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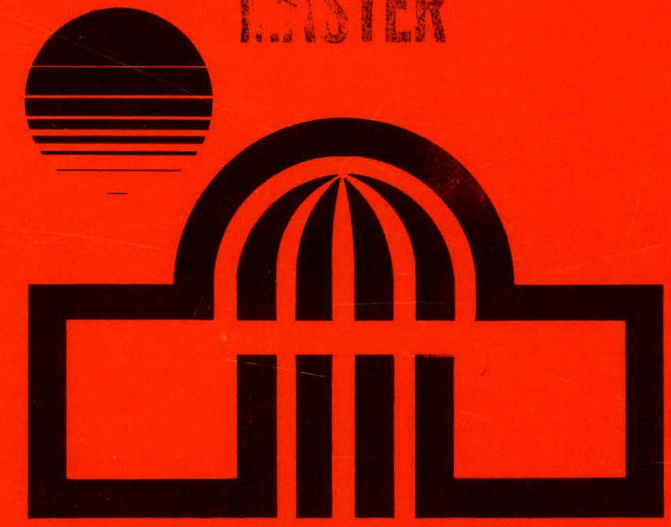
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The Implementation of State Solar Incentives: Land-Use Planning to Ensure Solar Access

Peter Pollock



SERI

Solar Energy Research Institute
A Division of Midwest Research Institute

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Golden, Colorado 80401

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STATE SOLAR INCENTIVES:
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FOREWORD

This report documents work performed in compliance with Contract No. EG-77-C-01-4042, Task No. 5125. The report was prepared by Peter L. Pollock of the Solar Energy Research Institute. This report is a revised part of a larger report entitled "The Implementation of State Solar Incentives: A Preliminary Assessment." The author wishes to acknowledge the extensive research assistance provided by Robert deKeiffer for the preparation of this report and the other reports of this project.



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SUMMARY

State incentives in land-use planning to ensure solar access are examined to determine issues in program design and implementation.

The body of available incentives are reviewed to indicate their structure and purpose. These incentives include broad legislative grants of solar rights, the application of nuisance law to solar collector shading, removal of restrictive covenants or establishment of covenants to protect solar access, provision for privately-negotiated solar easements, and land-use planning and regulation to include passive solar design and provision for active solar collection in land-use development.

State initiatives in the period 1973 to 1978 are cataloged. Most incentives cover either privately negotiated solar easements or enable local solar-related land-use planning and have been instituted in the past two years. As such, this report deals more with program design than implementation.

Case studies in four states (Oregon, California, New Mexico, and Minnesota) are reported on, covering both the nature of the incentive adopted and issues regarding its design and implementation. Oregon is currently engaged in a statewide, mandated local comprehensive planning process which includes consideration of energy conservation and renewable energy sources. California has recently adopted two solar access related bills which address private solar easements, subdivision design, restrictive covenants, and shading by vegetation. New Mexico has established a broad legislative grant of solar rights based on water rights law. And Minnesota has authorized the inclusion of solar energy as a factor in local land use planning and established a private easement procedure.

From the analyses of the four case study states, the following conclusions were drawn:

- Legislation should respond to an actual need or perceived barrier and not just be a demonstration of concern by the state. Some form of solar access protection should be provided, but the remedy should be appropriately scaled to meet the problem.
- Initiatives should be analyzed by each state with an eye toward their compatibility with state politics and political structure. Such choices as enabling versus mandatory or general versus specific programs will depend upon local attitudes and expertise and the level of energy savings desired from solar energy use.
- Legislation should be carefully drafted so as to clearly indicate lines of administrative authority and the basis upon which administrative rulings must be made.
- Coordination of state-level bureaucracies with jurisdiction over land use and energy should be performed early in the adoption of a particular initiative. This is especially important in the transfer

of technical information from the state to the local level.

- In order to assist local jurisdictions in the implementation of state-level initiatives, technical information such as design handbooks, model ordinances and easements, and baseline energy information should be provided as early as possible.

Recommendations for further research are included in Section 5.0.

SECTION 1.0

INTRODUCTION

One of the most intractable institutional problems facing solar energy utilization is ensuring access to the sun's radiant energy for the purposes of heating, cooling, and generating electricity. Although property owners technically have a right to the sunlight falling on their land from directly overhead (which occurs only near the earth's equator), there is no recognized right to sunlight slanting across another property owner's land. Some form (or forms) of solar access protection for solar energy users is needed.

Various incentives related to land-use planning have been developed at the state level to deal with solar access. Solar easements, nuisance law, removal of restrictive covenants, land-use planning and regulation, and broad legislative grants of solar rights have all been proposed as solutions to the problem of solar access. However, actual experience with administration of programs is minimal. Therefore, this chapter deals more with issues of program design than program implementation.

The purpose of this report is to: (1) outline the legal tools that can be used to ensure solar access; (2) catalog state legislation in this area; (3) analyze solar access initiatives in four case study states (Oregon, California, Minnesota, New Mexico); and (4) elucidate several structural issues in the formulation of solar access initiatives.

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SECTION 2.0

REVIEW OF THE AVAILABLE LAND-USE PLANNING INCENTIVES AT THE STATE LEVEL

2.1 BROAD LEGISLATIVE GRANT OF SOLAR RIGHTS

2.1.1. Prescriptive Rights

English common law contains a provision which grants a solar right based on the enjoyment of sunlight over a protracted period of time (a prescriptive right). This provision has not been recognized in this country because it was felt to be inappropriate to the development needs of a rapidly growing nation. This may still be the case. However, a transition to greater use of renewable energy sources may require consideration of such an approach to solar access.

The establishment of a system for acquiring a right to light through prescriptive use is complicated by several serious problems. How long should a solar energy system be in use before a right is established? How should notice be given that a property owner is trying to establish a right? What constitutes a legitimate interruption to the establishment of a solar right? A system which permits a potential solar user to establish a prescriptive right to sunlight only over a protracted period of time (20-27 years), which could be interrupted by their neighbor at any point, seems impractical.

2.1.2 Automatic Right Based on Prior Appropriation and Beneficial Use

Based on concepts contained in western water rights law, a legislature could grant a right to solar access when a solar system is installed. Prior appropriation establishes a priority in time: once a solar system has been established as being in beneficial use (i.e., a collector with some minimum efficiency) no development could take place which interferes with this right. Any obstruction would constitute a public nuisance with remedy by injunction or monetary payment. Rights can be made transferable so that they could be purchased.

This system would expedite the use of solar energy quickly at little financial cost to the state. However, several issues make the feasibility of this approach questionable:

- Altering the balance between solar and property rights may constitute a "taking" of property without just compensation.*

*"Taking" refers to the Fifth Amendment of the US Constitution which states in part: "No person shall be. . . deprived of life, liberty, or property, without due process of law: nor shall private property be taken for public use, without just compensation." Many state constitutions have similar provisions. (Environmental Planning: Law of Land and Resources - Rietze, 1974)

- Priority in time is stressed so that there may be a premature use of solar energy systems in order to establish a right.
- Development plans would be disrupted if no priorities other than time are established (conceivably a homeowner could install a solar hot water heater that blocks development of an apartment house or hospital).¹

2.1.3 Solar Use Permits

Rather than an automatic granting of solar rights, permits or licenses could be used to control their use. This granting of permits could be limited to certain areas and types of solar systems and could be contingent upon a hearing process. Although this system addresses the question of development priorities, premature use and the "taking" issue are still problems. Case-by-case review would be costly and, without standards and criteria, could be subject to changes of arbitrariness.

2.1.4 Conclusion

In sum, broad legislative grants of solar rights would seem to be questionable based on the issues of taking and inflexibility. Only one state, New Mexico, has attempted to implement such a system. The New Mexico Solar Rights Act, based on water rights law concepts, will be analyzed in the case study section.

2.2 NUSIANCE LAW

Public nuisance law deals with substantial interference with public health, safety, or welfare; therefore, jurisdictions could declare the shading of solar collectors to be a public nuisance. This would remove the burden from the individual solar user who might try to declare shading a private nuisance. Karin Hillhouse has pointed out that to succeed in a private nuisance suit, the plaintiff must show a greater hardship than would be caused by enjoining the defendant's activity.² This may be a standard solar energy users could not satisfy. In addition, courts seldom call a particular use of property a nuisance if the legislature has authorized that use through zoning laws.³

Even after the declaration of shading as a public nuisance, several problems still exist:

¹Miller, Alan S., et al., Solar Access and Land Use: State of the Law, 1977, Environmental Law Institute for National Solar Heating and Cooling Information Center, Rockville, Maryland.

²Ibid., p. 7.

³Ibid., p. 6.

- Lawsuits may be necessary in each individual case to prove nuisance.
- Owners of restricted property may deserve compensation and none may be available.
- Damages and not injunctive relief may be available in only half of U. S. jurisdictions.
- A nuisance suit before the installation of a solar system may be dismissed as being premature (or not "ripe for decision").⁴

The State of California has just instituted a public nuisance approach to controlling vegetation that may shade solar collectors. The California Solar Shade Control Act will be discussed in Section 4.0.

2.3 RESTRICTIVE CONENANTS

Restrictive covenants are promises involving the use of land found in deeds. Frequently they control aesthetics and, as such, can be obstacles to the use of solar energy. State jurisdictions can declare any new covenants restricting solar use void, and thus unenforceable by the courts. In addition, the state legislature can make a statement of public policy that any covenants which unduly restrict solar energy use are not in the public interest; courts may be able to declare covenants void and unenforceable retroactively, depending upon constitutional restrictions. California's Solar Rights Act of 1978 contains such provisions and will be analyzed in Section 4.0.

Restrictive covenants can also be created that guarantee solar access. They would be similar in wording to easements. In establishing such restrictive covenants, notice to all involved property owners is critical to prevent challenges on the basis of due process.

Restrictive covenants are mostly applicable to new residential neighborhoods. Large-scale developments could be required to provide such agreements; a developer's lawyer can easily add language to deeds at little cost. Even though an individual landowner does not directly participate in developing the covenant, they would have standing to sue if they were harmed by a breach of contract. Extensive legal costs and delays may then follow.⁵

2.4 PRIVATE ACQUISITION OF SOLAR EASEMENTS

A solar easement is:

⁴Ibid.

⁵Ibid.

. . . an agreement between a solar energy system owner and his neighbor that the neighbor will not use his property in a way that will shade the solar collector.⁶

This approach minimizes government involvement and does not interfere with existing property rights. Privately negotiated solar easements are probably the most politically acceptable approach to guaranteed solar access, but public requirements regarding extensive solar utilization may not be met fully through discrete private actions.

Authority probably already exists for establishing solar easements in most, if not all, states. However, legislation authorizing privately negotiated solar easements clears any doubt, establishes standardized procedures, and gives notice to the citizenry that such a legal mechanism is available. Typical legislation includes the following provisions:

- requirements for the same conveyancing and instrument recording as for other easements;
- requirements that valid easements contain angles to which the easement extends and terms and conditions of granting and termination;
- means of compensating the solar energy system owner in case of interference; and
- provisions for compensating the property owner subject to the easement for maintaining such an easement.

Several problems limit the usefulness of privately negotiated solar easements:

- They are voluntary in nature.
- Enforcement may involve long and costly court proceedings.
- There may be resistance among neighbors to seek legal agreements, however, if a new neighbor moves in, protection will be lacking.
- The cost of the easement may be an unjustified windfall to the burdened landowner who didn't plan to obstruct the solar collector anyway.

⁶Protecting Solar Access, Report of the Governor's Special Study Committee on Solar Rights, Office of State Planning and Energy, Department of Administration, State of Wisconsin, Madison, Wisconsin, April 1978.

- Cost of easements to the solar energy system owner may be high, especially in cases where multiple easements are required.

Despite these difficulties, legislation authorizing privately negotiated solar easements are a relatively simple and noncontroversial measure states can take to mitigate solar access issues. Easements can effectively be used in conjunction with other implementation measures such as zoning to provide insurance against changing conditions. Two states with provisions for private solar easements, Minnesota and California, are discussed in Section 4.0.

2.5 PUBLIC ACQUISITION OF SOLAR EASEMENTS

In order to address the issue of incomplete coverage raised previously, the legislature could give authority to local governmental units to acquire easements by negotiated agreement or, if necessary, by eminent domain.* The local government could act on its own initiative or upon petition by individual landowners. Eminent domain proceedings are applied for reasons of public use, and solar energy utilization may not be a public use in all circumstances.

Public acquisition of solar easements can be handled on a broader scale than private easements and exercised as a part of other local land-use tools. Costs of the easements and administration may be high, however, and if a landowner contests the acquisition or amount of compensation, numerous judicial appeals could result.⁷

The California Solar Rights Act of 1978 enables local jurisdictions to require the granting of solar easements in new subdivision design. This provision will be discussed in Section 4.0.

2.6 LAND-USE PLANNING AND REGULATION

In most states the legislature has granted local jurisdictions the authority to regulate land use based on the promotion of public health, safety, morals, and general welfare. Typically, this regulation is in the form of zoning and standards regarding building height, setback from streets and neighbors, lot size and coverage, permitted accessory uses, building orientation, and certain aesthetic controls. Through enabling legislation, states can grant statutory authority to local jurisdictions to regulate land use to promote solar access. Zoning has a presumption of validity which will aid in judicial acceptability of this approach.⁸ Legislation enabling a zoning approach should be flexible,

*Eminent domain is the right of a government to take private property for public use by virtue of the superior dominion of the sovereign power over all lands within its jurisdiction. (Webster's New Collegiate Dictionary, 1977).

⁷Ibid.

⁸Phelps, Dennis and Yoxall, Richard, "Solar Energy: An Analysis of the Implementation of Solar Zoning" in Washburn Law Journal, Vol. 17, 1977, pp. 147-162.

specific enough to give ample notice to landowners, and include a stated purpose of promoting the use of solar heating, cooling, and electricity generation.

Promoting solar access through land-use regulation provides a broader approach than private easements (also saving private landowners the expense of easements); and creates a procedure for making tradeoffs between solar utilization and development pressures. Some potential problems with this approach are:

- One expert estimates that only 5,000 out of 60,000 jurisdictions with power over land use exercised zoning powers in 1974.⁹ However, these 5,000 jurisdictions probably represent the great percentage of total population within urbanized regions where access is most critical.
- Zoning for the purpose of ensuring solar access may diminish the value of some property. Whether or not this will be considered an unjust "taking" of property without compensation will likely vary with state attitudes.
- There will be an expense associated with redesigning plans, especially for built-up areas.
- Local politics and special interests may create uncertainty with a high potential for variances or amendments to the regulations.
- Designing land uses for solar utilization may create conflicts with other goals such as densification to reduce reliance on automobiles.
- Zoning regulations usually apply only to new development or the point when buildings undergo extensive renovation.

Oregon is presently involved in a statewide mandated local comprehensive planning process which includes energy conservation measures. Minnesota has passed legislation allowing local jurisdictions to include solar access considerations in planning. California has mandated that local governmental units include passive or natural heating and cooling in new subdivision design "to the maximum extent feasible."

⁹Miller, et al., op cit. p. 19.

SECTION 3.0

STATE LAND-USE PLANNING INITIATIVES IN THE PERIOD 1973-1978

Some 14 states have enacted land-use planning provisions to ensure solar access. Table 3-1 contains a summary of state initiatives, including the year enacted and the chapter number.

Most of this legislation has been passed in the past two years. Oregon's 1973 initiative dealt generally with land-use planning and only included energy considerations in 1975. Colorado was the first state to enable privately negotiated solar easements in 1975.

The majority of initiatives have dealt with solar easements. This is due in part to their political acceptability and low cost to government. Enabling legislation to include solar access provisions in local land-use planning is the next most popular incentive. Once again, the political impact is low since localities can engage in solar-related land-use planning at their own initiative. New Mexico's solar rights law (discussed in Section 4.0) represents a significant departure from these last two approaches. As a broad, mandatory legislative grant of solar rights, it is conceptually simple but administratively complex. Another significant departure is represented by two recently enacted bills from California. In addition to a typical solar easement provision, specific sections deal with shading by vegetation, removal of restrictive covenants, and passive design in subdivisions. This use of specific implementation tools oriented to local conditions is discussed in the case study analysis.

Table 3-1. STATE INITIATIVES TO ENSURE SOLAR ACCESS

Colorado	1975	CH 326	Creates Solar Easements
California	1978	CH 1154	Creates Solar Easements
			Removes Restrictive Covenants
			Mandates Passive Design in Subdivisions
		CH 1366	Creates Solar Shading/Nuisance Provisions
Connecticut	1978	PA 314	Enables Solar Access in Planning/Zoning
Florida	1978	CH 309	Creates Solar Easements
Georgia	1978	A 1446	Creates Solar Easements
Idaho	1978	CH 294	Creates Solar Easements
Kansas	1977	CH 227	Creates Solar Easements
Maryland	1977	CH 934	Creates Solar Easements
			Enables Solar Access Restrictions
Minnesota	1978	CH 786	Creates Solar Easements
			Enables Solar Access Considerations in Planning/Zoning
New Jersey	1978	A 561	Creates Solar Easements
New Mexico	1977	CH 169	Creates "Sun Rights" Provisions
North Dakota	1977	CH 425	Creates Solar Easements
Oregon	1973	ORS 197	Mandates local comprehensive land use planning (which includes consideration of renewable energy sources).
Virginia	1978	CH 323	Creates Solar Easements

Solar Access: Access to incident sunlight necessary for solar utilization

Solar Easement: Any easement defining solar skyspace for the purpose of ensuring adequate exposure for a solar energy system.

SECTION 4.0

THE EXPERIENCE OF IMPLEMENTING LAND-USE PLANNING INCENTIVES IN SELECTED STATES

4.1 THE CHOICE OF CASE STUDY STATES

In order to develop a perspective on the implementation of solar access provisions at the state level, four case study states were selected for analysis: Oregon, California, New Mexico, and Minnesota. SERI personnel visited each state and telephone interviews were conducted with the principal implementors of the incentives (see bibliographies). In addition, contacts were made at the local level to determine what problems may exist in implementing legislative provisions.

Oregon is currently engaged in a statewide, mandated local comprehensive planning process which includes consideration of energy conservation and renewable energy sources. California has recently adopted two solar access-related bills which address private solar easements, subdivision design, restrictive covenants, and shading by vegetation. New Mexico has established a broad legislative grant of solar rights based on water rights law. And Minnesota has enabled the inclusion of solar energy as a factor in land-use planning and established a private easement procedure.

The next subsection contains an analysis of programs in land-use planning to ensure solar access. State material is used for purposes of illustration only. In the succeeding subsection, a summary is presented of each state's particular incentive followed by a listing of state-specific issues regarding implementation. A bibliography of materials used in this analysis is presented at the end of this report.

4.2 ANALYSIS OF PROGRAMS

From the analyses of the four case study states, several issues emerge concerning the design and implementation of programs designed to provide solar access protection:

- Promoting solar energy use is, in general, a popular political stance and state legislators seem willing to pass legislation. However, we found a large gap between legislative intent and action at the local level. In Minnesota, some regional planning authorities were unaware of recent legislation mandating the consideration of solar access in regional plans. An Oregon provision often quoted as a pioneering effort in solar-related land-use planning (Chapter 153 of Oregon Laws of 1975) was repealed when the planning law was rewritten. Local-level planners did not know that it was once in force and that it had been removed. Legislation should respond to an actual need or perceived barrier and not just be a demonstration of concern by the state. In a rush to pass legislation, more harm than good may be accomplished in the name of solar

energy. The lack of solar access is widely perceived to be a barrier to solar utilization, especially by such important actors as lending institutions. Some form of legal guarantee should be provided, but the remedy should be appropriately scaled to meet the problem.

- A broad range of land-use initiatives to ensure solar access are available. They range from enabling legislation to include solar access considerations in local land-use planning to mandatory programs, such as California's inclusion of passive solar design in subdivision maps. The choice of mandatory versus voluntary programs depends largely on local acceptance, but it is also related to the speed with which programs are instituted and the overall energy savings desired. In Oregon's mandatory land-use planning process, the quality of discrete local efforts may not be high, but the local governments will have been sensitized to the issues and will have established a basis upon which to engage in further planning efforts. A series of other considerations in the choice between mandatory versus voluntary programs to ensure solar access are presented in Table 4-1. Initiatives can also be seen as general, such as in local comprehensive planning, or specific, as in the case of privately negotiated solar easements. While local comprehensive planning is an ongoing process into which solar factors can be injected, specific measures may be cheaper, quicker, and more uniform in coverage. It may take a relatively long time for local planners in Oregon to include passive measures in subdivision design, but California's recent legislation will accelerate adoption of this strategy in that state. At the same time, a top-down planning approach does little to develop expertise at the local level and tends to discourage innovative approaches. Table 4-2 contains a list of considerations in adoption of specific versus general initiatives to ensure solar access. In general, initiatives should be analyzed by each state with an eye toward their compatibility with state politics and political structure.
- Unclear drafting of legislation can leave doubts as to lines of administrative authority and the basis upon which administrative rulings must be made. California legislation regarding passive solar design in subdivisions calls for inclusion of passive "to the maximum extent feasible." Without administrative rulings, no clear standard exists. New Mexico's Solar Rights Act contains a definition of a solar collector that could include south-facing windows not intended as a part of a passive heating system. In the same act, it is clearly intended that authority for the administration of solar rights reside at the local level; however, the language is unclear. Legislation should be carefully drafted. Definitions are important, especially for such basics as what a solar collector is. Many legislatures have faced this problem and several models exist. Action enforcing provisions should be explicit so that a potential solar user is aware of who has what kind of legal authority.

Table 4-1. CONSIDERATIONS IN THE SELECTION OF MANDATORY VERSUS VOLUNTARY PROGRAMS TO ENSURE SOLAR ACCESS

<u>Mandatory</u>	<u>Voluntary</u>
<ul style="list-style-type: none">● Overall energy reduction presumably greater	<ul style="list-style-type: none">● Those localities interested in energy conservation and solar energy will initiate action
<ul style="list-style-type: none">● Energy is an issue of state-wide concern	<ul style="list-style-type: none">● Low local level of expertise does not justify mandatory requirements
<ul style="list-style-type: none">● Common format facilitates transfer of experience and information	<ul style="list-style-type: none">● Gives more time for experimentation in order to develop a better body of information
<ul style="list-style-type: none">● Addresses issues that tend to span jurisdictional boundaries	<ul style="list-style-type: none">● Lower cost to local and state government
<ul style="list-style-type: none">● Mandatory program implies state funding, monitoring, evaluation	<ul style="list-style-type: none">● Does not require state bureaucracy to monitor local activity
<ul style="list-style-type: none">● Even application implies fairness	<ul style="list-style-type: none">● Less controversial and therefore can be adopted sooner
<ul style="list-style-type: none">● Creates timetable and objectives	<ul style="list-style-type: none">● Better adapted to local needs and responses
<ul style="list-style-type: none">● Initiates action	
<ul style="list-style-type: none">● Legal uniformity	

Table 4-2. CONSIDERATIONS IN THE SELECTION OF SPECIFIC VERSUS GENERAL INITIATIVES TO ENSURE SOLAR ACCESS

<u>Specific</u>	<u>General</u>
<ul style="list-style-type: none">● May be cheaper, quicker, more uniform	<ul style="list-style-type: none">● Provides for ongoing planning process
<ul style="list-style-type: none">● May not respond to local conditions, i.e., shading bill in hot, humid areas	<ul style="list-style-type: none">● Responsive to local conditions, goals
<ul style="list-style-type: none">● May not require detailed studies or plans for effective implementation	<ul style="list-style-type: none">● Spurs creativity, innovation approaches
<ul style="list-style-type: none">● Assures that some type of implementation activity will actually take place	<ul style="list-style-type: none">● Longer startup time may be required to develop specific implementation tools
<ul style="list-style-type: none">● Provides for citizen enforcement through judicial review	<ul style="list-style-type: none">● Educates local citizens, planning commissions, etc.
<ul style="list-style-type: none">● Establishes a precedent which may initiate further implementation strategies	<ul style="list-style-type: none">● Addresses energy related issues in other sectors, i.e., limiting urban growth to encourage densification which leads to less transport-related energy consumption
<ul style="list-style-type: none">● Publicizes solar energy more quickly	

- Land-use planning to ensure solar access is a multidisciplinary activity, involving elements of land-use and energy planning. For that reason, several bureaucracies can be, and probably should be, involved. Coordination is, therefore, of critical importance. In Oregon, the Land Conservation and Development Commission is responsible for the overall local land-use planning process. The Department of Energy has a great deal of expertise in the areas of energy conservation and land-use planning. Cooperation between these two agencies has come late in the planning process, at the expense of not having distributed valuable technical information to local planners in a timely fashion. Coordination of various state-level bureaucracies should take place early on, with either an energy agency or land-use planning agency taking the lead.
- Until recently, energy has not been an area of concern to most local land-use planners. Energy conservation and decentralized energy systems are issues uniquely suited to action at the local level. However, the lack of financial and technical resources is a barrier to effective action. In Minnesota, local-level planners were waiting until model ordinances were developed before initiating action in their own jurisdictions. The quality of energy conservation elements in local Oregon comprehensive plans was varied, depending on the interest and knowledge of consultants or staff. In order to assist local jurisdictions in the implementation of state-level initiatives, technical information such as design handbooks, model ordinances and easements, and baseline energy information should be provided as early as possible. This type of information is presently available and more definitive work is being presently prepared (forthcoming solar access publications by the American Planning Association and the Environmental Law Institute).

4.3 STATE-BY STATE ANALYSIS

The following analyzes land-use planning incentives to ensure solar access in the four case study states. A summary of the particular state's incentive is followed by a list of several issues involved in program design and implementation.

4.3.1 Oregon

Oregon is currently engaged in a statewide, mandated local comprehensive planning process which was enacted in 1973 in the form of the Oregon Land Use Act (ORS 197). Major amendments were made in 1977 which clarified agency responsibilities and procedures to be used in reviewing local plans. A Land Conservation and Development Commission (LCDC) was created to adopt statewide land-use planning goals and guidelines to be used in the formulation of city and county plans. Completion of the planning process is slated for July 1980. A Department of Land Conservation and Development (DLCD) was also formed to

review local comprehensive plans and provide coordination and planning assistance. Nineteen goals with guidelines were adopted effective January 1, 1975. These range in subject matter from recreation and housing to ocean resources and forest lands. Goal 13 specifically addresses energy conservation:

Goal: to conserve energy. Land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles.¹⁰

A series of six guidelines follow, including the following:

Whenever possible, land conservation and development actions provided for under such plans should utilize renewable energy sources.¹¹

While originally intended to be mandatory in nature, the guidelines were made advisory after objections from local jurisdictions. It is not clear how many comprehensive plans will, therefore, address the guidelines. DLCDC cannot interpret the goals other than by the goal language itself. Consideration of land-use planning for renewable energy sources, therefore, is not a mandatory part of the comprehensive plan.

A related goal, number five, requires an inventory of natural resources, noting their location, quality, and quantity. This inventory is applicable at the county level. Only those renewable energy sources unique to certain areas, e.g., geothermal or wood, will apparently be inventoried.

Issues. Oregon is presently engaged in its first statewide planning effort. Considerable tension exists between what is regarded as an overriding state need for land-use planning and local desire for autonomy. LCDC has been and is subject to political attack (due to resistance to planning in general) which may limit its impact.

Certain goals are receiving greater emphasis than energy conservation, in part because they set clearer standards for local planning. However, the total package of goals may all serve to reinforce conservation concepts. Urban growth boundaries, agricultural land preservation, economic development, and housing are perceived as being the major goals. Some eight goals mention energy considerations, so it is possible that energy concerns will be addressed in the context of other goals.

There is a lack of technical information on energy conservation techniques for local planners. The Oregon Department of Energy is in the process of preparing a handbook and certain cities, notably Portland, have been engaged in

¹⁰Statewide Planning Goals and Guidelines, Department of Land Conservation and Development, Salem, Oregon, undated.

¹¹Ibid.

sophisticated energy conservation efforts. At issue is the transfer of this information. Local planners and DLCD itself are concerned that technical information deriving from LCDC would be perceived as additional requirements from the state.

Since guidelines are now considered advisory, there is little basis for the rejection (or approval) of local plans based on vague goal language. In order to deal with a large number of plans submitted for acknowledgement, the DLCD staff has prepared a draft "checklist." This checklist reflects the extent to which there is a lack of criteria to judge local compliance.

Three criteria are established with three possible responses: yes, no, and unclear:

- Does the plan contain policies addressing energy conservation?
- Do the policies take advantage of energy conservation opportunities present in the jurisdiction?
- Are there implementation measures to carry out the policies?

Since expectations at the state level regarding the completeness of local planning efforts are low, there is a need for ongoing plan revision and review as energy conditions and the level of available technical information change. The concept of post-acknowledgement procedures is now receiving attention by LCDC. Many local jurisdictions who consider themselves "innovators" see the need for project grants and immediate marketing information rather than continued planning.

4.3.2 California

California has recently adopted two bills related to solar access, the Solar Shade Control Act and the California Solar Rights Act of 1978, effective January 1, 1979. This analysis will only be able to outline the provisions of each act and address implementation issues in a speculative manner.

The Solar Shade Control Act is an attempt to deal with the issue of solar energy system shading by vegetation. It contains the following provisions:

- Any person owning or in control of property is prohibited from placing any new vegetation or allowing vegetation to grow that would shade more than 10% of a solar collector surface from the hours of 10 a.m. to 2 p.m.
- Replacement of an existing tree or shrub is allowed.
- The 10% maximum shading is figured over the entire year, not just at the point of installation or at a specific date.
- Trees planted, grown, or harvested on timberland or on land devoted to the production of commercial agricultural crops are exempt.

- A person who utilizes vegetation as a part of a passive or natural heating and cooling system which impacts a neighboring active solar system can be declared exempt if they can show a greater net energy savings than the active system impacted.
- After a notice is filed by a district, city, or prosecuting attorney, a "shader" has 30 days in which to bring his property into compliance. Maintaining vegetation which shades a solar collector is a public nuisance and is subject to a fine of \$500/day.
- Any city or county can adopt an ordinance exempting their jurisdiction from the provisions of the Act.

The California Solar Rights Act of 1978 contains several provisions dealing with solar access, including an easement procedure and provisions voiding restrictive covenants that restrict solar energy use and precluding legislative bodies from enacting ordinances restricting or prohibiting the use of solar energy systems; a requirement that tentative subdivision maps provide, to the maximum extent feasible, for future passive or natural heating or cooling opportunities; and an authorization to local legislative bodies to include by ordinance a requirement that solar easements be dedicated as a condition to approval of a subdivision map. Specific requirements for these provisions are as follows:

Easements: The law establishes minimum contents of a solar easement, including a description of the dimensions of the easement expressed in measurable terms, the restrictions placed upon vegetation, structures, and other objects which may obstruct sunlight, and the terms or conditions of revision or termination. The cost of the easements will be considered as part of the total solar energy system cost for the purpose of the tax credit.

Restrictive covenants: It is the policy of California to promote and encourage the use of solar energy systems and to remove obstacles thereto. Any restrictive covenant which effectively prohibits or restricts the installation or use of a solar energy system is void and unenforceable. "Reasonable" restrictions which do not significantly increase the cost of the system or significantly decrease its efficiency and which allow for comparable alternative systems are allowed.

Land-use planning: Legislative bodies are precluded from enacting ordinances restricting or prohibiting the use of solar energy systems. Tentative subdivision maps shall "provide to the extent feasible, for future passive or natural heating or cooling opportunities." The legislative body can require by ordinance the dedication of easements to all lots in the subdivision to ensure access to solar energy. The builder/developer has the choice whether to claim the tax credit themselves or pass it on to the subsequent homeowner.

Issues. The Solar Shade Control Act is an attempt to deal with the problem of solar energy system shading by vegetation only. A great deal of controversy exists regarding statewide regulation of vegetation when trees and shrubs can be effectively used for cooling purposes, thus saving energy, in certain regions within the state.

The basis for making such a tradeoff is established within the legislation, but without guidelines an individual is left with the difficult task of proving greater benefits from shading than without. Most legislative bodies in regions with significant energy benefits from shading will probably opt out of the Act. Proposition 13 has reduced local funds available for enforcement of such provisions, thus further making the opt-out provision more attractive.

In many of the provisions outlined above, (the Shading Control Act, the removal of restrictive covenants, and the acquisition of solar easements) the initiative is left to the individual homeowner. The potential solar users' awareness of the legal remedies available to them and the manner in which such remedies operate will be critical to implementation.

Legislation regarding land use calls for the provision "to the maximum extent feasible" of future passive solar design in tentative subdivision maps. No specific mandate is contained within the legislation for the development of guidelines to aid local planners in such design. Examples are contained within the legislation and a definition of "feasible" given, but in the absence of workbooks, training programs, etc., the ability of local planners to meet the intent of this section is uncertain.

Rather than a general approach, (as is being used in Oregon and Minnesota) California is designing specific programs for implementation at the local level. Local planning and implementation is a slow process and the provision of these specific programs may accelerate this.

Dedication of solar easements within subdivisions may take some time to be established as common practice. In 1965, California enabled local legislatures to require the dedication of open space within subdivisions. Not until several jurisdictions had gained experience with the concept did the practice become widespread.

The Solar Rights Act contains a section that declares that in the event a single provision is declared unconstitutional the rest of the act shall stand. This is because there is some question whether the state has the authority to declare existing restrictive covenants (which are essentially agreements between private parties) void and unenforceable.

4.3.3 Minnesota

The Minnesota Energy Agency's 1978 Omnibus Energy Bill (Laws 1978, Chapter 786 signed April 5, 1978) contains several amendments to include solar energy as a factor in land-use planning and establishes a solar easement procedure.

Planning in Minnesota is performed at the county, municipal, regional, and metropolitan levels. Variations in the provision of solar access in land-use planning exist at each level:

County planning

- Ordinances to protect and encourage solar access are allowed.
- County boards of adjustment may, when considering variances, deem inability to use solar energy as a "hardship."

Municipal planning

- Ordinances to protect solar access are authorized.
- Municipal boards of appeals and adjustments may consider that "undue hardship" includes inadequate solar access.
- Subdivision regulations may prohibit, restrict or control development to assure solar access
- For subdivision variances unusual hardship includes inadequate solar access.

Regional development commissions

- In comprehensive development plans, each region shall recognize needs such as solar access.

Metropolitan governments

- Each metropolitan area regional planning and development commission may include methods for protecting and assuring solar access.
- The comprehensive plan prepared by each local governmental unit within a metropolitan area shall include an element for protection and development of solar access.

The other solar access provision of the 1978 Minnesota Omnibus Energy Bill is a procedure for the establishment of private solar easements.

- The easement must be transferred in writing and must be recorded at the county recorder's office.
- The easement runs with the land.
- A legal document must include: real property descriptions for the benefitting and subject property; a definition of the solar angles that are to be included; any conditions of sale or transfer; and any compensation that is to be granted for maintaining the easement, and/or in case of default.

- Any depreciation caused by the solar easement can be deducted from the subject property owner's property tax assessment but will not be considered as an addition to the benefitting property owner.
- A solar easement may be enforced by injunction or proceedings in equity or other civil action.

Issues. The legislation affecting metropolitan governments inadvertently amended an outdated section of the law pertaining to the Twin Cities Metropolitan Commission, predecessor to the Twin Cities Metropolitan Council. Therefore, there is no legislation which either requires or specifically enables the Metropolitan Council to plan for solar access. However, since the 195 local governmental units within the Council (representing half the state's population) are required to plan for solar access, the Council is providing assistance. Local comprehensive plans will be submitted to the Council for review and approval by July 1, 1980. Amendments at the state level correcting the situation are not immediately forthcoming due to a lack of funds and the promise of action at the local level.

The provisions to include solar access in county and municipal planning are considered initiating actions. Most areas are holding back until model ordinances are developed. The Minnesota Energy Agency is requesting funding to develop model ordinances and initiate "pilot" programs. County and municipal solar access provisions are in terms of zoning and subdivision regulations rather than general planning as is the case for regional development commissions and metropolitan governments. Therefore, there is a split between the specific versus general approaches within the state of Minnesota.

Neither of the two counties covering the Minneapolis/St. Paul area had any solar easements on record. This area represents approximately 50% of the state population. This may reflect a low level of solar use in this region, but there may also be a problem in the transfer of information about the availability of this legal mechanism to individual property owners.

4.3.4 New Mexico

One approach to ensuring solar access is to base legislation on other areas of natural resources law. Water law has been advanced as analogous to solar rights because both resources are used (rather than captured or sold) and are renewable.¹²

In 1977, New Mexico passed the Solar Rights Act (Laws of 1977, Chapter 169) in which the legislature "declares that the right to use the natural resource of solar energy is a property right." A "solar right" means a right to an unobstructed line-of-sight path from a solar collector to the sun, which permits radiation from the sun to impinge directly on the solar collector.

¹²Miller, et al., op cit. p. 17.

Two concepts borrowed from water law are used: beneficial use and prior appropriation. Beneficial use "shall be the basis, the measure, and the limit of the solar right" in the regulation of disputes over the use of solar energy where practical. Prior appropriation means that priority in time shall have the better right except that legislatures may ordain that "a solar collector user has a solar right even though a structure or building located on neighborhood property blocks the sunshine from the proposed solar collector site." Solar rights are transferable. ". . . Permit systems for the use and application of solar energy shall reside with county and municipal zoning authorities."

Issues. Loose legislative drafting has raised more questions than are answered in the Act. At this point it is unclear whether amendments to the Act will resolve internal inconsistencies and issues of implementation. If not, a new approach will be necessary. Judicial rulings are also seen as important to the bill's definition.

The definition of solar collectors was intended to avoid the problem of "solar toys." However, the owner of a building with a substantial amount of south-facing glass, while not intended as a part of a solar energy system, apparently could declare a solar right.

How is a solar right established? The legislature's intent was that administration would occur at the local level, but the Act's language is unclear on this point. Only a few local jurisdictions engage in zoning, although there is a statewide mandatory building code. The definition of beneficial use only mentions that it be the "measure and the limit." A possible interpretation is that a solar right has been broadly granted and only its limit is to be interpreted.

How are tradeoffs made? Prior appropriation is currently the only mechanism to determine the "better" right. Conflicts may arise where a single landowner can block development of what is considered a "better and higher" use of land. Zoning is seen as a solution to this conflict where some areas may be declared off-limits to solar rights provisions, such as the central business district. Such a condition is not provided for within the Act and whether a local jurisdiction can enact solar zoning provisions which are less strict than the state solar rights standard is questionable.

How extensive should the solar right be? In general, the more extensive the solar right, the greater the infringement on property rights. New Mexico provides for a 100% solar right: all radiation that hits the solar collector is protected. A constitutional test may be forthcoming in New Mexico. More limited approaches may be advisable, such as defining a time horizon and a small percentage of collector area permitted to be shaded.

In order to rapidly establish a solar right there may be premature use of solar energy systems.

SECTION 5.0

CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

From the analyses of the four case study states, the following conclusions were drawn:

- Legislation should respond to an actual need or perceived barrier and not just be a demonstration of concern by the state. Some form of solar access protection should be provided, but the remedy should be appropriately scaled to meet the problem.
- Initiatives should be analyzed by each state with an eye toward their compatibility with state politics and political structure. Such choices as enabling versus mandatory or general versus specific programs will depend upon local attitudes and expertise and the level of energy savings desired from solar energy use.
- Legislation should be carefully drafted so as to clearly indicate lines of administrative authority and the basis upon which administrative rulings must be made.
- Coordination of state-level bureaucracies with jurisdiction over land use and energy should be performed early in the adoption of a particular initiative. This is especially important in the transfer of technical information from the state to the local level.
- In order to assist local jurisdictions in the implementation of state-level initiatives, technical information such as design handbooks, model ordinances and easements, and baseline energy information should be provided as early as possible.

Considering each of the land-use planning incentives outlined in Section 2.0, the following recommendations for further research are made:

Broad Legislative Grant of Solar Rights. Solar access protection must take a form that balances solar rights with property rights. As was seen in New Mexico, solar rights can be protected to such an extent so as to potentially halt development in some cases. In considering the adoption of a solar rights approach, it may be best to distinguish between various land-use patterns and the extent of solar access protection required.

There is probably sufficient, shade-free collector area within suburban and rural neighborhoods, although shading by vegetation and siting buildings to take advantage of passive design are of concern. Central business districts and high density residential areas may be unsuitable for conventional solar systems (flat-plate collectors) and solar access guarantees may unduly restrict development. In addition, other land-use goals such as energy conservation are served by establishing centers with high density commercial and

residential development. More needs to be learned about the availability of shade-free collector area in different land-use patterns. Given this information, a better match can be made between the extent of solar access protection and the type and intensity of development.

Nuisance Law. Regulation of vegetation to prevent solar collector shading is a controversial approach. There are many benefits from vegetation (including wind screening, beauty, noise reduction, absorption of pollutants, food production, and shading itself) that need to be reconciled with the need for shade-free collector area. Climatic regions where shading by vegetation does not provide energy conserving benefits may be the only places in which this approach is justified. Classifying collector shading by vegetation as a public nuisance means that criminal proceedings are used. Are there approaches to the problem of shading by vegetation that can recognize the benefits of shading, protect solar collectors, and avoid the use of criminal proceedings?

Restrictive Covenants. In areas where zoning is not practiced, restrictive covenants are extensively used to control the use of land. What issues face the retroactive removal of restrictive covenants and the addition of new covenants protecting solar access?

Solar Easements. Privately negotiated easements are already in use. This activity should be monitored in order to address three issues: (1) cost; (2) any difficulties with multiple easements; and (3) coverage. High cost, the need for multiple easements, and insufficient coverage would argue for a more comprehensive approach. But if private negotiation is found to be working, government intervention may not be called for.

Land-Use Planning and Regulation. State enabling legislation permitting local jurisdictions to include solar access considerations in local land-use planning is a relatively non-controversial procedure. In states where this has occurred, how many jurisdictions are actually including solar factors in land-use planning? If the number is small, is it a lack of interest or a lack of information? The provision of technical information or methods may aid local planners. Who should provide this information? Will information about land-use planning for solar access prepared at the national level be applicable to local-level problems? What sources are trusted by local-level planners and decision makers?

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APPENDIX A
INDIVIDUALS INTERVIEWED

California

Telephone Interviews:

Gregg Wheatland, Legal Council, California Energy Commission.

Tom Willoughby, Consultant, Assembly Committee on Resources, Land Use and Energy.

Wayne Parker, Deputy Director, Solar Cal.

Aggie James, Executive Secretary, California Solar Energy Industry Assoc.

Bill Keiser, Legal Counselor, League of California Cities.

Personal Interviews:

Karin Nardi, Consultant, Assembly Committee on Resources, Land Use and Energy: Sacramento, California, (August 4, 1978).

Minnesota

Telephone Interviews:

Mark Monson, Energy Technical Analyst, Minnesota Energy Agency, St. Paul, (September 26, 1978 and January 15, 1979).

Paul Smith, Environmental Planner, Metropolitan Council, St. Paul, (September 27, 1978).

Peter Tripec, Research Analyst, League of Minnesota Cities, St. Paul, (September 27, 1978).

Suzanne Stewart, Legislative Analyst, Minnesota Energy Agency, St. Paul, (September 29, 1978).

John Gostivich, Researcher, Minnesota House Energy Committee, St. Paul, (October 5, 1978).

James P. Uttley, Local Planning Assistance, Twin Cities Metropolitan Council, St. Paul, (January 15, 1979).

Personal Interviews:

Mark Monson, Energy Technical Analyst, Minnesota Energy Agency, St. Paul, (August 3, 1978).

New Mexico

Personal Interviews:

Pat Brown, Director of Planning, City of Los Alamos, (July 18, 1978).

Joan Ellis, Attorney, Energy and Materials Department, State of New Mexico, Santa Fe, (July 19, 1978).

Gary Carlson, Energy and Materials Department, State of New Mexico, Santa Fe, (July 19, 1978).

Vernon Kerr, State Representative, Los Alamos, (July 18, 1978).

Nick Gentry, Assistant Attorney General, State of New Mexico, Santa Fe, (July 19, 1978).

Symposium on the Solar Rights Act, sponsored by the New Mexico Solar Energy Association, Santa Fe, (October 7, 1978), (participant list attached - Appendix 5-B).

Oregon

Telephone Interviews:

Maggie Collins, Senior Planner, Yamhill County, McMinnville, Oregon, (September 28, 1978).

Gordon Fultz, Association of Oregon Counties, Salem, Oregon, (September 27, 1978).

Bill Mackie, Conservation Specialist, Oregon Department of Energy, Salem, Oregon, (September 9, 1978).

Lloyd Chapman, Plan Review Team, Department of Land Conservation and Development, Salem, Oregon, (September 27, 1978).

Don Masseotti, Chief Planner, Policy Development and Research, City of Portland, Oregon, (October 4, 1978).

Nancy Fadely, State Representative, Eugene, Oregon, (September 27, 1978).

Nancy McKay, League of Oregon Cities, Salem, Oregon, (September 26, 1978).

Brian Almquist, City Manager, and Richard Box, Planning Director, Ashland, Oregon, (September 28, 1978).

Dick Matthews, Supervisor, Research and Policy Division, Department of Land Conservation and Development, (September 27, 1978).

Marion Hemphill, Energy Conservation Specialist, Portland, Oregon, (October 9, 1978).

Personal Interviews:

Dick Matthews, Supervisor, Research and Policy Division and Lloyd Chapman, Plan Review Team, Department of Land Conservation and Development, Salem, Oregon, (July 13, 1978).

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APPENDIX B

ATTENDANCE

NMSEA SOLAR RIGHTS SYMPOSIUM

October 7, 1978

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