the storeowner whose costs usually do not rise as quickly as revenues, and increased housing prices are a blessing to the landlord, inflation is particularly harmful to the senior citizen and
others on fixed incomes who cannot take advantage of rising wages. High construction wages, combined with a general labor shortage, cause other wages to rise. This can hurt an agricultural economy (though agricultural workers benefit from higher wages if their employers do not go out of business). Increased costs can also affect provision of public services. Two boomtowns had to increase salaries 40% in order to hold experienced employees. Increased costs for building materials raise municipal costs just when public facilities need to be expanded.5

5. Revenue Shortfalls. Even though growth expands sales and property tax bases, revenues increase more slowly than costs in the short run. Despite a 19% increase in sales tax revenue, one coal boomtown has already increased property tax rates several times; even with a 68% increase in its local sales tax revenue, an oil boomtown finds itself short of operating funds.6 These revenue shortfalls are due to: (i) delays between the time development begins and the time the locality realizes either property or sales tax revenue; (ii) delays in raising capital for constructing and improving public facilities; (iii) capital needs beyond local government’s legal bonding capacity; (iv) location of high tax-yielding properties outside the communities hosting the newcomers and the resulting public costs.

6. Resources Lost to Other Uses. Industry and its workers are notably consumptive of three resources needed by the agricultural economy: water, land, and labor. As new industries use efficient collection techniques and cities exercise eminent domain over water rights, less is available for agriculture. In some states’ energy development regions, groundwater use is unregulated by state permits. Increased consumption by energy development may mean water shortages for cities and agricultural producers drawing from the same aquifer.

Easily irrigated land near stream beds is particularly valuable to agriculture but it is also valuable to energy developers because, for example, coal is nearer the surface. When strip-mining removes land from agricultural production (for at least ten years in most places), local food processing industries fail. Even in oil boomtowns, where less land is disturbed, agricultural producers face a shortage of inexpensive labor, since high drilling salaries attract unskilled and semi-skilled farm workers.7

7. Aesthetic Deterioration. Boomtown development sacrifices amenity to economy and ease of construction. Trailer courts are laid out without paving or landscaping; commercial establishments are built of sheet metal and often located in unsightly strips along major roads. Many people mention aesthetic deterioration as a problem, particularly if they considered the area attractive before the boom. The size of new developments causes part of the aesthetic problem. Many new neighborhoods, in which trees and shrubs have not had a chance to grow and which look barren, dwarf established parts of town.

8. Fundamental Change. An important cost of boomtown development has nothing to do with conventional indicators of stress or inadequacy, since it results from change itself rather than from what the town changes to. The original residents of a boomtown chose their community — or chose to remain — because it was the best place for them (certainly the best they could afford). When development occurs, the appearance, social structure, friendship patterns, style of life, and nearly everything else about their community changes, and the community that supported them simply disappears. The injury such disappearance causes is only partly mitigated if the “new” town is clean and orderly.
The Causes of the Boomtown Problem

Obviously, the basic cause of energy booms is energy development. It may be possible, however, to have energy development while avoiding some of its adverse side effects. The causes of the problems mentioned above include: (a) the inability of local units of government to plan for development; (b) the characteristics of energy development processes; and (c) the inability of local economies to respond to growth.

In the course of selecting sites, industries are not usually required to evaluate the full range of impacts that their facilities are likely to cause. Hence, they are not aware of the disruption that might result (or at least not as fully aware as they should be). Impacts that could otherwise be avoided, therefore, occur unexpectedly. Environmental regulations, lawsuits and labor strikes can slow down or halt construction. Changing economic conditions can also cause shifts in policy or plant design. It is difficult for even the best-intentioned industrial leaders to anticipate the full range of impacts energy developments are likely to have on surrounding communities. Without this knowledge, it is difficult for a locality to bargain effectively for private or governmental assistance.

When industry is uncertain about its timetable, localities cannot project accurately what is going to happen. Sorting out temporary from long-term impacts is also extremely difficult. Even if localities are clear about the assistance they want from the private sector, energy companies are reluctant to offer assistance, until the prospects for successful development are clear.

There is often little or no incentive for energy companies to cooperate with local governments, since local governments have only minimal control over what the companies can do. Even if it were in the interest of a company to work with a town, the officials of a company might not participate fully, because they oppose cooperation on ideological grounds or are inexperienced in dealing with local governments.

Energy development processes are beset by uncertainty. Even a company committed to working with a community is subject to the vagaries of economic conditions, court cases, and permit procedures which may cause project cancellation or changes in schedules. Many decisions by energy companies and contractors are governed by fixed company procedures rather than by the particular circumstances appropriate to a given site or situation. For example, it is standard procedure to hire through unions. This encourages the immigration of skilled workers rather than the training of local personnel. The population influx may be greater than necessary, and social tensions may be aggravated by this procedure.

Local economies are unable to respond rapidly to increased demands for several reasons. First, the uncertainty surrounding specific energy development proposals makes other firms unwilling to risk capital investments, when the success of their investment depends on the initial project going forward. Second, even when it is clear that a given project will occur, the magnitude of future population growth and demands for goods and services is largely unknown. Firms cannot accurately judge expansion needs. Finally, once a boom begins, it is difficult to find new workers. Wages in the mining and construction industries are relatively high, attracting potential workers at a time when there are bound to be local labor shortages.

Capital intensive local services require substantial lead time for planning, design and construction. Communities may be unwilling or unable to sell bonds when it appears that user fees or tax revenues to repay them may not materialize. The pace of energy development often surpasses the capacity of local services to respond.

Once impacts begin to occur, financial difficulties pyramid rapidly. The need for increased investment in expanded schools, water systems and related services often outstrips the availability of funds to cover construction costs. Many smaller communities do not have the expertise needed to plan or design such systems or even to ask for the correct type of outside assistance. Assuming they can muster the expertise they need, there are also jurisdictional disputes to handle.

Jurisdictional mismatches between energy development and its impacts are not uncommon. Energy development usually generates property tax revenues which could be used to underwrite the cost of services. However, when development is in one school district and students are in another, the needed revenues are not forthcoming. If, as is often the case, a project is located in an unincorporated area, but the workers choose to live in a nearby city, there is typically no mechanism to tax the facility to cover the cost of needed municipal services. In extreme cases, a community may grow because of development in another state. Often there is also a mismatch between the time when tax revenues from a plant become available and the time when...
they are needed. If revenues from a project are not available until most of the impacts have been felt, it is often necessary to go into debt in anticipation of future revenues or to do without customary services. Use of a property tax calculated on the basis of the previous year's assessment aggravates this problem.

Local government may be unable or unwilling to control land use. This has certainly been the case in the past, although attitudes are changing as a result of experiences such as those in Rock Springs. Without controls, new development often lacks adequate streets, sewers or other amenities. Often development is located in places that are difficult for the city to service. Finally, there are problems of coordination between governments. When a facility is sited, it is necessary to coordinate the actions of the county, the cities, and school districts so that available resources are put to effective use.

Energy development is an extraordinary event. It would be surprising to find a community that could deal with all of these problems given the complex nature of their causes and the fact that many are beyond a community's control.
Many of the problems caused by energy development are aggravated by poor siting decisions. Impacts are likely to be less severe in some locations than in others, but it is pointless to consider the advantages of alternative locations after basic commitments have been made to a particular site. The process of facility siting is complicated by the fact that some sites are advantageous to certain groups while being especially costly to others.

Figure 1: Decision Map

<table>
<thead>
<tr>
<th>Kinds of decisions:</th>
<th>Decisions made by:</th>
<th>Original residents who remain</th>
<th>In-Migrants</th>
<th>Out-Migrants</th>
<th>State</th>
<th>National</th>
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<td>Move in?</td>
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</tbody>
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Decision-maker: Size indicates power

Impact of decision: Size indicates "per capita" impact △
The Dynamics of Decision-Making

Six key groups are affected by and participate in decisions to locate and develop major energy facilities:

1. The shareholders of the energy facility developer,
2. The community residents who remain through the development process,
3. The in-migrants who arrive as development proceeds,
4. The out-migrants (those members of the community whose decision to leave is related to the development),
5. The population of the state, and
6. The population of the nation.

The circles in Figure 1 vary in size to illustrate the power that each of these decision-making groups has in the choices made at each stage of development. For example, on the assumption that the in-migrants substantially outnumber the remaining original residents of a community, they are expected to be more powerful in making local government policy after development has occurred. Similarly, national energy policy dominates state policy for reasons of budget and constitutional precedence. The triangles in Figure 1 indicate who is affected by the decisions at each stage. These vary in size according to the "per capita" importance of the impact. (The size of this symbol does not vary with the size of the group.)

Figure 2 can be read as a narrative from top to bottom: initially the state and national populations determine their respective energy policies. Then, the energy company, with a varying amount of state and national participation, chooses a location. Next the entire initial population of the community, including both those who will remain through the development process and those who will leave, constructs a set of local restrictions within which development can occur, and does the initial planning which will guide the community’s response to the changes brought by development. The company makes a "go/no-go" decision which presumably involves a prediction of the profitability of the development under the restrictions developed previously. Members of a potential immigrant population decide whether to move to the community. When the development stage comes to an end and the operation of the facility enters a steady state, the remaining original residents and
the immigrants (the new permanent population of the community) determine local government policies with regard to public services, tax levels and the other normal business of government. Figure 2 illustrates the distribution of costs and benefits (across the populations listed in Figure 1) that results.

"Impact triangles" without "decision circles" are significant since, wherever possible, decisions should be made by those affected by them. This principle is violated willingly only when we are forced to do so by practical considerations (e.g., when a population voluntarily relinquishes its decision-making power in a repetitious or highly technical matter to an administrative unit of government). Figure 1 brings the boomtown problem into perspective. Every triangle not associated with a circle promises dissatisfaction for the affected population unless two things are simultaneously true:

1. The population empowered with the decision desires to act in the interest of the affected population; and
2. The population empowered to make the decision is informed as to the desires of the affected population.

For example, the choice of a site is usually made predominantly by the energy developer. The consequences of choosing one site over another (assuming a spectrum of reasonably comparable sites) will probably be fairly small in the company's terms, but for a particular community the consequences of being chosen will be enormous. We can expect that a bad decision is likely to occur if the developer is ignorant of the desires of the community.

The next stage of decision (Local Planning) shows four populations affected by a decision taken by only two of them, but the decision-making populations have a great deal at stake. In this case it is likely not only that they will misunderstand or ignore the desires of the other two, but that the deciders' and the sufferers' interests will actually diverge. Thus, both conditions for a "correct" choice will be absent.

The dilemmas of facility siting should be obvious in the light of the foregoing analysis:

— National and state energy policies, which are presumably designed to serve the interests of the whole population, may be set with insufficient sensitivity to the large per capita costs imposed upon specific small groups which have little voting power. Despite the best intentions on the part of the governmental decision-makers, such costs may occur for purely structural reasons.

A "correct" choice would accept the imposition of local costs if the (nationally distributed) benefits outweighed them. Most analysts believe this to be justified even though the sufferers are not compensated out of the gainers' benefits. The essence of their argument lies in the expectation that over the long run the individual costs and benefits in society average out leaving nearly everyone better off.

— The next chance for costly error lies in the selection of sites. An energy company may well be insensitive to differences in the desire for development of the communities among which it is choosing.

— After a site has been selected, planning for future services must inevitably be conducted without the participation of future immigrants, even though they are the people who — by sheer number — will suffer the lion's share of the consequences. The immigrants not only have no political voice in the process at this point, but cannot even be identified.

— The consequences of the planning process for the portion of original residents who have the characteristics of being mobile and are thus potential cut-migrants is especially interesting. If the restrictions the community places on the development are so onerous that the company chooses not to proceed with the project, this portion of original residents has a future essentially unchanged from their present condition and will not be driven to relocate. On the other hand, if development proceeds, the success or failure of the planning restrictions they help to generate will be of no consequence to them.

— Some projects ought not to go forward, but if the developer alone makes the decisions, some of these may be carried out in spite of the large social costs they impose on the community residents.

— Finally, there is good reason to believe that the large number of immigrants to an energy boomtown will have markedly different tastes in government services, taxing policy and social conventions from the original rural population. Age differences, particularly between retired farmers and ranchers living in small town centers and young construction workers, or contrasts between occupations (rural, independent lifestyles versus the mobile, rapidly chang-
ing, high-wage lifestyles of construction workers), can combine with the preponderant voting power of the newcomers to produce dissatisfaction with local policies among old-timers.

Some Examples of Facility Siting Regulations

State governments have attempted to resolve some of the dilemmas of facility siting through careful regulation. Legislative efforts in North Dakota and Wyoming indicate what can be done; they also point out some of the weaknesses of traditional regulatory strategies.

North Dakota. In 1975 the North Dakota legislature passed that State's first energy conversion and transmission facility siting law and charged the Public Service Commission (PSC) with its administration. The bill passed without much controversy. This was surprising considering the aversion many North Dakotans have toward government regulation of land use. The Facility Siting Act gives the PSC authority to develop an inventory of potential sites for energy conversion plants and transmission facility corridors. Utility companies are not restricted, however, to these sites. The PSC must evaluate applications for other sites using the same criteria it used to develop its own inventory.

Once an application is submitted (along with an application fee of .05% of the total project cost), the PSC has six months to act if a plant site is involved and three months if a transmission facility is involved. The Commission must hold public hearings in the affected area. The law also gives the Commission the authority to override local regulation with regard to transmission facilities, but not with regard to plant sites.

Two siting decisions have actually been made thus far. The first involved an emergency permit for the construction of a power plant. The PSC turned down this request on the grounds that the developer did not prove that such a permit was warranted. The second involved a conditional use permit for the building of a transmission line across eight counties. This project has been extremely controversial. Public hearings were held for fifteen days in three different cities, producing more than two thousand pages of testimony from more than a hundred witnesses.

Several issues were raised with regard to different interpretations of the "gray areas" of the law. One such gray area concerns the extent to which the Commission ought to be involved in site selection. Some people interpret the Act to mean that the state government can determine the sites for all future plants and transmission corridors. The PSC has refrained from doing this, arguing that this would result in a finite number of sites based on very in-
flexible criteria. More important, the Commissioners feel that the state does not have and cannot afford the financial and technical resources needed to make an optimal list of sites. To date, the PSC has limited its role to approving or rejecting the siting proposals of power companies.

With regard to the siting fee of transmission facilities, the Commission has prepared an inventory designating "exclusion areas" and "avoidance areas." Under no circumstances will a transmission route be allowed to pass through an exclusion area. Passage through avoidance areas is also prohibited unless it can be shown that there is no reasonable alternative. For areas that do not fall into these two categories, the Commission must weigh the relative impacts of the proposed facility from the standpoints of the parties involved.

Another "gray area" involves the way the siting law interfaces with local regulations. The law states that siting permits may not supersede or preempt any county or city regulation concerning transmission facilities without first finding that those regulations are unreasonably restrictive in view of existing technology. Local officials are unclear about how far county regulations can go without being "unreasonably restrictive."

Another issue that has been raised is the cost of regulation. Money, time, and staff are needed to ensure careful and individual attention to each case. A competent staff must be hired to process applications, public hearings must be held, and studies need to be commissioned to pinpoint trade-offs associated with the siting of each proposed facility.

The cost of delay has drawn a lot of attention. At least two preliminary bills calling for shorter decision time limits have been submitted. The PSC has drafted an amendment to the siting law that would allow the Commission to exceed its present time limitations without losing jurisdiction.

The Siting Division has also experienced budget difficulties caused by its fee schedule. The fee for a transmission corridor application is relatively small compared to the fee for a power plant. Yet the costs of reviewing the two types of applications are just the opposite.

The purpose of granting facility siting permits is to resolve the conflicting demands on the use of state resources in a way that balances energy development with other interests. The state government in North Dakota has used these permitting procedures to establish criteria which limit the range of choices a company considers (e.g., exclusion and avoidance zones in the siting legislation). Where explicit criteria do not exist, the decision to approve or reject a company's application is left in the hands of a state commission responsible for determining its acceptability in light of the state's other interests.

While this process helps to reduce conflicts, it raises several potential problems. First, the criteria used by the state to determine limitations may not be correct. Errors will be costly to at least one of the interests involved. At the same time, these limitations provide companies little incentive to minimize impacts beyond the "tolerance" level (this could result in a less than optimal decision from the agricultural, environmental, or local point-of-view). Second, when decisions are reviewed by a state board on a case-by-case basis, there is a danger that decisions will not be based on a project's actual impacts, but on the strength of opposing groups and the political climate at the same time. While the influence of political interplay is not desirable, it is a fickle measure of a project's merits. Third, land and water allocations made according to the company's and state's criteria are vulnerable to local and interest group opposition which can cause a project to be delayed or stopped altogether. This has been especially true in the siting of transmission lines.

Concern for these problems has been expressed by those who have urged the state to develop an inventory of all the sites appropriate for energy development. Their hope is that a comprehensive energy facility plan would include detailed assessments of various impact costs for a large number of sites, providing a basis for fully incorporating the state's various impact concerns into a company's decision-making process. The implementation of such a scheme, however, requires an enormous amount of information, the cost of which may be prohibitive. There is also no guarantee that the selected sites would not be challenged locally.

Wyoming. The 1975 session of the legislature enacted the Wyoming Industrial Development Information and Siting Act.11 The Act created an Industrial Siting Council and the Office of Industrial Siting Administration, within the Office of the Governor, to serve as staff to the Council. The Act requires all industrial activities with a proposed construction cost in excess of fifty million dollars and all energy conversion facilities in excess of certain capacities to apply for a permit from the Council prior to commencement of construction. It requires the payment
of substantial fees used by the Office of Industrial Siting Administration to review the impacts of the proposed project. The legislation assigns responsibility for a wide-ranging assessment of social, economic, land use and public service impacts to the Council. The Council has the power to refuse a permit if it does not find that the likely impacts of a project will be held to an acceptable level or that every reasonable precaution has been taken to minimize adverse effects. The Council may also place conditions on the permits which it does grant.

The Industrial Siting Act does not specifically cover mineral extraction operations, yet surface mining might be included under the clause that places “any industrial facility with an estimated construction cost of at least fifty million dollars” under the jurisdiction of the Industrial Siting Council (ISC). The Office of Industrial Siting Administration believes the legislative intent is unclear. They had hoped that the 1977 session of the legislature would clarify the matter. However, no amending legislation was enacted. The Council has been hesitant to move without a clear mandate, but is definitely in favor of placing strip mines under its review. This step is favored because strip mines are usually constructed in stages, none of which exceeds $50 million in cost, but which generate substantial impacts. The cumulative impact of several strip mines can be quite severe.

The Mayor of Gillette (near which several strip mines are operating or under construction), while not necessarily favoring permits for strip mines, feels it is crucial that local governments be able to influence energy development. The State Senator representing the Gillette area believes that coal extraction is not, and should not be, covered by the Industrial Siting Act. He argues that the impact of any individual strip mine is not severe and that regulatory bodies such as the ISC can only review the impacts of individual projects. He sees no way to assign responsibility for cumulative impacts among a series of projects. If a permit is granted in an area because the impact of one proposed project are not severe, a precedent may be set which would require the granting of a second permit, even though the combined impact of the two projects may be severe. Furthermore, it might be unfair to place restrictions on the second permit which were not on the first; to place restrictions on the first permit retroactively; or, to place restrictions on the first permit which would be unnecessary unless a second project is approved.

There is dissatisfaction among some groups with the one major decision made by ISC thus far: the permit issued to the Basin Electric Power Cooperative for the Laramie River Station near Wheatland. Environmental groups have sued claiming that the permit was issued without specifying the routing of transmission lines.

A second claim of the environmentalists is that the permit does not establish, a priori, the exact responsibilities the Cooperative has for financing impact alleviation efforts (e.g., construction of schools, mental health clinics or day care centers). The permit issued by the ISC holds the Cooperative to a number of commitments which will not be fully specified until the level of impact is known. There are sets of contingency plans which go into effect should a problem reach a certain level. The permit also establishes a monitoring board to review impacts and to decide when particular provisions should be exercised. There are also provisions in the permit that require the Cooperative to provide financing for a number of activities “in the event that public funds are not forthcoming.” The environmentalists wanted these responsibilities finalized before a permit was granted.

Some permit conditions which may cause confusion are those which place financial responsibility for providing services on the developer in the absence of public sector revenues. This type of provision does not clearly define the responsibilities of the parties involved. For example, it does not specify the tax effort the cities and the county must make in order to require the Cooperative to finance other needs.

In just a short time, the Industrial Siting Act has reaped some benefits for the state. The permit for the Laramie River Station required impact alleviation commitments which the community could not have obtained from the energy company itself. These are conditions of the permit and protect the community in the event the Cooperative defaults on its pledges. On the other hand, the Council has also shown a willingness to be flexible. It has loosened some restrictions during construction because impacts have not been as severe as expected.
An individual is better off if he has more options — residential locations, jobs, friends, lifestyles — to choose from, and worse off if some are foreclosed. This can be stated more precisely.

One state of affairs is preferable to another in view of an individual if it offers him more choices, but does not foreclose any that the second provides. (Decision Rule #1)

If a state of affairs provides new choices but eliminates others, this is harder to rank on an individual's preference scale. But,

If a first state of affairs offers an individual a choice which another state of affairs forecloses, it is preferable to the second in the individual's view if he did not choose any of the foreclosed options and chooses one of the new options. (Decision Rule #2)

Figure 3 illustrates these decision rules. The overall value of the choices in each state of affairs is defined such that the choice made by the individual is always the one with the highest value. These decision rules help to explain why some groups affected by boomtown development deserve compensation and others do not.

The change that boomtown development brings to the original residents of a community is illustrated in Figure 4. Before energy development is threatened or occurs, an individual faces three basic options; those who are present have most recently chosen option 1, whether implicitly or consciously. Development adds a new option: they can live in the boomtown, enjoying changes in the quality of life. However, the development forecloses option 1: they can no longer choose the original town with its immovable and unique friendship patterns, landscape, and traditions.

Among individuals who leave because of the development, the pre-boom state of affairs is preferred according to our second decision rule. Notice that "Before Boom" includes an option that "After Boom" does not. The individual chooses the option "rural life." Also, the option which "After" offers that "Before" does not, is not one of those he chooses. This means that the boomtown has imposed costs on the individual by forcing him into a less preferred set of choices.

Boomtown development may increase land values so that people who move out can sell their property for a large amount of money — so much that they would sell and leave (at that price) if that option were available under "After." If this is the case (it is presumably not the case for renters or small property holders), then we cannot be confident that the boomtown has injured these individuals, though we also cannot be sure that they have gained.

A similar argument applies to individuals who remain after the changes brought about by development. Since the boomtown has offered them a new option, which they accept, and foreclosed the one they chose under the old state of affairs, their present condition may be improved, damaged, or indifferent.

The newcomers who arrive to do construction work or to enter secondary sectors (retailing, for example) after a town starts to boom, confront different sets of choices (Figure 5). Before the development occurs, they choose between their present life (location, job, etc.) and whatever other options are available. After the development, all these options remain but option 3 is added. Furthermore, each immigrant has chosen option 3. By our second decision rule the boomtown has improved their condition.

The analysis in the paragraphs above leads to an important distinction among the populations of a boomtown. Some of the original residents of the community may be damaged by the development in a way that justifies subsidy, though some may in fact be advantaged by the development or indifferent. But the newcomers who claim to suffer social costs from boomtown life are not plausible candidates for subsidy through any boomtown-related program. (They may be deserving of government aid for a variety of reasons, but if so, it will be under programs directed at people sharing their conditions generally and not those who have those needs in boomtowns.)

This distinction may appear surprising, but it has its roots in a fundamental difference noted in the last column between the "move-in" decision and other decisions, of Figure 1. Most of the decisions, whether made by a group or an "individual" (e.g., the developer), affect all of those involved in the same way: either everyone in town loses his "rural life" option (Figure 4) or none of them does. The "move-in" decision, on the other hand, is made by each potential immigrant. The quality of the boomtown is little affected by any of their individual decisions and they do not have to suffer it collectively. These individual decisions as to participation in the boomtown insulate them from suffering the bad consequences of the decisions of others. No collective decision on the part of the townspeople can protect each townsperson in the same way.
Affected Populations

Policies to ease conditions in boomtowns, to the extent that they involve money transfers to affected populations, should recognize the distinctions drawn above. In particular, "boombown-specific" impact compensation is clearly not appropriate for the immigrants. They should be regarded as candidates for assistance on the same basis as other groups in the state and national population, and the conventional rules for justifying aid should be applied. Boomtown workers, however, may fare poorly in the competition for direct assistance dollars from any level of government, since their incomes are large, and low income has traditionally been a necessary condition for general assistance programs from government. Migrant farm workers, slum dwellers and some minority groups will probably be found in greater need. Furthermore, boomtown immigrants obviously prefer their boomtown condition to their previous circumstance. If they were not found worthy of assistance before, it is hard to see why they should suddenly become eligible.

To anyone familiar, even at second hand, with the conditions in some boomtowns, this conclusion may seem harsh. Some qualifying observations are in order, though the basic result is not diminished. Certainly, the analysis provided above is weakened if the immigrants are unaware of what they are getting into. Our rejection of subsidy programs for these people is accompanied by endorsement of "fair recruiting" practices and — if necessary — regulations, to ensure that immigrants know what conditions they can expect (perhaps by analogy with other boomtowns) and if possible that their families are similarly informed.

The original residents of a booming town cannot be excluded from development-related compensation. Some may profit from the change, but some will suffer and the relative size of the two groups is difficult to ascertain, especially before the development occurs. While most people who stay after development may receive economic benefits such as new or better jobs, increased retail business, or land value appreciation, the unpriced social costs which are packaged indivisibly with the economic gains could well outweigh them. Furthermore, special costs are visited on particular portions of the population:

- Working women are seldom allowed to enter the high-paying construction field, so inflation, higher rents and a declining quality of life also hurt them directly. Furthermore, an influx of construction workers' wives may create a downward pressure on the wages and benefits paid for traditionally female-occupied service sector jobs.

Thus, compensation for many original residents will probably be in order.
Individual Compensation Instead of Intergovernmental Transfers

The costs of boomtown life are visited — whatever their intensity — uniquely on a town's original residents, including those who find new conditions so distasteful that they leave. In order to direct compensation towards its proper recipients, it seems important that it not be provided to local government. There are several reasons why compensation payments directly to individuals are preferable.

1. Spatial Mismatch. Many people who suffer from a boomtown do not live in the jurisdiction of the government in which the development “mostly” occurs. There are people on unincorporated land within “impact distance” of rural energy developments. Similarly, larger units of government are likely to include many individuals who are not affected adversely, but who would benefit from an intergovernmental transfer.

2. Problems of Timing. Few governments can usefully spend a large windfall so as to dispense the benefits of the expenditure very quickly. Furthermore, many of the perceived needs of a rapidly growing community involve capital expenditures like school buildings. If the local government uses compensation receipts in ways which produce benefits over time, the newcomers, who should be excluded from such benefits, will inevitably participate in the services delivered. Their participation will be at the expense of the original residents who were the intended beneficiaries of the whole amount of the subsidy. Not only will the newcomers passively draw off an unwarranted share of these benefits, but since they can be expected to exert significant and possibly dominant influence in the conduct of government after development occurs, they will presumably turn capital investments they inherit towards providing the particular types of benefits (style of education, for example) that they prefer and these are unlikely to match the desires of the old-timers.

3. Difficulties in Targeting. Local government's attempt to distribute the benefits of compensation receipts is unlikely to make the allocation of benefits match the differential costs suffered by citizens; if the locality hires more police, crime will be reduced for everyone, including those who actually benefited from the boom. If it reduces taxes, it will reduce them for everyone. If the “spill-over” benefits are obtained as a free bonus from a government program which adequately compensates the real losers, well and good, but there is nothing in our understandings of the kinds of costs boom developments impose to suggest that improved government services are an especially apt compensation for those costs.

4. Flexibility. While compensation paid to government is likely to miss its intended targets, compensation to individuals does not inhibit the provision of government service as compensation when the sufferers find that appropriate. If they feel that government can best spend all or part of their payments, they can tax themselves and give the responsibility to government. They can even provide benefits to the newcomers through capital investment, if they so desire. Thus, individual compensation assures that the money so paid will go wherever it best serves the interests of the payees — even to government — but compensation paid to government gives no such assurance.
Justifications for Providing Some Assistance to Local Governments

Subsidies to impacted governments may be justified on grounds other than fair compensation. There are some aspects of the boomtown problem which can only be resolved by local action.

Public Service Shortfalls. Some services, traditionally provided by local governments, are necessary to successfully extract energy resources. These include roads to the plant or mine and water for the homes of the workers. (The homes themselves are also necessary but are generally not provided publicly.) It is not in the direct interest of long-time residents that funds be spent for these purposes, so giving them money does not increase the likelihood that they will support such allocations unless that behavior is contractually tied to compensation payments. To induce people to sign such contracts it would probably be necessary to pay more than the real cost of the facilities involved. While newcomers eventually outnumber old-timers, they cannot force a town to tax itself to pay for the needed facilities before the influx of residents has occurred, and that is when these key facilities are needed. While the beneficiaries of energy development (consumers, newcomers, stockholders, and land or resource owners) outnumber long-time residents, there is no mechanism for them to vote to create the necessary facilities unless they are allowed to pay for them with some form of direct payment or grant-in-aid to the local government.

Jurisdictional Mismatch. In cases where a facility cannot be taxed by a locality to provide needed public services in another county or located outside the city (or if the state does not allow local governments to tax energy facilities), a community may be deprived of the ability to pay for needed services. If the boundaries were drawn differently, the community could tax the facility and have substantial resources to provide necessary public services. To redress this situation grants-in-aid from higher levels of government may be needed.

Shortages of Private Goods and/or Local Inflation. Newcomers push up the demand for all consumer goods, especially housing. They are highly paid, for the most part, and can afford the high prices they have caused. Most old-timers are victims of these higher prices. While compensation to old-timers allows them to compete for scarce goods, it does nothing to relieve the scarcity itself. It may even push prices higher by sending out more dollars to chase the same goods. Some action is necessary to restrict demand, to increase the supply of goods, or to control prices. To the extent government can encourage increased supply (i.e., through loan or mortgage guarantees or through direct service provision) compensation to individuals for the harm caused by inflation may be unnecessary.

There are also tactical reasons for allocating some aid to impacted communities. Payments to individuals may not be strategically effective:

Local Decision-Making. Many local actions which would make boomtowns more livable are not made by the population at large but rather by elected leaders (i.e., rezoning, sewer new suburbs, etc.). These local officials are not likely to be swayed by payments to their constituents and the suggestion that they can impose additional taxes to retrieve these funds to support public actions. Grants-in-aid or loans are much more effective tools for influencing municipal policy decisions. Grants-in-aid allow elected officials to deliver more services without raising taxes. From the standpoint of a local official, compensation payments to individuals are inferior, since the voters are likely to remember tax increases far longer than they will remember the compensation payment. Furthermore, local leaders gain no political advantage from compensation payments.

Simplicity. There is something unduly complex about an arrangement in which one level of government or a private industry gives money to all the citizens of a town so that they might tax themselves to provide for services that they need. It would be far easier and more efficient for the private industry or the higher level of government to donate the service or the funds to provide the service. There is no need to overpay and the administrative apparatus is far simpler.

Directness. Compensation payments secure the goodwill of the town. Yet, what is needed to make boomtown life meet the standards of "ordinary" small towns are specific actions at specific times. In the short run it may be wiser to select the actions needed and to pay the costs involved. In the long run the goodwill of the town may be important. However, that is easier to gain by pointing to public facilities the company or the state government sponsored rather than by referring to past payments, especially when the majority of the population is comprised of newcomers who did not receive any compensation.
Conclusions

The "boomtown problem" is more complicated than commonly realized. While the boom itself often imposes what seem to be social costs on all residents, the rights to compensation from society or from energy consumers are not distributed evenly across the groups affected. In general, only the residents of the community who were there before the development occurred should be compensated (though any resident may qualify for other subsidies through a national or state program on the basis of other specific problems). Emigrants who leave because of the boom are included in this group. For reasons of fairness and efficiency, compensation should be paid directly to the sufferers, identified and assessed as carefully as possible, rather than to local governments, though there are several competing arguments that suggest simultaneous payments to local governments might also be desirable, if only for strategic reasons.
The Auction Concept: Pricing Social and Economic Impacts

Diffuse Interests and the Strategy of Side Payments

If a powerful government agency could know all the costs and benefits involved in locating energy facilities in different locations, and choose the location found to be optimal on the basis of a comprehensive cost-benefit analysis, resource allocation would be efficient. Unfortunately, there is no such agency, no such knowledge, and no such simple choice. Siting decisions are influenced by political pressures of many different kinds, exerted by many different groups, and these pressures are not proportional to the total benefits each group has to gain. Cost-benefit analysis can advance some outcomes relative to others in some actors' eyes, but to the extent that political power and the desire to exert it are distributed over interest groups differently from total costs, the procedures used to make site decisions should recognize the biases that these real-world circumstances introduce.

In particular, the per capita costs threatened by a facility to a small number of people (e.g., the social costs imposed on the people who live near a plant site) tend to be large for groups which are numerically small. And while some facilities are favored by local interests, each of the many beneficiaries of a project — oil users, energy company stockholders, etc. — has only a small amount at stake in the decision. The total benefits at stake are larger for the diffuse interests who favor the project, but the per capita risk which motivates individual action is larger for the concentrated group of neighbors who oppose it.

The result to be expected is that each proposed site will be successfully defeated by local opposition despite the fact that local costs are exceeded by the diffused benefits. If we are to avoid such outcomes, either (i) the political process must be altered to give government agencies the will to act so as to maximize total welfare, the power to override any political opposition, and (much the hardest part), the wisdom to correctly perceive a wide variety of economic, social, and environmental costs, or (ii) we must begin to compensate the local victims of public and quasi-public investments so as to alter their strategic incentives. Victims of localized nuisance costs should be compensated, just as we already compensate those who suffer tangible costs when their property is physically invaded or taken by eminent domain.

The case for compensating the neighbors of noxious facilities is buttressed by noting some important qualitative reasons why certain groups are likely to exert power out of proportion to their numbers or aggregate risk and therefore should be "neutralized" by compensation.

1. The prospective neighbors of a new facility are easy for an organizer to identify, if only because they live in a known location. Most of the beneficiaries of energy facilities are dispersed throughout the region and united only by characteristics, such as occupation or wealth, that are hard to infer from visible evidence. The people who will suffer from it are just waiting to be canvassed.

2. The members of opposition groups are known to each other by sight; in socially coherent neighborhoods they know one another very well indeed. This acquaintance network encourages peer-group pressures, even if only implicit, that discourage "cheating" or slack in the common effort.

3. Nearby neighbors face costs which take them below their original asset positions, while residents elsewhere in the region face only opportunity costs (the failure to advance beyond their original asset positions). Each unit of cost to the losers can be expected to loom larger than a unit of foregone gain to the winners.

4. Any suspicion or resentment toward government on the part of the public at large is readily turned to the advantage of local opposition groups. Public investments are easy to characterize in the public debate as the actions of a faceless, insensitive bureaucracy riding roughshod over the "little people." Side payments can correct the strategic balance.

A policy of paying compensation to neighbors of new facilities imposes stringent demands on the accuracy with which these payments are set. Compensation payments are important for avoiding the large opportunity costs (project failure) that local opposition can impose.
Siting by Auction

It is important to pay compensation for local costs. It is equally important to pay the right amount. Fortunately, these two demands are easier to meet together than either is alone. What we have in mind is an auction whereby local governments compete for a proposed facility. The apparatus for such an auction includes the following:

1. Impact-statement-like descriptions of the project and its consequences for each candidate site.

2. A mechanism for direct compensation in the form of payments from the agency or corporation operating the facility to the citizens of the community or communities in which it is ultimately located. Payments would go mostly to impacted individuals, but a small amount might also be paid to municipalities.

3. Legal authority whereby a community can bind itself, and possibly its citizens, in consideration of compensation payments at a certain level, to facilitate the construction of the project in question consistent with the impact statement. This would involve a commitment to enact the appropriate zoning changes, map alterations, street and sewer construction, etc., and would be subject to enforcement through the courts.

4. A procedure whereby the appropriate level of compensation is determined in each community for which the facility is proposed.

The operation of the scheme is simple. In its basic form it requires each community or area selected as an alternative site to determine the minimum level of per capita and community compensation such that it is willing to make a "bid" — a binding legal commitment to facilitate the construction of the facility if the compensation is paid (and assuming the facility lives within the levels of impact initially stated). Having received these bids, the development agency (or state government) takes the total compensation for each community as a cost entry in the cost/benefit computation for the respective location alternatives, and locates the facility so as to maximize net benefits or benefit/cost ratio. It pays the compensation determined by the bidding procedure, sending checks to the individuals and communities concerned.

*We do not rule out the possibility that some bids may be negative. A project might be so attractive to a particular community, perhaps as a source of economic development, that the town would actually pay to obtain it. In this case the transfer payment is presumably from the town government to the agency in charge of the project.

The compensation payments appear in the agency's or the private developer's budget as an expense just like acquisition. Who ultimately pays depends on the incidence and charge structure of the particular facility. A utility, for example, will increase its price for electricity. Economic (external-
Strategic Overbidding

If only a few sites are possible there are related problems of strategy. What is to stop a town from bidding four or five times the figure at which it would really accept the facility?

In order to reject the auction for fear of "overbidding" it is necessary to show that another siting method (the site decision must be made one way or another) promises to achieve greater efficiency and fairness. Administrative costs aside, no siting method can be more efficient. Analytic methods of imputing social costs are suspect for well known reasons and threaten greater inefficiencies with no apparent promise of greater equity.

Richard Zeckhauser has suggested that the incentive to overbid might be overcome by awarding the project to the low bidder (the town whose bid results in the lowest project cost) but paying an amount equal to the second lowest bidder's offer as compensation. This scheme, one of at least two familiarly known as "Dutch auctions," removes the incentive to offer anything other than the correct cost while promising to pay "about" the right compensation. Unfortunately, the compensation payment approaches a bidder's real cost in general only to the extent that bidders are densely distributed below the low bidder's "correct" cost. Where few bidders exist, the compensation actually paid may be substantially below the winner's real costs.

The case in which competitors have full knowledge of each other's costs is fortunately an unrealistic one. If the true costs were available to anyone at the beginning of the process, the bidding could be done administratively and an auction would be irrelevant. In fact, at the beginning of the competition, citizens only know the "project cost" at each proposed location and — since a leak to only one competitor would be disastrous — ought to be informed of the project's gross benefits.

Local Inequities

Some individuals in the town that obtains the facility through auction will not receive the appropriate compensation. Thus far, we have posited a per capita payment, but individuals' costs vary. This is the siting problem writ small. Even if the town's decision process works properly, some will be overcompensated and some will be undercompensated. It is in the nature of goods which must be consumed collectively that no one gets exactly the right amount. The following Table illustrates the problem, showing four citizens for whom the project represents different costs, and the compensation an auction would provide if the median per capita cost were paid.

Table: Compensation Errors

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<th>Citizen</th>
<th>Costs of Project</th>
<th>Compensation by Auction</th>
<th>No Compensation</th>
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*For V, the facility is a benefit.

Also displayed is the "error" resulting from not compensating. The sums of the errors in compensation are shown. The auction obviously does better than a siting choice that responds to political muscle alone. This will always be the case when compensation is near the median individual cost. Therefore, an auction as we described it will never do worse than no compensation at all. Moreover, there are other grounds for expecting it to be much better. The argument rests in the similarity of tastes to be expected among the residents of a single community. Towns are not populated at random. The system contains a great deal of inertia, in that people located in a certain place tend to stay there. Americans move on the average about every five years;
when they do, they move to a community offering the package of amenities and price that best matches their taste. Thus, we depend on the residential choice process to sort citizens into communities with relatively consistent tastes and to maintain this assortment over time.

The possibility that differences between the costs suffered by different individuals in the same community exceed the differences in the costs suffered by citizens of different communities is important. What we fear is that an individual like V in the Table above, who represents a minority of his community, will be further from indifference as a result of compensation payments set by an auction among communities than he would be (i) if no compensation were paid, or (ii) if compensation were set by another technique.

A compensation scheme can be imagined which accurately estimates the costs and benefits to individuals within the community, and makes payments which differ from individual to individual. It might even tax away the gains to people like V. Such a scheme would be preferable to the auction. Unfortunately, we have not been able to describe a scheme with these properties. The sticking point is that members of the community cannot individually display the behavior of accepting or rejecting the project combined with various sized compensation payments. The project must be experienced or foregone by all members together. Consequently, no direct behavioral evidence of individuals’ prices can be observed for a collective good like a major facility. An individual compensation scheme would have to depend on proxy measures and estimates whose accuracy is open to doubt. Furthermore, unless each individual in the community is studied — at staggering administrative cost — the community will have to be dealt with in categories of inhabitants.

Establishing a Bid

There are various mechanisms by which a community can establish a bid:

1. A referendum could be held in which each individual registers his own costs. Under this mechanism, a bid from the town for individual compensation equal to the mean vote would produce the correct total compensation for the town but would generate a strategic problem in the voting process itself. A citizen can raise his own compensation by submitting an exaggerated bid. Countering this tendency is the perception that inflating his vote reduces the likelihood that his town will be selected. A more serious problem is presented by a minority that opposes a facility much more strongly than do its fellow citizens. If they are sure that a “correct” bid would result in too little compensation for them, they can prevent the town’s selection by entering extremely large votes and thus inflating the bid safely beyond the project’s net benefits. If negative votes are permitted, a minority of project advocates can bias the bids downwards — though without assurance that the town will be selected — by voting very low values.

Ignoring votes outside a certain range might overcome this problem at the cost of weakening the accuracy of the town’s bid as a reflection of real costs, but we prefer a simpler approach if the referendum is used. The median vote is insensitive to the size of extreme values. With the instability of strategic votes suppressed, the median vote provides a good proxy for the mean if cost distributions are close to symmetrical.

2. Another alternative is for the town’s government to select a few “representative” per capita compensation figures and submit them to the citizens for a vote. This seems unnecessarily crude and it is unclear what political significance should be attached to the particular compensation figure which receives a plurality but not a majority of the votes cast.

3. Much more attractive to us, if voting by individual estimate is rejected, is the use of the existing political structure of the community to determine a bid. Negotiation and voting (by, say, the city council) on the community’s per capita compensation level (most of which would be paid directly to residents; but a small portion of which would be given as a grant-in-aid to the town) is a procedure consistent with the traditional responsibilities of government. Every community has a government entrusted by its
citizens to make decisions like taxation, federal grant applications, and expenditure choices, which have financial consequences and equity and distributional complications just like our compensation scheme. In fact, representative government is exactly the device we have developed to deal with questions that have collective consequences for all citizens.

We delegate zoning and land-use control functions to local government. The polity uses these to modify the quality of life it will enjoy in the future. This responsibility is directly analogous to the aspect of the bidding procedure which tries to answer the question, "what would this new facility mean to us?"

A final advantage of leaving the bidding process to local government is that it permits the community to construct a side-payment scheme for equitable distribution of the initially equal compensation payments (through local taxes and expenditures) that can cope with the problem of local inequities discussed above. The possibility that local government should take charge of the bidding process highlights the similarity between the explicit auction process we propose and the familiar competition between towns for "clean" industry. The competition takes the form of threatening (by the town) to withhold approval (using a zoning change) unless the new industry promises a suitable combination of tax payments and amenities. When the industry represents a net benefit to more than one community, the competition moves from threat to promise — usually a promise of tax abatements or generous zoning rules. Naturally, state government facilities, which pay no taxes, are despised by all, while some federal facilities, which come with various kinds of "impact assistance" in lieu of taxes, are desired.

Two final considerations are raised by local government participation in the setting of bids. The first is that the appropriate polity for an auction might not be an existing government's constituents. If less than a whole town — or parts of several towns — are affected by a new facility, it might be wise to invent a new temporary political unit that includes only the affected parties. We would draw a line around the members of such an area and try to gerrymander those not impacted out of the auction.

The second issue concerns the likelihood that a community's population will change after the facility is built, with people who value amenities moving out and people willing to trade amenities for reduced housing costs moving in. If the local government not only sets the town's bid but also manages the distribution of the compensation, it may (by making capital investments, for example) spread some of the benefits over the new population of the town rather than restricting them to the pre-facility residents. This would violate the spirit and purpose of the compensation process, since the newcomers are undeserving of subsidy, and among the original residents, only property owners who sell to newcomers are in a position to reclaim the wrongly allocated compensation.
Information Requirements

A bid will not reflect local costs unless the consequences of the facility are known to the bidders in a useful and accurate way. Such knowledge is, in principle, the content of an Environmental Impact Statement amplified by a detailed prediction of economic and social effects. One might require, then, that a sponsoring agency prepare impact statements for the facility in each candidate community, but planning grants from the agency to the candidate communities are preferable. Grants would allow the communities to purchase their own predictions by hiring private consultants, by delegating the problem to their local planning body, or by contracting with the agency after all. Communities might join together in doing some of the research. Some might choose to submit a bid based on guesswork, but that is obviously their own business. What is important is that potentially impacted communities are held harmless from the investigative costs that the new facility’s possibility imposes on them.

The cost of analysis is little changed by a move to siting by auction. There is an optimal amount of research on local effects for society to invest given a project’s risks and probabilities. This amount is what we expect to be spent if the agency makes grants to communities as we propose. It may be that administrative sitting decisions can put a facility in a place with much less investigation, but the right place will be chosen only by chance. We can expect the administrative costs of auction siting to be less than the costs of current practice, because the amount we now waste in responding to the procedural and political tactics used by uncompensated victims trying to stop beneficial facilities will be saved.

However the prerequisite knowledge is obtained, actually setting a bid may be extremely difficult for a community despite the theoretical argument that it cannot fail to do so. *Auctions of this kind are not something with which local governments will ever accumulate much experience, and the perceived risks of guessing wrong, or of failing to adopt a clever but risky strategy, might induce a panic of paralysis which negates the purpose of the auction. The part of this anxiety which results from the possibility of a new facility threatening large changes in people’s lives is a matter what compensation is available, is irreducible. The remainder may be alleviated by relaxing the “all-or-nothing” quality of the basic procedure described above. An iterative bidding procedure might be possible, with all competitors’ bids publicly available until a known deadline. This might improve the quality of local decision-making. Also a preliminary agency estimate of local costs, for advisory purposes only, would help to put local debate in the right ballpark. Such advisory estimates could be the agency’s prediction of what the successful bidder will offer, a summary of the results of previous experience, or an attempt to estimate each competitor’s true costs.

One objection to the auction concept is based on an underlying belief that “ordinary people” cannot cope with difficult choices like pricing the effect of an energy facility on their lives, so the decision will not be made “properly” unless professionals do it. We are open to evidence supporting this belief but as yet have seen none. In addition, we are impressed by the variety among individuals’ tastes. We are also partial to the proposition that people should make their own decisions, including the decision to delegate responsibility or purchase the advice of experts if they so choose.

Another argument rests on the plausible prediction that when noxious facilities are auctioned among towns of varying wealth, the poor towns will bid less and will acquire the facilities. Why should rich people be allowed to buy their way out of their “fair share” of regional responsibility? Should we site an undesirable facility in a wealthy town that made (or would make) a high bid, even though a poor community is willing to accept it for a smaller total compensation payment? The issue obviously evaporates in cases with a low bid from the wealthy town.

In general, we favor schemes to distribute income from rich to poor, but imposing an energy facility on the residents of an occasional wealthy community is a clumsy way to do it, *as are most redistributional schemes grafted onto policies whose fundamental purpose has nothing to do with income redistribution. There seems little to recommend giving poor people freedom from the facility if they are anxious to bid, and only vengeance to recommend taking from the rich a good that is relatively worthless to others.

*It might be some cases be strategic to submit no bid at all, but specification of a default bid which will be considered and acted on as though actually submitted — no matter what value is chosen — counters this strategy.

*If compensation is paid to the wealthy town, it doesn’t accomplish any redistribution at all; by definition the compensation leaves the townsperson indifferent.
Finally, a good reason for not trying to force rich people to live near refineries or protect poor people from them is that we cannot do it anyway. The wealthy gather in communities with expensive homes and no factories by seeking out such locations, and the families who find themselves next to a noxious facility and can afford to do so will take their compensation and move to a new, facility-free location. If they have to bid up the price of housing in the new location and "force" the poor people who were saved from the facility out, they will do so. The poor people will move in near the facility at a low housing cost, finally making exactly the deal they would have chosen originally.

There will undoubtedly be citizens in a community threatened with an unattractive facility who will argue that damaging a town's social structure or its physical environment cannot be made up for with cash payments. Presumably they will do their best to convince their fellow citizens to demand a very high level of compensation. If successful, they will then be protected from these uncompensable costs. The auction's ability to put prices on local costs provides those who think the costs uncompensable with a device by which they can protect themselves.

If the opponents cannot convince their neighbors to agree with them, there seems to be no alternative to compensation other than giving the opponents a veto over development. Since energy facilities are presumably beneficial to a region and ought to be built somewhere despite the localized cost they impose, giving any citizen who claims "uncompensable costs" a veto over development of this kind will produce a societal paralysis that can hardly be justified.

The "money isn't everything" argument against the auction scheme has to be supported by demonstrating that for some people "being forced to accept the new facility and receiving some amount of compensation" is worse than "being forced to accept the new facility without compensation."

There is no more reason to believe that no one can be financially compensated for social costs than there is to believe that everyone can. In fact, there is behavioral evidence that suggests that at least some people happily accept money compensation for a wide variety of social costs including those imposed by noxious facilities. For example, some people chose to buy inexpensive housing close to existing airports with no government coercion. Those who achieve economies in this way are obviously accepting money benefits (lower housing costs) in exchange for exactly the kind of costs that the auction process seeks to redress.

While more research is needed, especially on legal hurdles to the auction concept as well as its political ramifications, we think the concept represents a breakthrough.
Assigning Local, State, and National Responsibilities

Local Actions that Influence Energy Company Policy

Although most communities lack the power to order an energy company to act in any particular way, residents and local officials can affect company decision-making by:

— Influencing the general public’s image of a corporation,
— Shaping executives’ perceptions of the community, or
— Enacting regulations that retard or prohibit facility construction.

If publicized, sentiments about the manner in which a company carries out the task of developing an energy facility can either foster or undermine the image that a corporation seeks to create. Corporate willingness to commit resources to impact mitigation is enhanced when executives sense that a community has the capacity and willingness to shoulder part of the burden. Communities need to demonstrate their capacity for self-help while at the same time communicating that they have problems for which they lack solutions.

Localities have or can enact legislation giving them some power over energy and other companies: zoning ordinances, subdivision regulations, building codes, fire safety codes, health codes, and demolition standards. When the Puget Sound Power and Light Company approached Skagit County with a proposal to construct a nuclear power plant, the company “had already been refused sites in a few other locations.” The county could have prevented the facility’s construction by doing nothing — i.e., by declining to reclassify 260 acres which were then zoned as “forestry/recreation and residential.” In return for its zoning change the county was able to extract Puget’s promise to underwrite the costs of mitigating construction-induced impacts.

Local governments can also take actions which lessen corporate risks and facilitate energy development by:

— Combining program reviews such as zoning and subdivision regulation. This allows comprehensive regulation of development under a single set of standards.
— Simultaneous processing of permits by various local and state agencies. This enables companies to avoid filing numerous applications and eliminates the delay of serial approval processes.

— Assisting in land assembly by use of eminent domain powers. In cases where an energy project is generally favored by local residents, the project’s viability can be enhanced if the ultimate recourse to public intervention remains.

The following are suggested guidelines for community officials and residents:

— At the outset of negotiations local officials should state their intent to publicize 1) the successes and failures of company efforts to alleviate impacts and 2) the extent to which a corporation has honored its commitments to the community. Utilization of the media as well as direct communication with legislators and regulatory agencies is important.

— Regulations and statutes should be thought through carefully and made explicit: exactly what must the energy company do to comply? Precise and detailed regulations enable executives to weigh the community’s requirements at the outset of company-community negotiations.

— One characteristic of facility designs which influences the severity of plant construction impacts is the peak number of construction workers. By requiring an energy company to agree that the number of construction workers at any single time will not surpass some ceiling, community officials can limit the influx of temporary workers to a number that can “reasonably” be absorbed.

— Because energy companies must deal with both municipal and county governments when designing and constructing energy facilities, cooperation and coordination between government levels will facilitate company efforts at impact mitigation. Moreover, creation of a regional bargaining unit which contains the energy facility gives public officials far more leverage.
What Influences Corporate Willingness to Underwrite the Costs of Local Impact Assistance?

A High Level of Community Resourcefulness. Energy companies look for evidence that the community is capable of and committed to acting on its own behalf and that elected officials expect local government to carry its share of the load. Companies do not want to act as a surrogate local government providing all public and private services, even though construction of isolated facilities sometimes necessitates creation of a "company town."

Executives are, for example, favorably impressed by localities that take the initiative in investigating sources of federal and state assistance rather than awaiting corporate offers of assistance. Energy companies which have planned facilities costing millions of dollars are, however, amenable to providing small grants to enable a local government to hire its first professional planner.

Extremely Adverse Impacts Are Likely to Result from the Project. If executives perceive that the company's new facility will have very harmful effects, they are more likely to pursue impact mitigation strategies. Even executives who are only weakly motivated to accept strict environmental standards are likely to give high priority to sparing their corporation notoriety for despoiling an attractive area.

The Facility Has an Expected Life Cycle of Several Decades. A life cycle of several decades means that a company will operate its facilities long enough for adverse impacts to become obvious to the company, the community, and critical outside observers. An oil well is typically exploited for only a few decades, while some coal mines remain in operation for a century or more. Another aspect of a facility's life cycle is the size of its operating staff in comparison to the size of the construction force. Coal mines require a permanently large crew of miners, while petroleum production is not labor intensive. Therefore, a long life cycle for a coal mine causes more adverse impacts, because many workers experience adverse consequences over an extended period of time. In effect, a long life cycle encourages executives to invest in impact alleviation efforts.

Executives Regard the Facility as a Pivotal Element in Their Company's Plans. Executives of a petroleum producing corporation might give priority to construction of their first coal mine, because they expect the company's income from coal production to surpass its income from oil production over the long run. Another facet of a company's commitment to a particular energy facility is the magnitude of the unrecoverable financial investment that has already been made in plant design, real estate assembly, and orders for machinery.

Impact Assistance Is Likely to Improve Worker Productivity and Lower Turnover Rates During Construction and Operation. To successfully compete for experienced, efficient workers an energy company needs to provide adequate working conditions and homes in a pleasant setting. Concerns about productivity and turnover provide the single strongest motivation for corporations to protect environmental quality and to help residents manage the growth which energy plants stimulate.

Construction Delays Will Cause Costs to Escalate. In an inflationary era, delays in construction and operation will increase costs. Moreover, cost over-runs are apt to be substantial: a suit brought by the Sierra Club resulted in a delay of one year in the Basin Electric Power Cooperative's Laramie River (power) Station in Wheatland, Wyoming, doubling the facility's estimated total cost. In comparison with the soaring costs that delays trigger, many impact alleviation measures are relatively inexpensive. Obviously, executives prefer to spend hundreds of thousands of dollars for growth management programs rather than to face delays which increase total plant costs by millions of dollars.

Local Government Discrimination Against the Company Is Not Expected. Often the very size and wealth of energy companies make them vulnerable to widely-held antagonisms toward big business. Hence, they prefer to site new facilities in communities in which local officials are committed to applying the same legal standards to all business projects regardless of size. Energy companies prefer to bypass communities in which company-built housing is expected to meet the letter of the law while officials habitually overlook code violations by local or small builders.

Existing Local Services and Facilities are Inadequate. Energy company executives are uneasy when a community expects their firms to single-handedly remedy long-standing deficiencies in public services under the guise of impact mitigation or growth.
management. For example, an antiquated water system that was barely adequate prior to the building of an energy facility might require total replacement rather than limited expansion to serve a growing community. An energy company is likely to resist assuming the capital cost of a new water system, although executives might be willing to underwrite part of the cost. Few localities would be rejected, though, as sites for energy facilities solely because of substandard facilities — almost all small rural communities have deficiencies of this sort.

**Community Opposition is Present.** If community residents and local leaders oppose an energy facility, the corporations involved will probably not build. But, if the opponents are few in number or fail to represent an adequate cross-section of the local population, the company is less likely to be dissuaded from siting its facility. Scattered opposition to an energy project encourages companies to implement impact mitigation programs which might weaken criticism. The energy company's position might actually be strengthened as a result of opposition from an isolated segment of the local population. If a majority of the residents favor (or are indifferent to) a proposed project, they might become galvanized in support of the project, because they perceive a minority to be "unfairly" impeding economic growth which stands to benefit many.

In energy-rich states, local leaders facing severe fiscal strains have called on state government to provide assistance.15 There are three justifications for state fiscal assistance to boomtowns. States may wish to correct capital market failures, to compensate those who suffer from energy development impacts, or to ensure an orderly development process by providing public services when they are needed. Any fiscal impact assistance program must raise money and distribute it to the intended recipients. There are several possible sources of revenue: general state taxes, excise taxes on energy development, bonding, permanent funds, federal aid and federal lease revenues. Four techniques for distributing aid are possible: project grants, unrestricted grants, block grants, and loans.

Attempts to correct or circumvent the inefficiencies in national capital markets which work to the disadvantage of booming communities should avoid disrupting the market in more fundamental ways. A state should also prefer not to take on contingent liabilities if there are less risky means of ensuring local access to capital markets. For these reasons, borrowing from the permanent funds is the preferred means of raising revenue. By shifting some of the assets of the state into local debt, the state directly increases the flow of investment into impacted communities and stems the flow of investment out-of-state. There are two difficulties with this strategy. First, not all states have permanent funds. Second, permanent funds are held in trust for all the people of a state, so it may be politically difficult to target assistance to certain communities which are experiencing energy development. In states where non-booming local governments also have difficulty marketing their bonds, however, assistance on a statewide basis may be justified.

A second choice, for those states with federal land in them, is to use federal lease bonus payments as a source of capital. The advantage of bonus payments is that they arrive in one large lump sum when a lease is signed, rather than over the active life of the lease; the money is available before impacts are felt and can be used to create public facilities in anticipation of population growth. Using bonus payments in this way is also preferable to spending them all in the year they are received for the operating expenses of state agencies.

A third and still attractive means of providing local access to capital is for the state or an agency of the state to issue bonds. This strategy is less attractive to a state than using permanent funds or bonus pay-
ments, since the state must seek new sources of capital and repay the notes in the event of local default.

The use of taxation to raise money for correcting capital market failures would probably not be effective since a substantial fund is necessary and this would divert much needed dollars from other pressing needs. This would not rule out the gradual creation of a revolving fund that could be used to make loans to communities. In fact, this is similar to using permanent funds which are simply accumulated rental and sales revenues. Such a device might help to correct capital market failures affecting small towns in the long run, but it would not provide an immediate response to the problems of boomtowns.

The most appropriate means of addressing capital market failures is through the provision of loans. Although local governments would prefer grants, grants perform a redistributive function. While there is nothing intrinsically wrong with redistributing wealth (indeed, in many situations it is called for), it should not occur as an unintended side effect of other policies.

If state policy is aimed at compensating the victims of energy development rather than correcting capital market failures, then excise taxes on energy development would be the preferred means of raising revenue. Excise taxes penalize the activity creating the problem. However, most energy excise taxes fail to tax the owners of the beneficiaries. The most common energy tax, the severance tax, is ultimately paid by resource owners and consumers. Energy companies, newcomers, businesses and workers who gain indirectly are spared by severance tax. Other mechanisms might be devised to tax some of these groups. For example, there might be an excise tax on energy company profits or a license fee for working in an energy facility. However, as the beneficiaries become more diffuse it becomes more difficult to tax them according to the benefits they receive.

The proceeds of federal lease revenue payments to states are also a useful source of revenue for compensation since they vary with the level of energy development. Whether the use of federal lease revenues constitutes a redistribution from winners to losers is open to debate. This depends on a judgment about the “rightful” ownership of the federal revenues.

The third means of raising money to cover the costs of compensation is through federal grants. Grants would be favored by the state since they are covered by federal taxpayers. However advantageous this may seem to the states, it does not necessarily tax the beneficiaries of energy development.

General state taxes could provide the necessary revenue, but it is hard to justify taxing the people of the entire state for the benefit of a few.

Bonding could raise large amounts of money for substantial compensation payments. However, it would still be necessary to raise money to repay the bonds, and this would require the use of another strategy which would be the actual source of the compensation payments. The use of bonds does have one feature to commend it: the benefits of energy development accrue to the owners, consumers and energy companies for many years into the future, yet the adverse impacts are felt immediately. When bonding is coupled with taxation of the beneficiaries, those paying the taxes can support the same compensation payment with smaller taxes over many years rather than by a stifling tax or fee at the outset of a project.

When state aid to energy impacted communities is intended to ensure orderly development, the revenue source is not particularly important to the achievement of that goal. It might be argued that excise taxes on energy distort the market and preclude efficiency. However, the same groups which stand to gain from energy development also benefit from state efforts to make the development process more orderly by providing public services in boomtowns, so a tax on energy would not be unfair. Moreover, the state can use tax levels to affect the rate of mineral development, keeping it at manageable levels. If appropriately administered, excise taxes on energy development can be a tool for achieving the goal of orderly development.

From the state’s standpoint, federal lease revenues are a preferable source of revenue since there are few restrictions on their use. Yet there is likely to be opposition from the present recipients of the money. Energy excise taxes are popular because they are paid primarily by people from out of state and conform to the principle of benefit taxation if used to smooth the development process.

Since boom development places unprecedented strains on all local operating expenses, and it is in the interest of the state that local services remain viable, unrestricted grants are needed. Unrestricted grants are preferred for this purpose since there is no compelling reason for the state to interfere with local allocational decisions. However, grants must be made in such a way as to favor those communi-
ties with the most severe hardships. Loans can be used to provide access to capital, but they may also be subsidized to allow non-credit worthy governments to obtain front-end money. By subsidizing the interest the state recognizes the statewide benefits of orderly development. Project grants are also needed to provide funding for important facilities where local governments would be unable to repay loans, even with an interest subsidy.

The management of a many-faceted state impact assistance program requires a formula for the distribution of unrestricted aid to booming communities (favoring those that are hardest hit) and an agency or board to decide on local requests for loans or grants. Such an agency must be able to assess the need for energy facilities and the ability of communities to repay loans in order to decide the conditions under which separate aid packages should be disbursed.

Legal and Political Obstacles to Effective State Management in Boomtown Areas

Certain statutes limit the strategies that a state can employ in responding to the adverse impacts of energy development. In Colorado, for instance, four obstacles limit the role the state can play.

1. Financial Barriers. In Colorado, most impacted communities are already in debt, but Article XI of the Colorado Constitution precludes the State from incurring any indebtedness on behalf of these localities. This law is not unique to Colorado. Most state constitutions impose limitations on the state’s power to incur financial obligations.

Such restrictions guard against fiscal irresponsibility. If an overzealous legislature decided to incur a significant debt on behalf of its localities, and if the state were unable to repay its debts, the state would face bankruptcy, jeopardizing the entire range of private investments and holdings. If one locality were unable to repay its debt to the state, then the legislature would either have to produce the money from other sources (which would be very difficult) or default on its obligations. This too could lead to bankruptcy or at best a diminished credit rating for future bond issues.

If managed carefully, state indebtedness can be a useful tool for assisting boomtowns struggling with the secondary impacts of energy development. During the initial period of population growth capital intensive projects must be undertaken. Yet, tax revenue is not plentiful enough at that time to cover these expenditures. A state could, with minimal risk (assuming that energy development proceeded as planned), incur a debt on behalf of a locality and wait to be repaid as additional tax revenues accumulated over time. In some states, a constitutional amendment would be required to remove current restrictions.

2. The Non-Existence of a Severance Tax. Local governments in Colorado facing front-end financing problems in 1977 as a result of energy development need to raise about $50 million. A practical and equitable means of raising revenue to assist impacted areas is to impose a severance tax on industries extracting metals or minerals in the state. Such a tax is usually based on a set percentage of gross proceeds and is a common mechanism in the Western States. Montana currently has the highest severance tax rate — it imposes a 30% severance tax on coal. The severance tax ensures that the end-users of energy bear the costs of development.

Despite the fact that Governor Richard Lamm has
strongly supported such a tax, the Colorado Legislature has consistently taken an opposite stand and voted down severance tax proposals since 1975. The controversy appears to hinge on how high the tax should be. Almost everyone agrees that a severance tax is needed. In February 1976, the Republicans proposed a severance tax plan which would raise a total of $11 million in the first year. This figure was only slightly higher than the $10.5 million that the Republican Senate clung to as its final offer in the 1976 legislative session, before eventually turning it down. Governor Lamm still wants a severance levy that is several million dollars higher.

3. Classification of Mobile Homes for Tax Purposes. Since 1970 approximately 60% of all new housing units provided in Northwest Colorado, an area facing substantial energy impacts, have been mobile homes. Under current tax laws, mobile homes are considered as motor vehicles, subject only to a sales tax, an ownership fee and a license fee. They are exempt from any ad valorem tax. Mobile home owners pay only about one-fourth of the tax charged to owners of comparable conventional housing. Since most new dwellings fall into this category, property tax revenues are not likely to gain in proportion to the services demanded by an expanding population. School systems in particular stand to lose a great deal since they depend, for the most part, on property taxes to finance educational costs.

4. Conflicting Claims Over Water Rights. In Colorado as in neighboring states energy industries must compete not only with each other, but also with private consumers, for limited water supplies. This is an even more pressing issue when Colorado does not receive its usual snowfall, thereby limiting the supply of drinking water. Both oil shale and coal are water-intensive industries, and problems have arisen in Colorado as to who will get what fraction of the water supply.

The key to this situation is the traditional "first in time, first in right" doctrine that has been upheld by the Courts and defended in Congress. According to this practice, each water right in Colorado holds a priority date — that date when an applicant first filed for and made beneficial use of the water. Early, or senior water rights are guaranteed before later, or junior rights, are met. Additionally, state policy gives domestic water suppliers highest priority. While these doctrines are used by the Courts to resolve controversies, another factor also comes into play. Federal agencies currently argue that whenever land has been reserved for federal use, the government also has reserved sufficient water for that land (even if this has not been done through the state courts).

Confusion exists between federal and state law as to who has the right to the use of water near oil shale developments. While the federal government has a "first come, first served" attitude which grants original owners the right, state policy argues that domestic (i.e., residential) rather than commercial users have higher priority when supplies are limited. The federal government further contends that its lands have rights over all the water they need. The Courts are currently hearing legal arguments on all sides.

The Rio Blanco Oil Shale Project tentatively will involve open-pit mining, a process in which underground water is expected to seep into the mine. Thus, the mine will have to be dewatered to obtain the oil shale. Legally, the oil shale developers have a right to dewater the mine. This conflicts, however, with the constitutionally defined right of the state to establish a priority system for irrigation projects. Dewatering would lower the water table of nearby lands. Once again, the Courts will have to determine which water right is senior. Ultimately, the Courts will have to set consistent priorities and put an end to the internal conflicts currently embedded in Colorado water rights law.

In other states there are similar legal and political obstacles likely to block the adoption of the most efficient or equitable impact assistance strategies.
Some Examples of State Administrative and Legislative Approaches to Impact Assistance

Colorado 17

Under the Federal Mineral Leasing Act of 1920, the federal government collects royalties on the development of minerals on federal lands and subsequently returns a percentage of this money to the states in which these lands are located. Until recently, 37.5% of these royalty funds were returned to the states and were restricted for use in improving schools and roads. In 1975, Section IX of the Federal Coal Leasing Amendments Act modified this provision, raising the percentage of the leasing revenues returned to the state to 50%. 37.5% of the funds currently returned must still be used for schools and roads, but the remaining 12.5% is available to use in planning, constructing and maintaining other public facilities and services. Priority is supposed to be given to those areas impacted by energy development. Section IV extends the coverage of this amendment, thereby permitting state legislatures to use leasing monies in areas socially or economically impacted by the development of these lands.

Over the past three years Colorado has accumulated $65 million from its share of two federal oil shale leases. These funds come under the jurisdiction of the State Legislature’s Joint Budget Committee which decides how the money is to be appropriated, how much will be allocated to state programs, and, finally, how much will be put into the Oil Shale Trust Fund. If a locality wants money from this Fund, it must submit a request to a Council of Governments which in turn channels requests to the Office of the Oil Shale Coordinator. The Oil Shale Office must then approve specific expenditure plans and execute contracts. Ratification must also come from the Governor’s Office, the Attorney General and the State Comptroller.

In 1975 the Joint Budget Committee voted to appropriate only $10 million for grants. Of this, $8.5 million was for school and road construction projects in Rio Blanco and Garfield Counties. $300,000 was appropriated for the administration of the Office of the Oil Shale Coordinator, and the remaining $1.2 million was appropriated in small sums to Routt, Moffat and Mesa Counties. These small grants included two controversial appropriations: $50,000 to Hayden for an access road into town, and another $100,000 to Routt County for roads related to coal mining. The Joint Budget Committee subsequently established a firm policy of not spending oil shale funds for projects related to coal impacts. During fiscal 1976, the Joint Budget Committee chose to spend only the interest accrued on the Trust Fund.

The Joint Budget Committee reasoned that it should not spend all of its available funds before the future of oil shale development becomes clear. At present, the state is not prepared to make a large scale funding commitment to impacted communities.
fiscal impacts they suffer from energy development. The state's allocation of aid, then, must be analyzed in terms of its adequacy in meeting their needs. At the present time, the lack of accurate information about the magnitude of impact problems in the various counties limits the state's ability to make responsive and equitable funding decisions or to assess county and municipal claims for more aid. Several research groups in the state have carried out separate studies to determine the cost of impacts, but their results have not received wide acceptance. The state's own information system, the Regional Environmental Assessment Program (REAP), is just becoming available for use by policymakers, but it is not yet established as an accurate, reliable, and credible source of information.

Texas has not developed programs aimed specifically at mitigating the adverse social and economic impacts of energy development. Most state officials assume the local governments do not face problems that exceed their administrative or fiscal capacity. Despite previous experience, Texas is just beginning to consider the local problems wrought by energy development. The state has no formal energy policy. No single agency or office collects information on all aspects of state energy programs or procedures.

Two divisions of the Railroad Commission are involved in energy development in Texas: the Oil and Gas Division, formed about 1919, and the Surface Mining and Reclamation Division, formed in 1975. The Railroad Commission, established in 1890, was the first regulatory agency in Texas. In 1917 pipelines were declared common carriers and placed under the control of the Railroad Commission. When, in 1919, the legislature adopted statutes requiring conservation of natural resources, the Railroad Commission was given enforcement authority.

The main focus of the Oil and Gas Division is to maximize long-term production while preventing water pollution. The Commission issues drilling permits, regulates the discharge of water during drilling operations, and establishes the depletion allowance—the maximum amount of resources which may be extracted through each well. Drilling permits, in accordance with Railroad Commission regulations, are valid for one year, may be renewed annually, and require no public hearing; permits at variance with standard regulations (usually the well-spacing requirement) are issued for six-month periods and may require a hearing. Although the Commission sets maximum rates of extraction, it sets no minimum. It cannot require or encourage production.

The criteria used for issuing drilling permits do not reflect concern with the social and economic impacts of energy development at the local level. When granting permits, the Commission views the state as a featureless plain, noting only the location of other wells and mineral reserves.

Gas used in irrigation activities is exempt from Railroad Commission regulation. The private market sets the price. Although farmers and ranchers previously requested the price exemption, they now face prices much higher than those of the Commission. They have requested the reinstatement of price regulation; proposed legislation would give the Commission that power.

Southwest Texas depends heavily on groundwater, which has been in short supply since the
early 1960's. Water used for oil development reduces the supply for agriculture and ranching and increases the cost (a lower water table means increased pumping and treatment costs). In most cases, surface owners control groundwater supplies. They control any water underneath their property, may lease water rights to whomever they please, and may extract it at whatever rate they please. Water Conservation and Subsidence Districts are the only governmental bodies with the authority to control the spacing and extraction rate of water wells. These districts may be formed only by local initiative. Railroad Commission drilling permits can regulate water pollution but cannot consider the impact of drilling on the supply of groundwater.

The 1975 Surface Mining and Reclamation Act gave the Railroad Commission authority to regulate surface mining of coal, lignite, and uranium. The Railroad Commission delegated this responsibility to its new Surface Mining and Reclamation Division, which regulates land reclamation and recommends standards for mining industries.

The Division implements reclamation policies by registering exploration activities, issuing mining permits, and inspecting mines. Permit applicants are required to provide a Certificate of Insurance and a Performance Bond. The latter equals the total cost of reclaiming the proposed mine and can be lowered over time as parts of the mine are properly reclaimed. A failure to comply with reclamation standards forfeits the bond. A Reclamation Fund, money collected from permit fees ($200/permit), $10 per acre to be mined, and forfeited Performance Bonds, is used primarily for two purposes: to pay consultants for independent estimates of the proposed site's reclamation costs and to reclaim land either abandoned by the operator or reclaimed inappropriately. The state has only three operating mines, all of which are complying with the reclamation standards, so the fund is virtually empty.

Criteria used in granting surface mining permits stress the preservation of future land uses and the prevention of water pollution. Local abilities to support intensive mining activity are not considered directly. Land may be declared unsuitable for surface mining because it would create "substantial" and long-term damage to renewable resources, adverse impacts on public properties, "significant" damage to historic lands, or because it would be too close to national wildlife refuges, parks, etc. The law does not specify expected local social impacts as a ra-

ationale for declaring land "unsuitable" for mining. Since no one has tried applying the law in this way, the Railroad Commission's legal counsel does not know how the courts will interpret it. Only "persons affected" may appeal the decisions of the Commission, that is, people living in or operating businesses in the mine's host or contiguous counties and able to "demonstrate that they have suffered or will suffer actual injury or economic damage."
During the 1975 legislative session in Wyoming, the Select Committee on Industrial Development Impact proposed a series of bills designed to provide revenues to meet local energy development needs. The Committee performed an analysis of revenue sources and tried to anticipate how these might change if energy development continued. A parallel assessment of the needs for public services due to energy development was also undertaken. The Select Committee reached three conclusions that shaped the legislation they drafted: (1) in the long run, the state, counties and school districts will have sufficient revenues to meet needs (with only a few problems due to jurisdictional mismatch); (2) in the short run, many counties and school districts will have substantial shortfalls; and (3) in both the long and short run, cities and towns affected by energy development will suffer substantial shortfalls.

The Select Committee put forward a four part legislative package:

**The Wyoming Community Development Authority (WCDA).** The WCDA was created with the power to float up to $100 million in tax-free revenue bonds, the proceeds of which will be used to finance public facilities and housing. Since the state is not allowed under its constitution to issue general obligation bonds in excess of 1% of its assessed valuation, the bonding authority of the WCDA has been challenged in the courts and the WCDA has been unable to operate fully. An arrangement has been worked out with the Farm Loan Board whereby Joint Powers loans will be made by the Farm Loan Board in the interim and repurchased by the WCDA at a later date.

**Increased Debt Limits for Local Governments.** The legislature proposed a constitutional amendment to increase local debt limitations. The proposal would have increased the county limit from two to four percent of assessed valuation, the city limit from four to eight percent of assessed valuation, and the limit on school districts from ten to fifteen percent of assessed valuation. It would also have removed all limitations on indebtedness for sewer and water projects. This amendment was on the ballot in November 1976 but failed to gain voter approval. There was very little interest in the issue although the Wyoming Association of Municipalities and the County Commissioners Association supported it. Passage of an amendment required a majority of all those voting in the election rather than those voting on the issue, so the lack of controversy may have led to its defeat. The proposal did not resurface in the 1977 legislative session.

**Increased Sales Tax Distribution.** This provision increased from one-sixth to one-third the portion of the 3% sales tax automatically returned to the political subdivisions of the state. The sales tax forms a significant portion of local revenues and is responsive to population growth.

**Imposition of a Coal Tax for Impact Assistance.** The legislature created a special severance tax on coal which phases in with progressively higher rates, reaching 2% of value in 1978. The tax will expire once it raises $120 million. The Farm Loan Board is authorized to disburse these funds to areas that are either directly or indirectly affected by coal development. The legislation restricts grants for use on highways, road or street improvements or water and sewer projects. The Select Committee intended that the grants be used primarily as pledges to pay portions of WCDA loans to communities that would be unable to repay the loans out of user charges or local tax revenues. The Committee also wanted the WCDA to evaluate applications for these grants. The WCDA was not allowed to make decisions on grant proposals because the Select Committee wished to avoid politicizing the Authority.

The elements of the Select Committee's package are designed to work together to solve the financial problems faced by boomtown communities. Since most counties are expected to be able to repay loans eventually, they are generally eligible only for loans from WCDA. WCDA can arrange loan payments to coincide with the expected ability of the county to pay over time by requiring lower payments in the first few years of the project. In a case where a county is not expected to be able to repay a loan, the Farm Loan Board can pledge to grant future coal tax revenues, which can be used to secure the WCDA loan. Similarly, should a municipality wish to build a sewer system in anticipation of future growth, it can secure a WCDA loan (1) by pledging hook-up fees and a portion of operating fees, (2) by pledging the proceeds from a grant from the Farm Loan Board to repay the balance of the loan, and (3) by obtaining a conditional grant from the Farm Loan Board that would be paid should hook-up and user charges not reach expectations. This procedure serves to limit the risk local governments must take in financing facilities. The use of conditional grants also further secures the loans from the standpoint of the WCDA and its lenders.
The Objectives of National Impact Assistance

There are several national impact assistance programs aimed at compensating damaged communities or individuals, speeding economic recovery, or encouraging advanced planning. Assistance is provided to correct a range of community problems such as inadequate public facilities and services, revenue shortfalls, or shortages of consumer goods. The various objectives of impact assistance can be defined as: charity, compensation, inducement, risk-sharing, and the correction of capital market failures.

1. Charity. Federal assistance may be viewed as a form of charity. We feel sorry for individuals or communities hurt or disadvantaged through no fault of their own. In many cases, no one is responsible for the damage; in others, damage costs cannot be recovered from or assessed against the responsible party. In either case, the government provides aid to protect the welfare of the affected individuals and to alleviate suffering. Natural disasters (such as hurricanes or earthquakes) are events which provoke this kind of response. The Federal Disaster Relief Program (P.L. 93-288) is the primary illustration of a federal impact assistance program with a charity objective.

2. Compensation. Federal assistance may also be viewed as a way of compensating affected individuals and communities for something they have given up, foregone, or suffered. A federal program might reimburse a locality for property taxes lost because of federal land ownership within its borders or it might provide replacement housing for individuals forced to move by an urban renewal project. Compensation implies that there is an agent responsible for the loss and that this agent should be held accountable for the damage.

Many federal assistance programs are compensatory in nature. For example, the Defense Department’s Economic Adjustment Program (Department of Defense Directive 04510.2) is designed to assist communities suffering from the adverse effects of military base closings and personnel reductions. Unanticipated changes in defense policy benefit the entire nation but cause severe economic hardship to particular communities. The responsibility for the hardship clearly lies with the federal government.*

In some cases, federal responsibility may be less clear. Certain federal actions enable impact-causing projects to occur through the provision of federal dollars (for example, federal highway assistance to the states). In other cases, federal policy merely encourages damaging projects. The goal of national energy independence, for instance, has accelerated private efforts to increase coal production in the western states.

*It can be argued that no compensation is due to such local governments, because they previously experienced an economic "windfall" when the defense installation was located there. However, even if this argument is accepted, there may be justification for compensation based on the hardship created by the suddenness of the change and its unanticipated impacts.
3. Inducement. Federal assistance payments may be regarded as part of the "cost" of a project — the price paid to "buy" local cooperation. Payments are sometimes made to communities so that they will not resist or refuse near the site for a federal or federally-funded project. Payments can also be made to individuals who might otherwise actively oppose certain projects. It would be surprising to see local governments consent to certain activities (e.g., mineral leasing on federal lands within their borders), if they did not reap some benefits.

Many federal programs also incorporate an inducement to encourage advanced planning. By providing incentive grants designed to elicit more and better local planning, the federal government hopes to enable communities to respond more effectively to crises ("disasters") and to encourage them to develop strategies for dealing with difficult situations (such as growth-inducing energy development). The Coastal Energy Impact Program (Section 308 of the Coastal Zone Management Act Amendments of 1976) provides special grants to states and local areas to plan for energy development in the coastal zone. Even the Federal Disaster Relief Act makes monies available for "Disaster Planning Grants" to ensure a better organized state response to emergencies and natural disasters.

4. Risk Sharing. Nearly all of us willingly insure ourselves (paying a small, certain premium) against large, unlikely, losses of various kinds. In some cases, rather than instituting an explicit voluntary insurance program, we agree to tax ourselves for relief payments disbursed whenever some of us suffer natural calamities like floods, earthquakes, or hurricanes. If we accept that, on grounds of natural interest which dominate any local costs, natural resources will be developed even though suffering is caused to those who live near them, the occurrence of a boombtown can be viewed as a natural disaster deserving compensation as "insurance."

Consider two rural communities engaged in agricultural pursuits. One is struck by a devastating tornado, while the ground beneath the other "suddenly turns to coal." Mining of the coal and its consequent boombtown effects are inevitable from the town's point of view. Both towns are similarly affected by natural forces beyond their control.

The actual case, discovery of pre-existing coal, is equivalent for this comparison to a miraculous transformation from rock to carbon. The difference between the tornado and boombtown cases, if any, lies in the possibility that the coal-affected town had more warning of the chance that already-known coal would suddenly become economically attractive. But even this distinction is a weak one, since most natural disasters are foreshadowed probabilistically: floods occur in flood plains, tornadoes in tornado belts, and earthquakes in seismic zones.

Even granting that state regulation and energy developers have some opportunity to divert the energy boombtown "disaster" from one coal field to another, at least in the short-run, we hold that an energy boombtown "happening to a community" is analogous for public policy purposes to a natural disaster, and that the insurance or risk-sharing model justifies payment of compensation to the sufferers.

5. Correction of Capital Market Failures. While local governments anticipate substantial tax yields from proposed developments at some point in the future, they need cash to expand public facilities and services well ahead of the availability of sufficient tax revenues. Private lenders may not be willing to supply the necessary capital, or it may be difficult for the local government to successfully market a bond issue. A second type of capital market failure is caused by jurisdictional mismatch. A project or facility which causes problems may not be located within the taxing jurisdiction of the affected municipality or county. In still other cases, there may be no tax mechanism that allows a community to recover its costs from the responsible private company.

These problems create capital market failures that affect the supply of funds. Certain federal assistance programs, particularly those designed to aid energy impacted communities, are concerned with correcting these "supply side" problems. There are also capital market failures which affect the demand for funds; for instance, state constitutional prohibitions sometimes limit the borrowing power of state and local governments.
Federal Administrative Strategies

Administrative mechanisms for disbursing federal impact assistance are highly controversial. Funds, whether in the form of loans, grants, or other payments, can be earmarked for a particular purpose, provided for a recommended use, or offered on an unrestricted basis. Funds can either be disbursed directly to local governments, individuals, or in a two- or three-step process through states or regional agencies.

There are some instances in which administrative restrictions on the use of funds have hindered local governments. The Mineral Leasing Program (P.L. 94-337) restricts the use of most leasing revenues to school and road construction, while many of the problems induced by mineral leasing are much broader in scope. Advocates of tighter federal restrictions argue that these are necessary to prevent states or local governments from misusing federal funds or from utilizing them in ways inconsistent with federal purposes.

Another aspect of grant administration involves the decision to disburse federal funds according to a formula or at the discretion of the administering agency. In the case of formula grants, funds are available to all eligible jurisdictions; the actual amount is based on some combination of population, fiscal capacity, and other measures of need. The alternative is to allow the federal agency or the state government to allocate funds on a project-by-project basis. Recipients must then take the initiative, and grants are allotted only if the authorities find a proposed project acceptable.

In Colorado federal oil shale lease payments have been held by the state and not distributed to local governments. The state is waiting to see how serious the impact of oil shale development is before they allocate these funds. The Coastal Energy Impact Program was designed to ensure that the state government could not hold federal funds in this manner and seeks to force the state to distribute aid to each impacted locality in a manner consistent with federal legislation.

Another administrative issue is whether assistance should be awarded to individuals or to local governments. Although none of the recently enacted or proposed energy impact legislation has addressed the need to compensate or aid individuals, several other federal impact assistance programs do take this approach. Both Disaster Relief and Relocation Assistance (P.L. 91-646) are programs which suggest that there are certain kinds of adverse impacts which can only be corrected by pro-
Summary

There are numerous proposals pending that call for greater federal involvement in managing the impacts of energy developments. More specifically, Congress has considered legislation that would have the federal government provide funds for public facilities and services, planning assistance, and economic recovery.

Compensation should be used when the federal government is responsible in some way for the impacts. It is certainly popular these days to suggest that the federal government should provide unrestricted payments or grants to states and localities for a host of purposes. We feel that this is not warranted with regard to energy impacts. When the federal government is directly responsible for impacts, then it should also be responsible for awarding compensation to those affected. When the federal government is only indirectly involved in an impact-causing event, there is less reason for federal assistance to provide compensation, as for example, when the problem or impact is due entirely to capital market failures. The role of the federal government in such instances should not be to provide compensation, but to facilitate the correction of the capital market problems, especially when the local or state government lacks the capacity to correct the problem itself.

Inducement is also a legitimate function of federal impact assistance. When states and localities have some jurisdiction over commodities that the federal government wants to see developed (coal in the western states, Outer Continental Shelf oil off the coastal states), the federal government may have to offer some "payment" over and above what communities can obtain through their own taxes or from lease revenues. We would expect the affected states to hold out for as much federal aid as possible, since their citizens and local governments bear the social and economic burdens of energy development. Thus, federal assistance to areas affected by energy development can help to "buy" support for a program of national energy independence.

Risk sharing is an objective of impact assistance that might be emphasized in future federal programs. The provisions in the Coastal Energy Impact Program for grants to compensate communities for the loss of environmental and recreational resources is a form of risk sharing. Coastal states can be severely damaged by oil spills that occur off their shores. Possible adverse impacts to coastal eco-systems or the recreation and fishing industries may be risks that states should not have to bear alone. To diminish these threats, the federal government has agreed to share the risks by providing grants to ameliorate some such potential losses. The proposed oil tanker liability legislation (The Federal Tanker Safety and Marine Anti-Pollution Act of 1977) seeks to establish comprehensive liability and compensation for damages from oil spills. It is thus another attempt to ensure that risks of energy development activity are not borne by coastal communities alone.

The objectives of federal impact assistance are not mutually exclusive; programs typically incorporate several objectives at the same time. Perhaps the most important distinction to make is between compensation and inducement on the one hand, and the correction of capital market failures on the other. This clarification ought to shape any federal effort to intervene on behalf of energy impacted areas. The objective of correcting a capital market failure (e.g., "front-end" financing for public facilities) is best served through the provision of loans or loan guarantees, while compensation and inducements suggest grants or direct payments to the affected parties.

Federal compensation to states and localities is a part of most recent attempts to institute federal energy impact assistance. Even though the primary fiscal problem in boomtown areas is capital market failure, federal compensation payments may be a desirable element to include in a federal assistance program in order to gain the full support of state and local officials.

Incentives to Development. Under the Coastal Energy Impact Program, funds are difficult to obtain for the purpose of financing public facilities and services. The intent is to discourage unnecessary growth and development. An overriding concern in the CEIP is that the use of funds may induce growth in the coastal zone in excess of that attendant to energy development. By making grants difficult to obtain for debt service, the office of Coastal Zone Management hopes to create a disincentive to fiscally unsound or unnecessary public facility investments.

There have been many instances in which sewer lines or highways, proposed as necessary to service new development, have in fact generated additional and unplanned growth. Although state governments may see the CEIP restrictions as an impediment to dealing with secondary impact problems, there is some validity to the concerns which initiated the re-
ictions. The question that should be asked, however, is whether making grant monies difficult to obtain is the most effective way of discouraging development. There are some instances in which it is infeasible for a state to borrow additional funds or utilize federal loans (e.g., where there are constitutional limitations on state or local borrowing). In such situations, efforts to clamp down on the use of federal government money would disadvantage some state and localities unfairly. Disincentives to unnecessary growth might be as effectively accomplished through provisions that require a clear demonstration of need for a proposed public facility. Once this need has been demonstrated, along with some evidence that loans are difficult to obtain, grant monies could be made available for financing facilities.

Guaranteeing Impact Aid. Another issue of some importance is whether an affected community or state should be guaranteed federal impact aid at the energy facility permit-granting stage or at some later point. A related issue is whether energy facility project approvals should be tied to the provision of federal assistance.

When an energy company needs local or state approval to commence operations, state and local officials can bargain with the company for the prepayment of taxes in exchange for permit approvals, zoning changes, and so forth. But where the federal government is the primary permitting agency or when the development will take place on federally owned or controlled land, the potentially affected communities have no power to require that impacts be addressed. The federal agency that grants the permit could be required to provide impact aid as part of the project approval process (or it might require the energy company to provide this aid). Affected communities would then be guaranteed that impact assistance was forthcoming.

Aid to Individuals. In considering compensation payments to individuals, the key issue is to what extent the federal government should deal only with local governments while leaving the welfare of individual residents to the decision of the local jurisdictions. While town and county officials are concerned about state interference in the distribution of federal funds, residents of impacted areas are worried that aid to local governments will not actually be used to compensate their individual losses.

In attempting to resolve the question of aid to governments versus aid to individuals, it is important to realize that energy development causes both individual and collective losses. Collective losses occur when publicly financed facilities and services are adversely affected, when the community social structure is disrupted, or when special community social or natural resources are destroyed. Individual losses are hardships experienced at a personal or family scale and may include the loss of shelter, employment, or the option of continuing a preferred lifestyle. Collective losses are best addressed through aid to local governments or to organizations which serve the community as a whole. Individual losses, on the other hand, ought to be remedied by aiding individuals directly.

Disaster Relief is awarded to individuals as one part of a more comprehensive program to assist areas stricken by natural disasters. The Relocation Assistance Program consists almost entirely of earmarked payments to individuals for use in covering moving expenses or the purchase of replacement housing. When only certain members of a community, such as long-term residents, are adversely affected by a project or event, it may make more sense to award aid on an individual basis than to give the local government money to improve or expand public facilities and services. The individual recipient can then use the aid for purposes which serve his individual needs. This is appropriate when the federal objective is to compensate individuals for their losses.

*For example, Skagit County, Washington, approved a zoning change for Puget Sound Power and Light Company’s proposed nuclear power plant in exchange for the prepayment of taxes.
Current debates about national energy policy revolve around the choice of fuel sources and the use of pricing strategies to achieve energy conservation. The OPEC oil embargo and the previous administration's call for American energy independence focused public attention, at least for a short time, on the need to reduce our reliance on imported oil. Recent Congressional debates have underscored the pros and cons of government regulation of gasoline prices, the price of imported natural gas, and the production of "gas guzzling" cars. In the meantime, the siting of energy extraction, conversion, and power generation facilities, which stand to have an equal, if not more dramatic, impact on certain parts of the country and certain groups, have received little if any attention.

Efforts to intensify our reliance on domestic mineral resources (coal and oil shale in the West, natural gas and oil on the outer Continental shelf, uranium throughout the country) will cause hardships for a great many citizens. The more facilities we build, the greater the boombound effects. As the country charts its energy policies for the future, the costs of managing the social and economic impacts of domestic energy development must be taken into account.

We need an approach to facility siting that acknowledges the full range of social and environmental costs attributable to energy development. It is not appropriate to ask the few who bear the side effects of each facility to suffer in silence. To date, this has been our policy. Environmental impact assessment can help to clarify the range of costs associated with particular projects, but we have no efficient means of blocking "bad" facility siting decisions or bolstering "good" ones. The auction process can help in this regard, but a range of legal questions must first be sorted out. Can an auction bind all the residents of a community? Can everyone be forced to support a particular facility if certain levels of compensation are offered? If state governments run the kinds of auctions we propose, will local home rule powers be used to subvert the outcome? Questions of jurisdiction and questions of procedure must be analyzed thoroughly. Our preliminary investigations suggest that the legal hurdles can be jumped, but further study is required.

Even if the auction process makes the most sense, state and local officials may still hold out for unrestricted federal grants to areas likely to suffer the consequences of energy development. Indeed, legislation was recently introduced in the Senate that would provide federal payments to energy-rich states (along the lines of the impact assistance grants available to coastal states affected by offshore oil exploration). Although unrestricted grants may not make economic sense (i.e., they cost more than the total value of the impacts, they do not necessarily reach those who ought to be compensated, etc.), they still have enormous political appeal.

The most substantial barrier to the adoption of siting by auction and our ideas about fair compensation is indifference. Facility siting questions are not high on the national agenda. Each region of the country has had its share of siting controversies, but facility siting has never been viewed as a national question. Only after sites have been selected and adjacent groups have begun to complain, do siting policies make the headlines. By then the fundamental policy questions are obscured and only the "complainers" and not the rest of us are actually threatened. Facility siting certainly has not received the attention it deserves. We ought to broaden the scope of the current energy debate to be sure that siting and impact assistance questions are included.
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