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An oft-cited solution to this country's energy problem is solar energy. Solar technology is expected to become cost-effective in the near future in many states. The extent of such development will depend partly on the speed with which local governments dismantle institutional barriers to solar power and instead pass legislation which promotes and accelerates solar energy use. With such a purpose in mind, this article surveys the most popular tools used by states to accelerate solar development. And finally, the author focuses on certain legislative innovations which deserve widespread use.

## AN ANALYSIS OF SOLAR LEGISLATION — TAXES AND EASEMENTS

*Russell J. Adams\**

The age of cheap energy is swiftly drawing to a close.<sup>1</sup> Massive pressures generated by population growth and worldwide industrialization have been increasing energy consumption at an exponential rate,<sup>2</sup> while sources of clean, easy-to-handle fossil fuels are showing signs of depletion<sup>3</sup> in terms of supplies available at historic prices.<sup>4</sup> This situation is of particular concern to states heavily dependent on out-of-state fuel sources. Increasing domestic coal<sup>5</sup> and uranium<sup>6</sup> consumption, troubled by environmental questions,<sup>7</sup> will not

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1. Freeman, *The Energy Crisis: Is It Real?* in ENERGY AND THE ENVIRONMENT: A COLLISION OF CRISES 13 (I. Goodwin ed. 1974).
2. MEADOWS, MEADOWS, RANDERS, BEHRENS III, *THE LIMITS TO GROWTH* 69 (1974).
3. HERRERA, HOLDREN, *ENERGY* 29 (1971).
4. *E.g.*, in the lower forty-eight states during 1973 a sixth of the non-associated gas reserves were found per foot of borehole drilled than in 1966. See FEDERAL POWER COMMISSION, *A REALISTIC VIEW OF THE NATURAL GAS SUPPLY* 6 (1974). For oil, see CENTRAL INTELLIGENCE AGENCY, *THE INTERNATIONAL ENERGY SITUATION: OUTLOOK TO 1985*, 18 (April 1977).
5. Seamans, Liverman, Ordway, *National Energy Planning and Environmental Responsibility* 6 ENV. AFF. 283, 291 (1978).
6. *Id.* at 292.
7. For coal, Central Intelligence Agency, *supra* note 4, at 8. For nuclear, see Seamans, *supra* note 5, at 292, 293.

keep pace with growing energy demands through the 1980's even when combined with expected conservation.<sup>8</sup> As Rogers Morton asked, "How much conservation can the economy withstand?"<sup>9</sup>

Solar energy collection systems provide an additional alternative which is not hobbled by uranium's dangers, coal's uncleanness, or conservation's sacrifice.<sup>10</sup> It is available technologically for space and hot water heating uses<sup>11</sup> which now account for more than a fifth of all energy consumed in the United States,<sup>12</sup> plus some agricultural<sup>13</sup> and industrial process water<sup>14</sup> applications. These remarkable advantages have attracted considerable attention to the economics of solar power.<sup>15</sup>

Solar energy is expected to become cost-effective over the near term<sup>16</sup> in many states. The extent of this development will depend partly on the speed with which local governments dismantle institutional barriers to solar power,<sup>17</sup> and partly on the rate traditional energy prices rise.<sup>18</sup> Yet there is reason to accelerate this progress.<sup>19</sup> By encouraging applied solar technology, a viable, dependable alternative can be secured for future occasions when our economy will need it most.<sup>20</sup> Further, since solar equipment must be tailored through experience to complement unique geographic and climatological circumstances,<sup>21</sup> the first states to promote such work effectively will enjoy the greatest harvests later. Another benefit is that, "(T)he long term advantages

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8. GENERAL ACCOUNTING OFFICE, AN EVALUATION OF THE NATIONAL ENERGY PLAN 2.3, 2.4 (July 25, 1977).
  9. Walker, Large, *Economics of Energy Extravagance* 4 *ECOLOGY* L. Q. 963, 984 (1975).
  10. *Solar Rights: Guaranteeing a Place in the Sun* 57 *OR. L. REV.* 94, 95 (1977).
  11. GENERAL ACCOUNTING OFFICE, APPLICATION OF SOLAR TECHNOLOGY TO TODAY'S ENERGY NEEDS 11 (June 1976).
  12. See Seamans, *supra* note 5, at 288.
  13. *E.g.*, Wis. 1977 Assembly B. 1019, § 4(i)(2) (1978) to be codified as Wis. STAT. § 71.09(12)(i)(2).
  14. KRAEMER, *SOLAR LAW* 7 (1978).
  15. Ben-David, Balcomb, Katson, Noll, Roach, Schulze, Thayer, *Near Term Prospects for Solar Energy: An Economic Analysis* 17 *NAT. RESOURCES J.* 169, 169 n. 1 (1977); see also ENERGY RESEARCH AND DEVELOPMENT AGENCY, SOLAR ENERGY IN AMERICA'S FUTURE, A PRELIMINARY ASSESSMENT, REP. NO. 77-DSE-11511 (1977).
  16. Seamans, *supra* note 5, at 285 defines near term as "now to 1985," mid term as "1985 to the end of the century," and long term as "beyond the year 2000."
  17. These barriers are discussed in the U.S. DEPARTMENT OF ENERGY, LEGAL BARRIERS TO SOLAR HEATING AND COOLING OF BUILDINGS, REP. NO. HCP/M2528-01 (1978).
  18. Ben-David, *supra* note 15, at 185, 186, 188, 190, 191, 193.
  19. Green, Pogany, Dunwoody, THE ILLINOIS PROGRAM FOR COMPREHENSIVE SOLAR ENERGY LEGISLATION 7 (1977).
  20. See, *America at the Crossroads*, *NATIONS BUSINESS* 18, 19 (1977).
  21. GENERAL ACCOUNTING OFFICE, *supra* note 11, at 5.

to society of many alternate sources of energy are often not reflected in the cost of these sources.<sup>22</sup>

Through such reasoning, pro-solar statutes have been enacted in at least thirty-eight states.<sup>23</sup> This legislation is not uniform. A large portion consists of tax provisions neutral toward or favoring solar power, or relates to the creation of skyspace easements. A much smaller amount pertains to solar system product quality, construction codes, zoning, or projects involving solar research or education. A sprinkling handles utility participation in the solar field.<sup>24</sup>

The purposes of this paper are to survey the most popular accelerative tools and spotlight innovations which deserve widespread use.

### I. STATE SOLAR TAX INCENTIVES

Solar tax incentives have been based predominantly on property, sales, income and corporate taxes, as Table 1 illustrates. Of at least thirty-six states which have adopted tax incentives, twenty-seven legislatures have enacted property tax measures. Eight enforce preferential sales taxes, while sixteen have passed income tax provisions, and six employ pro-solar corporate taxes. States which have not acted, inevitably maintain tax structures which discriminate against solar equipment.<sup>25</sup> Existing property taxes, for example, fall especially hard on capital intensive investments such as solar equipment.<sup>26</sup> Sales taxes discriminate against solar energy for the same reason. Similarly, traditional depreciation formulas favor conventional heating, cooling, and hot water systems with their low capital costs and high, immediately deductible operating expenses.<sup>27</sup>

The category of taxes amended depends on the particular needs a state wishes to address. For example, Maryland<sup>28</sup> and Rhode Island<sup>29</sup> desired to neutralize their tax

22. Wis. 1977 Assembly B. 1019, § 1 (1978).

23. See, NATIONAL SOLAR HEATING AND COOLING CENTER, STATE SOLAR LEGISLATION (July 1978).

24. Dean, Miller, *Utilities at the Dawn of a Solar Age* 53 N.D. L. REV. 329, 333 (1977).

25. Williams, *The Dawning of Solar Law* 29 BAYLOR L. REV. 1013, 1023 (1977).

26. *Id.*

27. *Id.* at 1026.

28. MD. ANN. CODE art. 81, § 14 (Supp. 1978).

29. R.I. Gen. Laws § 44-3-18 (Supp. 1978).

## EXISTING STATE LEGISLATION BY CATEGORY

	Tax Incentives	Income	Property	Corporate	Sales	Regulation	Solar Easements	Product Quality	Zoning & Planning	Construction
Alaska . . . . .	X	X								
Arizona . . . . .	X	X	X		X					
Arkansas . . . . .	X	X								
California . . . . .	X	X		X		X		X		X
Colorado . . . . .	X	X	X	X		X	X			
Connecticut . . . . .	X		X		X	X		X		
Florida . . . . .						X	X	X		X
Georgia . . . . .	X		X		X	X	X			
Hawaii . . . . .	X	X	X	X						
Idaho . . . . .	X	X				X	X			
Illinois . . . . .	X		X			X		X		
Indiana . . . . .	X		X							
Iowa . . . . .	X		X							
Kansas . . . . .	X	X	X	X		X	X			
Maine . . . . .	X		X		X					
Maryland . . . . .	X		X			X	X			
Massachusetts . . . . .	X		X	X	X					
Michigan . . . . .	X		X	X	X					
Minnesota . . . . .	X		X			X	X	X		
Montana . . . . .	X	X		X						
Nevada . . . . .	X		X			X				X
New Hampshire . . . . .	X		X							
New Jersey . . . . .	X		X		X					
New Mexico . . . . .	X	X				X	X	X		
New York . . . . .	X		X							
North Carolina . . . . .	X	X	X	X						
North Dakota . . . . .	X	X	X			X	X		X	
Oklahoma . . . . .	X	X								
Oregon . . . . .	X	X	X							
Rhode Island . . . . .	X		X							
South Dakota . . . . .	X		X							
Tennessee . . . . .	X		X			X		X		

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Texas . . . . .	X			X	X						
Vermont . . . . .	X	X	X	X							
Virginia . . . . .	X		X			X	X				
Washington . . . . .	X		X			X		X			
Wisconsin . . . . .	X	X		X							
TOTALS . . . . .	36	16	27	11	8	16	10	8	1	3	

See accompanying text for references to these state laws.

TABLE 1.

systems' anti-solar bias and therefore concentrated on improving their property taxes. Both states now treat property with solar heating and cooling systems as if outfitted with conventional gas, oil, or electric mechanisms. Other states, raising their sights beyond neutrality, have enacted small pro-solar biases. New Jersey, for example, teams its solar property tax exemption<sup>30</sup> with a small sales tax incentive.<sup>31</sup> When substantial solar incentives are sought, income tax measures are added to cover individuals and corporations.<sup>32</sup>

While the propriety of cheapening solar energy through taxation is not without question, it is also not without precedent. Depletion allowances and other tax breaks designed to exclude the cost of government from conventional energy prices have kept fuel costs low for years.<sup>33</sup> Continuing cheap oil incentives of this nature allow the deduction of dry holes from non-oil earnings,<sup>34</sup> and quick expensing of intangibles.<sup>35</sup> In the nuclear field, Price Anderson Act liability limitations<sup>36</sup> place the risk of large losses on those who live near nuclear facilities, while public money supports insurance for smaller losses which private insurers refuse to cover.<sup>37</sup> And the failure to perfectly restrict fossil and nuclear fuel pollution<sup>38</sup> imposes an implicit tax upon the lives and property of all who are affected. Countless other examples may be found

30. N.J. STAT. ANN. § 54:32B-8.

31. N.J. STAT. ANN. § 54:4-3.113 to § 54:4-3.120.

32. *E.g.*, see the fifty-five percent credit in CAL. REV. AND TAX CODE § 17052.5.

33. Freeman, *supra* note 1, at 12. See also, Bahelle Pacific Northwest Laboratories, AN ANALYSIS OF FEDERAL INCENTIVES TO STIMULATE ENERGY PRODUCTION, Executive Summary 8, (Dec. 1978).

34. See MILLER, ECONOMICS OF ENERGY 124 (1974).

35. MANCKE, THE FAILURE OF U.S. ENERGY POLICY 86, 87 (1974). State governments similarly aid traditional forms of energy. For just one of many examples, see ARIZ. REV. STAT. § 42-1409(B)4, 5, and 8 (West Supp. 1978).

36. 42 U.S.C. § 2210 (1970).

37. Comment, *A Survey of the Governmental Regulation of Nuclear Power Generation* 59 MARQ. L. REV. 836, 848 (1976).

38. Miller, *supra* note 34, at 61-74.

in existing energy law at both state and federal levels. Tax benefits for solar energy are new in that the public may choose, for perhaps the first time, to encourage a risk-minimizing, pollution-free source of energy.

### A. PROPERTY TAXES

Because solar equipment is heavily capital intensive, property taxes discriminate in favor of conventional fuels. At least twenty-seven states have acted to remedy this inequity either directly, or to authorize local governments to do so.<sup>40</sup> Solar equipment may be completely exempted from real property taxes discriminate in favor of conventional fuels.<sup>39</sup> energy forms, or assessed "at no more than the value of a conventional heating or cooling unit necessary to serve the building."<sup>42</sup> The latter language results in a nondiscriminatory property tax which will prevent erosion of local property tax bases. Solar property exemptions vary further as to their breadth of coverage, duration, the time period during which exemptions are available, and the manner in which applications are handled.

#### 1. The Coverage of Exemption Statutes

Pro-solar property tax exemptions differ as to the kinds of buildings and equipment which qualify. In the building category, Nevada exempts solar hardware built into residential dwellings.<sup>43</sup> A more common approach is demonstrated by Colorado,<sup>44</sup> Connecticut,<sup>45</sup> and Indiana,<sup>46</sup> and treats solar systems favorably no matter what kinds of buildings they improve. Indiana even exempts solar systems for mobile homes.<sup>47</sup> The exclusion of particular building types correspondingly limits achievement of tax neutrality without producing countervailing revenue benefits. As long as discriminatory taxes deprive solar energy of its competitive edge, conventional fuel prices and shortages are likely to deter tax base expansion.

39. See Williams, *supra* note 25.

40. See National Solar Heating and Cooling Center, State Solar Legislation (July 1978).

41. *E.g.*, MINN. STAT. § 273.11(6).

42. MD. ANN. CODE art. 81, § 14(b)(4) (Supp. 1978).

43. NEV. REV. STAT. ch. 361.

44. COLO. REV. STAT. § 39-1-104(6).

45. CONN. GEN. STAT. § 12-81(56).

46. IND. CODE ANN. 6-1.1-12-26(a).

47. *Id.*

Many state laws exempt a wide variety of solar equipment. New York exempts capital which will convert solar energy into electrical, mechanical, or chemical forms.<sup>48</sup> Several states exempt other kinds of renewable resource properties. Minnesota's exemption extends to equipment producing agricultural process methane,<sup>49</sup> Vermont encourages gas generation from solid wastes and manure,<sup>50</sup> New Jersey pushes energy from wind or sea sources,<sup>51</sup> and Hawaii qualifies geothermal equipment as well.<sup>52</sup> The New York energy office is required to report on the feasibility of property tax exemptions for renewable resource systems not currently covered.<sup>53</sup>

Direct solar equipment is generally treated unfavorably. Georgia, like several other states, mandates that qualified solar systems "shall not include walls, roofs, or equipment that would ordinarily be contained in a similar structure not designed or modified to use solar energy for heating or cooling."<sup>54</sup> However, property taxes should not discriminate against substantial direct solar expenditures that go beyond conventional construction costs. Massive concrete floors, walls, ceilings, or trombe walls, pool roofs, and direct solar easements are examples. The Georgian exclusion might be narrowed by addition of the words, "except to the extent of additional costs necessary to the improved use of such walls, roofs or equipment to capture solar energy, as specified by rules."

Several states limit tax fraud by restricting the uses of qualified property. Illinois' exemptions last only as long as "the solar heating or cooling system is used as the means of heating or cooling."<sup>55</sup> Where buildings need not rely on solar systems for all their energy requirements, preferable language might be "*a substantial* means of heating or cooling." Illinois further mandates:

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48. N.Y. REAL PROPERTY TAX 487(1)(a) (McKinney Supp. 1979).

49. MINN. STAT. § 273.11(6).

50. 1975 VT. ACTS. No. 227, § 12.

51. N.J. STAT. ANN. § 54:4-3.113(2).

52. HAW. REV. STAT. § 246-34.7 (1976).

53. N.Y. REAL PROPERTY TAX § 487(6) (McKinney Supp. 1979).

54. GA. CODE ANN. § 2-4604 (1977).

55. ILL. REV. STAT. ch. 120, § 501d-3 (1978).

Whenever the solar heating or cooling system so valued ceases to be used as the means of heating or cooling those improvements, the owner of that real property shall within 30 days notify in writing by certified mail, return receipt requested, the county assessor. . . . It shall be a Class B misdemeanor to fail to submit information required under this Section.<sup>56</sup>

Other anti-fraud language goes beyond the qualifications equipment must satisfy. Michigan addresses fraud or misrepresentations used to obtain exemption certificates:

(A)ll taxes which would have been payable if a certificate had not been issued shall be immediately due and payable with the maximum interest and penalties prescribed by applicable law. Any statute of limitations shall not operate in the event of fraud or misrepresentation.<sup>57</sup>

New Jersey revokes certificates on the basis of fraud, misrepresentation, cancellation, substantial design changes, or termination of the facility's use for the purpose for which the exemption was granted.<sup>58</sup> Nevada treats willful, materially false statements in similar contexts as a crime.<sup>59</sup>

Other coverage limitations include Minnesota's disqualification of solar property used to provide energy for resale,<sup>60</sup> and Michigan's refusal to extend its exemption to corporations in the business of designing or constructing solar systems.<sup>61</sup> Where tax neutrality is society's goal, such limitations have little to recommend them.

Further restrictions may be established by administrative rules. These are used to regulate everything from the valuation of solar energy systems<sup>62</sup> to the qualifications such systems must possess, and beyond to other implementation-related problem areas.<sup>63</sup> A sample from New Jersey authorizes "regulations necessary for the proper cer-

56. *Id.*

57. MICH. COMP. LAWS ANN. § 211.7h(6) (Supp. 1978).

58. N.J. STAT. ANN. § 54:4-3.117.

59. NEV. REV. STAT. ch. 361 (1978).

60. MINN. STAT. § 273.11(6).

61. MICH. COMP. LAWS ANN. § 211.7h(11) (Supp. 1978).

62. IND. CODE ANN. § 6-1.1-12-26 (Burns 1978).

63. HAW. REV. STAT. § 246-34.7 (1976).

tification of any tax exemption, the form of any certificate to be issued and any other matter related to the exemption."<sup>64</sup>

## 2. Time Periods

Most states use one of two alternative formulas to limit property tax base erosion. The first restricts the period property tax neutrality may be enjoyed by solar taxpayers. Connecticut<sup>65</sup> and New York<sup>66</sup> allow fifteen years, Maine<sup>67</sup> and North Dakota<sup>68</sup> five, Massachusetts<sup>69</sup> ten, and Washington<sup>70</sup> authorizes seven years. This alternative shackles solar taxpayers with future property tax liabilities far beyond those anticipated by conventional homeowners. To preclude this detriment, credit periods may be matched with the approximate life of corresponding solar installations.

Another alternative limits the availability of exemptions after a certain date. Connecticut,<sup>71</sup> Hawaii,<sup>72</sup> New Jersey,<sup>73</sup> North Carolina,<sup>74</sup> Oregon,<sup>75</sup> Rhode Island,<sup>76</sup> Michigan,<sup>77</sup> and Minnesota<sup>78</sup> use this approach. Coordination of the date selected with other tax credit termination clauses will allow the simultaneous review of all programs when the ends of their lives are reached.

## 3. Application Procedures

Application procedures for solar property tax relief vary from state to state. New York requires applications "on a form prescribed and made available by the state board in cooperation with the energy office,"<sup>79</sup> the applicant furnishing such information "as the board shall require."<sup>80</sup> Applications must be made under oath in New Jersey,<sup>81</sup> under

64. N.J. STAT. ANN. § 54:4-3.120.

65. CONN. GEN. STAT. § 12-81(56), (57) (West Supp. 1979).

66. N.Y. REAL PROPERTY TAX § 487(2) (McKinney Supp. 1979).

67. ME. REV. STAT. ANN. § 656(1)(H).

68. N.D. CENT. CODE § 57-02-08.1 (Supp. 1977).

69. MASS. ANN. LAWS ch. 59, § 5 (Michie Law Coop. 1978).

70. WASH. REV. CODE § 84.36(3).

71. CONN. GEN. STAT. § 12-81(56)(a).

72. HAW. REV. STAT. § 246-34.7 (1976).

73. N.J. SESS. LAW SERV. ch. 256, § 9 (1977).

74. N.C. GEN. STAT. § 105-277(g) (Supp. 1977).

75. OR. REV. STAT. § 307.175(2) (1977).

76. R.I. GEN. LAWS § 44-3-18 (Supp. 1977).

77. MICH. COMP. LAWS ANN. § 211.7h(9) (Supp. 1978).

78. MINN. STAT. § 273.11(6) (1978).

79. N.Y. REAL PROPERTY TAX § 487(6) (McKinney Supp. 1979).

80. *Id.*

81. N.J. REV. STAT. § 54:4-3.115.

“oath or affirmation”<sup>82</sup> in Nevada. The New Jersey enforcing agency may require applicants to prove such points as it deems necessary.<sup>83</sup> Perhaps the most detailed requirements are those of Illinois, which demand applications “setting out (a) that the specified improvements on described real estate are equipped with such a (qualifying solar) system, (b) that the system is used for heating or cooling or both heating or cooling those improvements, and (c) the total cost of the solar energy heating or cooling system.”<sup>84</sup>

### B. SALES TAXES

Sales taxes are generally levied on a one-time basis at less than five percent of solar equipment’s cost.<sup>85</sup> As such, they are not the sizable barrier to solar energy<sup>86</sup> use that property taxes constitute. Nonetheless, they swell already large initial outlays and aggravate barriers such as lending institutions’ hesitancy to fund solar projects.<sup>87</sup> When these difficulties are solved with complete sales tax exemptions, neutrality is not achieved since fossil fueled equipment remains subject to sales taxes. A slight, pro-solar incentive is created.

Sales tax exemptions have many terms in common with other pro-solar laws. For example, Connecticut,<sup>88</sup> Maine,<sup>89</sup> and Michigan<sup>90</sup> limit sales tax exposure through termination dates similar to those employed in property and income tax provisions. Consistency of these dates across all three types of measures will simplify taxpayers’ burdens while allowing simultaneous reassessment of solar programs when they lapse. Another technique Connecticut uses empowers municipalities to create solar sales tax breaks just as is done in the property tax area.<sup>91</sup> A third example from Connecticut is the incorporation by reference of its property tax, qualifying system definition into its sales tax. Such parallel struc-

82. NEV. REV. STAT. ch. 361.

83. N.J. REV. STAT. § 54:4-3.115.

84. ILL. REV. STAT. ch. 120, § 501d-3.

85. Schifflet, Zuckerman, *Solar Heating and Cooling: State and Municipal Impediments and Incentives* 18 NAT. RESOURCE J. 322 (April 1978).

86. Williams, *supra* note 25, at 1024, 1025.

87. *Id.* at 1027.

88. CONN. GEN. STAT. § 12-412(dd).

89. ME. REV. STAT. ANN. tit. 36, § 1752 (14-A).

90. MICH. COMP. LAWS ANN. § 205.94e (Supp. 1978).

91. CONN. GEN. STAT. § 12-412(dd); CONN. GEN. STAT. § 12-81(56)(a).

ture simplifies for prospective solar investors the task of understanding available credits.

Many issues raised by other solar incentives reappear in conjunction with sales taxes. Should sales tax incentives aid wind systems<sup>92</sup> or water energy conversion<sup>93</sup> systems? Should direct solar systems be assisted as in Arizona,<sup>94</sup> or not, as in Georgia and Maine?<sup>95</sup> Massachusetts exempts only residential installations.<sup>96</sup>

Sales tax amendments also have several characteristics not shared with other forms of solar incentives. Texas exempts rentals and leases of solar equipment.<sup>97</sup> Maine<sup>98</sup> and Georgia<sup>99</sup> allow sales tax refunds which, while adding to a program's administrative complexity, minimize possibilities for abuse.<sup>100</sup>

### C. INCOME TAXES

Income taxes allow the largest financial incentives states offer. These inducements may take the form of deductions, as in Colorado,<sup>101</sup> Idaho,<sup>102</sup> Arkansas,<sup>103</sup> and Montana,<sup>104</sup> or credits as in twelve other states. Credits provide more evenhanded encouragement to people in different tax brackets,<sup>105</sup> because credits generate dollar for dollar tax reductions, while the value of a deduction depends upon each individual's tax rate. Further, since state income tax rates are generally low,<sup>106</sup> deduction formulas cannot muster the economic punch achievable through credits.

Accelerated depreciation is another deduction tool used to favor solar energy. As part of Arizona's income tax

92. MASS. GEN. LAWS ch. 64H, § 6.

93. MICH. COMP. LAWS ANN. § 205.94e(1) (Supp. 1978).

94. ARIZ. REV. STAT. ANN. § 42-1409 (West Supp. 1978).

95. GA. CODE ANN. § 92-3403(a)(bb.2) (Supp. 1978); ME. REV. STAT. ANN. tit. 36, § 656(1)(H)(1).

96. MASS. GEN. LAWS ch. 64H, § 6.

97. TEX. TAX CODE ANN. art. 20.04(CC) (Vernon Supp. 1979).

98. ME. REV. STAT. ANN. tit. 36, § 1760(37).

99. GA. CODE ANN. § 92-3403(a)(bb.2) (Supp. 1978).

100. Williams, *supra* note 25, at 1025.

101. COLO. SESS. LAWS ch. 512 (1977).

102. IDAHO CODE § 63-3022c (Supp. 1978).

103. ARK. ACTS no. 1321, § 2 (1977).

104. MONT. REV. CODE ANN. § 84-7403 (Supp. 1977).

105. Williams, *supra* note 25, at 1025.

106. ADVISORY COMMISSION ON INTERGOVERNMENT RELATIONS, SIGNIFICANT FEATURES OF FISCAL FEDERALISM 192, table 104 (1976-1977 Edition).

code,<sup>107</sup> solar equipment may be amortized in three years. This scheme not only offers the solar equipment purchaser early write-off of the investment against income, but also resolves uncertainties about the actual life of solar equipment which otherwise "may impede investment."<sup>108</sup> The popularity of accelerated depreciation suffers because, as a deduction formula, it cannot match the clout of credit measures.

Deduction tools' weaknesses explain the growing use of credits. Active,<sup>109</sup> or indirect<sup>110</sup> solar equipment is expensive. A recent study of solar economics estimated fixed costs for retrofit home solar heating at 3,400 dollars and 1,100 dollars for new construction.<sup>111</sup> With collector and storage costs added at the rate of 9.50 dollars per foot,<sup>112</sup> the average home of 1,600 square feet<sup>113</sup> could require a solar unit costing approximately 11,500 dollars or 9,200 dollars for new construction, simply to cover seventy-five percent of the home's heating needs in a northern state.<sup>114</sup> By encouraging energy users to write off large portions of these costs, the experience necessary to widespread use of solar technology can be obtained, while the benefits of solar power over the investment's life cycle<sup>115</sup> are demonstrated to the public.

Income tax credits vary from state to state. Creditable investment percentages differ, as do, where such terms are present, total credits allowed, authorized carry-over periods, and termination dates after which solar investments will be denied credits. Various miscellaneous terms cover definitional matters such as the criteria which creditable solar projects must satisfy, as well as other issues. Oregon's program demonstrates each of these elements. While Oregon allows

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107. ARIZ. REV. STAT. ANN. § 43-123.37.

108. Williams, *supra* note 25, at 1026.

109. Active solar systems have separate equipment for collecting, storing, and distributing solar energy, while passive systems rely on building components to perform these functions. WATSON, DESIGNING AND BUILDING A SOLAR HOUSE 16 (1977).

110. The term "indirect" is synonymous with, but preferable to the term "active," because its counterpart "direct" does not suffer the negative connotations of the term "passive." For an example of this nomenclature, see U.S. DEPARTMENT OF ENERGY, PUT THE SUN TO WORK TODAY 8 (1978).

111. Ben-David, *supra* note 15, at 200.

112. *Id.* at 179, 200.

113. Telephone interview with Mary Ellen Hoagland, Manager of Marketing Research of Housing Industry Dynamics at Crofton, Md. (January 10, 1979).

114. See SPETGANG, WELLS, HOW TO BUY SOLAR HEATING WITHOUT GETTING BURNED! 20, 21, 94 (1978).

115. For sample life cycle cost calculations, see Ben-David, *supra* note 15, at 176, 180.

taxpayers a percentage equalling a quarter of qualifying solar investments,<sup>116</sup> the total credit taken must not exceed 2,000 dollars.<sup>117</sup> If the full credit ceiling cannot be used during the taxpayer's first year, the remainder may be carried forward five years.<sup>118</sup> Oregon's termination date tells taxpayers that no expenditures made after 1984 will qualify,<sup>119</sup> and thus benefits only those solar pioneers who shoulder the early risks of developing solar power. To qualify for the credit, Oregon requires solar installations to supply at least ten percent of a home's energy needs<sup>120</sup> and to meet other standards of performance set and adjusted from time to time by the Oregon Department of Energy.<sup>121</sup>

While considerable variety is exhibited between different states' programs, several approaches stand out in each of the categories mentioned.

### 1. Credit Percentages

State percentages should compromise revenue requirements against long-run energy needs. Estimates suggest that 2.5 million homes could rely predominantly on solar energy by 1985,<sup>122</sup> which would leave almost seventy percent of all home owners' state personal income tax payments unaffected. The potential for solar retrofits is often limited by poor roof alignments and insulation, existing vegetation, and high installation costs.<sup>123</sup> Where high credit percentages do prompt revenue loss worries, termination dates should be set beyond which credits will not be available.

The percentage selected should reflect the benefits that solar energy users can expect to receive. Ohio Senate Bill 254<sup>124</sup> illustrates that this may present a problem. While the bill's sixty-five percent credit was superficially impressive,

116. OR. REV. STAT. ch. 316.

117. OR. REV. STAT. ch. 316.

118. OR. REV. STAT. ch. 316.

119. OR. REV. STAT. ch. 316.

120. OR. REV. STAT. § 469.010.

121. OR. REV. STAT. ch. 469.

122. EXECUTIVE OFFICE OF THE PRESIDENT, THE NATIONAL ENERGY PLAN xiii (1977). This figure may be compared with total non-institutional U.S. housing figures for 1975, available in the U.S. BUREAU OF THE CENSUS, STATISTICAL ABSTRACT OF THE UNITED STATES: 777, table no. 1331 (Wash., D.C. 1977).

123. Ben-David, *supra* note 15, at 202 lists standard objections raised concerning widespread solar retrofits.

124. OHIO AM. SUB. S.B. 254, 112th G.A., REGULAR SESS. § 5747.052 (1978).

**EXISTING PERSONAL INCOME TAX INCENTIVES  
BY CATEGORY**

	Deductions	Acc. Depreciation	Credits	Percentage	Credit Ceiling	Carry-Over (Years)	Termination
Alaska . . . . .			X	10	200		12/31/1982
Arizona . . . . .		3 yrs.	X	35*	1000	5	1984
Arkansas . . . . .	X					None	
California . . . . .			X	55*	3000*		12/31/1980
Colorado . . . . .	X						
Hawaii . . . . .			X	10			12/30/1981
Idaho . . . . .	X						
Kansas . . . . .			X	25	1000*	4	6/30/1983
Montana . . . . .			X	10*	100	4	12/30/1982
New Mexico . . . . .			X	25	1000	N.A.	None
North Carolina . . . . .			X	25	1000	3	None
North Dakota . . . . .			X	5*		2	None
Oklahoma . . . . .			X	25	2000	5	12/31/1987
Oregon . . . . .			X	25	1000	5	12/31/1984
Vermont . . . . .			X	25	1000*	4	6/30/1983
Wisconsin . . . . .			X	*	*		12/31/1984
TOTALS . . . . .	3		13				

See accompanying text for references to these states' laws.

\*Varies with differing circumstances.

TABLE 2.

carry-over limitations would have reduced the average taxpayer's benefits considerably.<sup>125</sup> Resultant interpretive complexity discourages hopeful sun-users by making credits' true values elusive. At the same time it assures to high-income taxpayers a larger incentive than small taxpayers receive. Though this last result is inevitable whenever carry-overs are used,<sup>126</sup> it is aggravated whenever state-selected

125. The extent of this reduction is detailed in section "3" entitled "Carry-over Periods".  
126. For example, a \$1,500 credit taken over five years at \$300 per year will be worth only \$1,300 when discounted at seven percent to its present value. A wealthy taxpayer able to take the entire credit in one year can enjoy the full \$1,500.

percentages place full credits outside the average taxpayer's reach. Modest inequities may be tolerable for simplicity's sake, but the percentage chosen should at least resemble the benefits implied to solar energy consumers.

In addition, state percentages should reflect the availability of federal solar credits under the Energy Tax Act of 1978.<sup>127</sup> While the solar codes of California,<sup>128</sup> Montana,<sup>129</sup> and New Mexico<sup>130</sup> explicitly anticipated federal incentives, other codes did not.<sup>131</sup> The federal income tax credit applies to individuals<sup>132</sup> who install solar energy for the purpose of heating, cooling or providing hot water<sup>133</sup> in a dwelling unit used as the taxpayer's principal residence.<sup>134</sup> Investments will qualify only if made after April 20, 1977,<sup>135</sup> or before December 31, 1985.<sup>136</sup> This credit amounts to thirty percent of the first 2,000 dollars of solar expenditures, plus twenty percent of the next 8,000 dollars.<sup>137</sup> Thus the total credit available is 2,200 dollars, an effective percentage of twenty-two. State percentages should not be so high that when combined with federal incentives, the taxpayer's personal financial commitment is *de minimus*.<sup>138</sup>

Percentages run from five in North Dakota<sup>139</sup> to fifty-five in California.<sup>140</sup> However, the latter figure limits both federal and state credits taken together.<sup>141</sup> Other states may prefer credit percentages between twenty and fifty percent, excluding federal contributions.

## 2. Total Credits Allowed

Credit ceilings limit state exposure to revenue losses, but where set too low will cancel out any benefits which

127. ENERGY TAX ACT OF 1978, PUB. L. 95-618, 92 STAT. 3174 (1978).

128. CAL. REV. AND TAX CODE § 17052.5(j).

129. MONT. REV. CODES ANN. § 84-7414(1) (Supp. 1977).

130. N.M. STAT. ANN. § 72-15A-11.3(C).

131. *E.g.*, ALASKA STAT. § 43.20.039 (1977).

132. ENERGY TAX ACT OF 1978, PUB. L. 95-618, § 101, § 44C(a), 92 STAT. 3174 (1978).

133. *Id.* at § 44C(c)(5)(A)(i).

134. *Id.* at § 44C(c)(2)(A)(ii).

135. *Id.* at § 44C(c)(2)(A).

136. *Id.* at § 44C(f).

137. *Id.* at § 44C(b)(2).

138. OHIO AM. SUB. S.B. 254, 112th G.A., REGULAR SESS. § 5747.052 (1978), for example, authorized a sixty-five percent credit which, when combined with the thirty percent federal credit, would have given some taxpayers a solar installation in return for a personal commitment of only five percent of the system's cost.

139. N.D. CENT. CODE § 57-38-01.8 (Supp. 1977).

140. CAL. REV. AND TAX CODE § 17052.5.

141. CAL. REV. AND TAX CODE § 17052.5(j).

might otherwise be accrued. Alaska's 200 dollar ceiling<sup>142</sup> may inspire residential insulation,<sup>143</sup> but will impact negligibly on the cost of indirect solar installations.<sup>144</sup> Maximums vary from 2,000 dollars<sup>145</sup> on down,<sup>146</sup> while the federal credit is 2,200 dollars.<sup>147</sup> California<sup>148</sup> and Hawaii<sup>149</sup> lack ceilings. Low ceilings should be avoided where substantial solar incentives are desired.

### 3. Carry-Over Periods

Failure to enact time limits on credit carry-overs may generate disproportionate administrative costs as minuscule accounts are carried interminably. On the other hand, short carry-overs may shrink taxpayer benefits well below what statutes purport to offer. For example, the average income taxpayer in Ohio would need eighteen carry-over years plus the installation year to recoup a twenty-five percent credit on solar equipment worth 10,000 dollars.<sup>150</sup> It is one thing to expect that wealthy taxpayers will be first to buy solar energy since they have the resources to do so.<sup>151</sup> It is another to make this a self-fulfilling prophecy by biasing carry-over periods in favor of the rich.

While many states use carry-overs shorter than four years,<sup>152</sup> longer periods may better encourage solar energy development especially where state income taxes are lower than average. The federal government allows carry-overs lasting up to eight years.<sup>153</sup> Hawaii permits unlimited carry-overs.<sup>154</sup>

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142. ALASKA STAT. § 43.20.039(a) (1977).

143. ALASKA STAT. § 43.20.039(d) 1, 2 (1977).

144. ALASKA STAT. § 43.20.039(d)(4) (1977).

145. OKLA. STAT. § 2347.1.

146. *E.g.*, ARIZ. REV. STAT. ANN. § 43-128.03 (West Supp. 1978); N.M. STAT. ANN. § 72-15A-11.3(A).

147. ENERGY TAX ACT OF 1978, PUB. L. 95-618, § 101, § 44C(b)2, 92 STAT. 3174 (1978).

148. California limits residential consumers to a total ceiling of \$3,000, but allows ceilingless credits on premises other than single-family dwellings. CAL. REV. AND TAX CODE § 17052.5(a)(3).

149. HAW. REV. STAT. tit. 14 § 235-12(a) (1976).

150. This calculation is based on an average tax liability of \$130 per return. OHIO DEPARTMENT OF TAXATION, 1977 ANNUAL REPORT 41 (1977).

151. NATIONAL ENERGY PLAN ANALYSIS: A TEXAS RESPONSE 56-3 (1978).

152. *E.g.*, N.D. CENT. CODE § 57-38-01.8 (Supp. 1977); MONT. REV. CODES ANN. § 84-7414 (Supp. 1977).

153. ENERGY TAX ACT OF 1978, PUB. L. 95-618, § 101, § 44C(b)6 and c)2(A), 92 STAT. 3174 (1978).

154. HAW. REV. STAT. tit. 14 § 235-12(a) (1976).

#### 4. Termination Dates

If state solar incentives are to accelerate the acceptance of solar technology, a time may come when incentives are no longer desirable. For this reason, termination dates are commonly set beyond which credits will not be available.<sup>155</sup> Sunset clauses also help flag the need for prompt action from people who wish to benefit. Arizona underscores this message by reducing its credit five percent per year,<sup>156</sup> and Wisconsin applies a similar formula.<sup>157</sup>

Since homeowners affected by state credit legislation are likely to be familiar with federal credits, simplicity suggests that states duplicate the federal termination date of December 31, 1985.<sup>158</sup> This will also allow review of state solar legislation at a time when future federal provisions are being shaped.

#### 5. Miscellaneous Terms

Further credit provisions establish refund and credit documentation procedures, rule-making authority, initiation dates, or cover definitional and other matters. Since rule-making procedures are handled admirably elsewhere,<sup>159</sup> they will not be explored in detail here.

Refund clauses are used in at least two states, New Mexico<sup>160</sup> and Wisconsin,<sup>161</sup> when solar credits exceed taxpayers' income tax liability. This is a boon for solar energy use since taxpayers need not pay interest on to-be-credited funds, and they additionally get the full value of incentives rather than the smaller present value of future tax breaks. Since the processing load of refund clauses may be spread evenly across taxable years, rather than telescoped into the post-filing period, refunds may require less administrative personnel than do credits.<sup>162</sup>

155. *E.g.*, OR. REV. STAT. ch. 316.

156. ARIZ. REV. STAT. ANN. § 43-128.03(A) (West Supp. 1978).

157. WIS. STAT. § 71.09(12)(a) (1977).

158. ENERGY TAX ACT OF 1978, PUB. L. 95-618, § 101, § 44C(f), 92 STAT. 3174 (1978).

159. Ashworth, *State Financial Incentives*, in SOLAR ENERGY RESEARCH INSTITUTE, THE IMPLEMENTATION OF STATE SOLAR INCENTIVES: A PRELIMINARY ASSESSMENT 25-51 (January 1979).

160. N.M. STAT. ANN. § 72-15A-11.3(F) (1978).

161. WIS. STAT. § 71.09(12)(b) (1978).

162. Ashworth, *supra* note 159, at 40.

The administrative costs of solar incentives<sup>163</sup> may be contained by limiting the role of state governments in credit programs. To Arizona this means a straightforward purchase documentation procedure. "The person providing such (solar) device shall furnish the taxpayer with an accounting of the cost to the taxpayer."<sup>164</sup> Arkansas<sup>165</sup> and New Mexico<sup>166</sup> employ similar language. Oklahoma requires:

An itemized accounting of the cost and an affidavit attesting to the facts thereto shall be furnished to the taxpayer by the person providing the solar energy device. The itemized accounting shall include the amount properly attributable for the cost of construction, reconstruction, remodeling, installation and acquisition of the solar energy device.<sup>166</sup>

This documentation also helps restrict abuse of credit provisions.

Further, several states use rules to regulate their income tax programs. These provisions vary from the mere reservation of such authority in Arkansas<sup>167</sup> and Hawaii,<sup>168</sup> to mandatory rule-making in California,<sup>169</sup> rules based on Solar Heating and Cooling Demonstration Act<sup>170</sup> criteria in Oregon,<sup>171</sup> and rules taking broad federal and state considerations into account in Wisconsin.<sup>172</sup> Under Wisconsin's rules qualifying solar systems must save, in twenty-five years, their own value in conventional fuels, while producing as much energy as possible.<sup>173</sup> Yet Wisconsin's rules must not "hamper individual development and innovative alternative energy systems."<sup>174</sup> A broad but simple grant of rule-making authority will facilitate the administration of solar incentives.

Many state credits apply prospectively only and penalize the real pioneers of solar energy who have already acted.

163. OKLA. STAT. § 2357.2 (1977).

164. ARIZ. REV. STAT. ANN. § 43-128.03(A) (West Supp. 1978).

165. ARK. ACTS NO. 1321, § 1 (1977).

166. OKLA. STAT. § 2357.2 (1977).

167. ARK. ACTS NO. 1321, § 3 (1977).

168. HAW. REV. STAT. § 235-12(b) (1976).

169. CAL. REV. AND TAX CODE § 17052.5.

170. PUB. L. NO. 93-409, 88 STAT. 1069 (1974).

171. OR. REV. STAT. § 469.165 (1977).

172. WIS. STAT. § 71.09(12)(d).

173. WIS. STAT. § 71.09(12)(d)(1), (2).

174. WIS. STAT. § 71.09(12)(d)(4).

A tax credit statute "should apply to people who have installed solar energy devices prior to its enactment."<sup>175</sup> Federal law sets an example by crediting solar systems purchased on or after the initiation date of April 20, 1977,<sup>176</sup> though the act went into effect November 9, 1978.<sup>177</sup> A countervailing concern is that retroactive credits cost tax revenues which might be better used to encourage solar installations not yet brought into being.

Solar equipment definitions are seminal to the reach of solar laws. An important definitional issue is whether passive, or direct<sup>178</sup> solar systems should be credited. The federal government does not do so.<sup>179</sup> "This will seriously impede the tax credit's influence on the homeowner to add passive solar equipment to his residence."<sup>180</sup> States may wish to expressly credit direct systems and fill the vacuum. Arizona's recognition of direct systems is reduced by its exclusion of items that are "merely a part of a normal structure such as a window."<sup>181</sup> Similarly, North Dakota's language that "(C)osts of installation shall not include costs of redesigning, remodeling, or otherwise altering the structure of a building in which a solar or wind energy device is installed,"<sup>182</sup> is hardly conducive to direct solar retrofits. Many state statutes do not expressly refer to direct systems,<sup>183</sup> and though such systems may qualify under broad definitional language, express inclusion is less subject to the possibility of judicial restriction.

Another definitional issue concerns the variety of buildings upon which solar installations may be credited. Arkansas exhibits substantial breadth by crediting equipment on "any structure which is located in Arkansas."<sup>184</sup> North Carolina's statute is similarly broad.<sup>185</sup> California, on a par with North Dakota,<sup>186</sup> credits installations on "premises

175. Williams, *supra* note 25, at 1025.

176. ENERGY TAX ACT OF 1978, PUB. L. 95-618, § 101, § 44C(c)(2)(A), 92 STAT. 3174 (1978).

177. ENERGY TAX ACT OF 1978, PUB. L. 95-618, § 101, § 44C, 92 STAT. 3174 (1978).

178. For use of this term, see, U.S. DEPARTMENT OF ENERGY, PUT THE SUN TO WORK TODAY 4 (1978).

179. *Department of the Treasury Internal Revenue Service, Energy Credits for Individuals* 3 PUBLICATION 903 (1979).

180. NATIONAL ENERGY PLAN ANALYSIS: A TEXAS RESPONSE 56-61 (1978).

181. ARIZ. REV. STAT. ANN. § 43-128.03(F) (West Supp. 1978).

182. N.D. CENT. CODE § 57-38-01.8 (1978).

183. *E.g.*, CAL. REV. AND TAX CODE § 17052.5(g).

184. ARK. ACTS NO. 1321, § 1 (1977).

185. N.C. GEN. STAT. § 105-151.2 (Supp. 1977).

186. N.D. CENT. CODE § 57-38-01.8 (1978).

in California which are owned and controlled by the taxpayer. . . ."<sup>187</sup> Both California<sup>188</sup> and the federal government<sup>189</sup> allow credits to condominium owners, while installations on multi-dwelling buildings qualify in North Carolina.<sup>190</sup>

Several states impose special criteria which creditable solar projects must satisfy. California, for example, requires a life of at least three years from creditable solar equipment.<sup>191</sup> The federal government mandates lives of at least five years.<sup>192</sup> Oregon credits systems that "meet or exceed ten percent of the total energy requirements for the dwelling."<sup>193</sup> North Dakota caveats:

If a solar or wind energy device is a part of a system which uses other means of energy, only that portion of the total system directly attributable to the cost of the solar or wind energy device shall be included in determining the amount of the credit.<sup>194</sup>

North Carolina<sup>195</sup> and New Mexico<sup>196</sup> limit creditable systems by reference to federal standards.<sup>197</sup> While this can simplify state responsibilities and cut bureaucratic costs, the price may be federal control over aspects of solar energy which a state desires to manipulate.

Other provisions are used to further limit the costs of solar credits or maximize program benefits. New Mexico wisely puts the availability of its credit on a one-per-residence basis.<sup>198</sup> Idaho allows credits to pass from property owner to succeeding property owner until exhausted.<sup>199</sup> North Carolina<sup>200</sup> and other states split credits between married couples who do not file joint income tax forms. California reduces the basis of credited property by the value of the

187. CAL. REV. AND TAX CODE § 17052.5(a)(2).

188. CAL. REV. AND TAX CODE § 17052.5(a)(4).

189. ENERGY TAX ACT OF 1978, PUB. LAW 95-618, § 101, § 44C(d)(3), 92 STAT. 3174 (1978).

190. N.C. GEN. STAT. § 105-151.2 (Supp. 1977).

191. CAL. REV. AND TAX CODE § 17052.5(g)(2).

192. ENERGY TAX ACT OF 1978, PUB. L. 95-618, § 101, § 44C(c)(5)(C), 92 STAT. 3174 (1978).

193. OR. REV. STAT. § 469.160(1) (1977).

194. N.D. CENT. CODE § 57-38-01.8 (1978).

195. N.C. GEN. STAT. § 105-151.2(c) (Supp. 1977).

196. N.M. STAT. ANN. § 72-15A-11.3(E).

197. SOLAR HEATING AND COOLING DEMONSTRATION ACT OF 1974, PUB. L. 93-409, 88 STAT. 1069.

198. N.M. STAT. ANN. § 72-15A-11.3(B)(b).

199. IDAHO CODE § 63-3022(C)(2) (Supp. 1978).

200. N.C. GEN. STAT. § 105-151.2(b) (Supp. 1977).

incentive,<sup>201</sup> but Oregon expressly refuses to do so.<sup>202</sup> Arizona indicates that credits should be taken only in lieu of Arizonian deductions.<sup>203</sup>

Several states have extended their solar credits to cover activities closely related to solar energy use. Alaska<sup>204</sup> is not alone in crediting insulation, storm windows, and storm doors. Query whether minimum insulation standards should be a prerequisite to solar credits. Idaho expressly credits "fluid to air heat pump(s) operating on a fluid reservoir heated by solar radiation or geothermal resources."<sup>205</sup>

#### D. CORPORATE TAXES

Pro-solar corporate tax measures are supported by rationales analogous to those justifying personal income tax credits. Corporate incentives should therefore help overcome inertial hesitancy toward large initial investments in solar equipment, while accelerating the development of applied solar technology on a local basis. This similarity of purposes carries over into the form credits take in their adoptive legislation. Thus it is hardly surprising that California<sup>206</sup> and Hawaii<sup>207</sup> provide for both corporate and personal income tax credits in the same section of law, while Kansas,<sup>208</sup> North Carolina,<sup>209</sup> and Vermont treat both types of provisions similarly.<sup>210</sup>

There are several respects in which standard-form corporate tax incentives are unique. For example, Kansas allows a sixty month amortization of qualifying corporate solar equipment in addition to its twenty-five percent, up to 3,000 dollar credit on systems completed before July 1, 1983.<sup>211</sup> In Vermont, public utilities do not qualify for corporate credits.<sup>212</sup>

201. CAL. REV. AND TAX CODE § 17052.5(c).

202. OR. REV. STAT. ch. 316.

203. ARIZ. REV. STAT. ANN. § 43-128.03(E) (West Supp. 1978).

204. ALASKA STAT. § 43.20.039(d)(1), (2) (1977).

205. IDAHO CODE § 63-3022(C)(3) (Supp. 1978).

206. CAL. REV. AND TAX CODE § 17052.5.

207. HAW. REV. STAT. § 235-12(a) (1976).

208. KAN. STAT. § 79-32, 167 (1977).

209. N.C. GEN. STAT. § 105-130.23 (Supp. 1977).

210. VT. STAT. ANN. tit. 32, § 5922, 5923 (Supp. 1978).

211. KAN. STAT. § 79-32(168), (167) (1978).

212. VT. STAT. ANN. tit. 32, § 5923(c) (Supp. 1978).

California's statute commendably offers the largest incentives of all standard-form corporate credits.

Corporate taxes in the remaining states fall into two categories, deductions as in Colorado,<sup>213</sup> Massachusetts,<sup>214</sup> Montana,<sup>215</sup> and Wisconsin,<sup>216</sup> and preferential treatment of the solar equipment industry as in Michigan<sup>217</sup> and Texas.<sup>218</sup>

Wisconsin's deduction provisions allow qualifying expenses to be deducted in the year paid, or else depreciated, or amortized over a period of five years however the taxpayer elects.<sup>219</sup> Massachusetts similarly permits deductions only of expenses "paid or incurred during the taxable year."<sup>220</sup> Massachusetts also excuses qualifying units from tangible property taxes, and precludes deductions from having any effect on basis calculations.<sup>221</sup>

Michigan and Texas assist solar businesses presumably in the hope that equipment prices may be reduced.<sup>222</sup> Michigan refuses to tax gross proceeds from "any sales of tangible property for a solar, wind . . . device used to supply . . . energy for heating, cooling, or electrifying an existing or new residential building."<sup>223</sup> Texas similarly exempts corporate income from sales of solar equipment.<sup>224</sup> Lower prices confer an immediate benefit on consumers, unlike the year-end, carried-over benefits obtainable through personal income tax credits.<sup>225</sup> They have drawn criticism, however, as being less effective than solar incentives given directly to consumers.<sup>226</sup> Credits which go to consumers have greater visibility and psychological impact.

## II. STATE SOLAR EASEMENTS

Express negative easements<sup>227</sup> are used to protect access to the sun for those who need solar energy. They may be

213. COLO. SESS. LAW ch. 512 (1977).

214. MASS. ANN. LAWS ch. 63, § 38H (Michie Law Co-op 1978).

215. MONT. REV. CODES ANN. § 84-7403 (Supp. 1977).

216. WIS. STAT. § 71.04(16).

217. MICH. COMP. LAWS ANN. § 205.54h (Supp. 1978).

218. TEX. TAX CODE ANN. tit. 122(A), § 12.03(1)(r).

219. WIS. STAT. § 71.04(16)(a).

220. MASS. ANN. LAWS ch. 63, § 38H(a) (Michie Law Co-op 1978).

221. MASS. ANN. LAWS ch. 63, § 38H(f), (e) (Michie Law Co-op 1978).

222. See Schifflet, Zuckerman, *supra* note 85, at 323.

223. MICH. COMP. LAWS ANN. § 205.54h (Supp. 1978).

224. TEX. TAX CODE ANN. tit. 122(A), § 12.03(1)(r).

225. Schifflet, *supra* note 85, at 321.

226. Williams, *supra* note 25, at 1025.

227. *Id.* at 1016.

“negotiated between individual landowners without the need for governmental intervention.”<sup>228</sup> Since they have greater lasting power than zoning codes, they offer covered individuals more protection than local ordinances.<sup>229</sup>

But because of judicial hostility toward prescriptive easements in light and restrictions on estates, express easements may experience difficulties unless written clearly and explicitly.<sup>230</sup> As a consequence, statutes have been enacted to fix writing and recording requirements that enforceable solar easements must satisfy.<sup>231</sup>

At least ten states have adopted statutes of this type. The most popular form is that of Colorado,<sup>232</sup> which appears in part in the provisions of Florida,<sup>233</sup> Georgia,<sup>234</sup> Idaho,<sup>235</sup> Kansas,<sup>236</sup> Minnesota,<sup>237</sup> North Dakota,<sup>238</sup> and Virginia.<sup>239</sup> The Colorado statute provides:

**Solar easements—creation.** Any easement obtained for the purpose of exposure of a solar energy device shall be created in writing and shall be subject to the same conveyancing and instrument recording requirements as other easements.

**Contents.** (1) Any instrument creating a solar easement shall include, but the contents shall not be limited to:

(a) The vertical and horizontal angles, expressed in degrees, at which the solar easement extends over the real property subject to the solar easement;

(b) Any terms or conditions or both under which the solar easement is granted or will be terminated;

(c) Any provisions for compensation of the owner of the property benefitting from the solar easement in the event of interference with the enjoy-

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228. *Id.* at 1017.

229. *Id.* at 1016, 1017.

230. Myers, *Solar Access Rights in Residential Developments* 24 *PRAC. LAW.* 13, 15 (1978).

231. Note, *Solar Energy: An Analysis of the Implementation of Solar Zoning* 17 *WASH. L. J.* 146, 151 (1977).

232. *COLO. REV. STAT.* § 38-32.5-101, 102 (Supp. 1976).

233. *FLA. STAT.* § 704.07.

234. *GA. CODE ANN.* § 85-1413, 1414 (1978).

235. *IDAHO CODE* § 55-615 (1978).

236. *KAN. SESS. LAWS* ch. 227, § 1, 2 (1977).

237. *MINN. STAT. ANN.* § 500.30 (West Supp. 1978).

238. *N.D. CENT. CODE* § 47-05-01.1, 2 (1978).

239. *VA. ACTS* ch. 19, § 55-336 (1978).

ment of the solar easement or compensation of the owner of the property subject to the solar easement for maintaining the solar easement.<sup>240</sup>

Other states have altered the Colorado formula with provisions ranging in import from slight to substantial. For example, Minnesota's expanded solar easement definition includes skyspace rights whether created "in the form of a restriction, easement, covenant, or condition,"<sup>241</sup> as does that of Maryland.<sup>242</sup> This simplifies handling of solar easements which originate from differing sources. The life of North Dakota easements are limited by law to ninety-nine years or less.<sup>243</sup> Florida<sup>244</sup> and Minnesota<sup>245</sup> require descriptions of easement affected lands, Florida additionally mandating that easements be located in relation to existing lot boundaries and zoning setback requirements.<sup>246</sup> Properly created easements in Idaho "shall be deemed to pass with the property when title is transferred to another owner. . . ." <sup>247</sup> Minnesota easements also run with the land, at least until extinguished by their own terms.<sup>248</sup> Recorded solar easements in Minnesota cannot be ruled unenforceable due to a "lack of privity of estate or privity of contract."<sup>249</sup> Another Minnesota innovation recognizes depreciation of servient property for property tax purposes, but not appreciation of the dominant tenement.<sup>250</sup>

Maryland and New Mexico use systems substantially different from Colorado's formula. New Mexico allocates solar energy on a prior appropriation basis. This gives precedence to the earliest beneficial users of sunlight according to the rule "priority in time shall have better right."<sup>251</sup> Nevertheless, New Mexican easements may be transferred through written and recorded instruments.<sup>252</sup> Maryland endorses easements only if they satisfy requirements for the execution of deeds or wills.<sup>253</sup>

240. COLO. REV. STAT. § 38-32.5-101, 102 (Supp. 1976).

241. MINN. STAT. ANN. § 500.30(1) (West Supp. 1978).

242. MD. ANN. CODE § 2-118 (1974).

243. N.D. CENT. CODE § 47-05-02.1(2) (1978).

244. FLA. STAT. § 704.07(2)(a) (1978).

245. MINN. STAT. ANN. § 500.30(3)(a) (West Supp. 1978).

246. FLA. STAT. § 704.07(2)(c) (1977).

247. IDAHO CODE § 55-615(3) (1978).

248. MINN. STAT. ANN. § 500.30(2) (West Supp. 1978).

249. MINN. STAT. ANN. § 500.30(2) (West Supp. 1978).

250. MINN. STAT. ANN. § 500.30(5) (West Supp. 1978).

251. N.M. STAT. ANN. § 70-8-4 (Supp. 1978).

252. N.M. STAT. ANN. § 70-8-4 (Supp. 1978).

253. MD. ANN. CODE § 2-118 (1974).

## III. CONCLUSION

Concerned scientists point out dangers inherent in our present energy consumption patterns, in terms of pollution and our dependence on nonrenewable fuels.<sup>254</sup> Solar energy will amount to little as an alternative unless existing institutional barriers and fossil fuel inertia are overcome. Solar tax incentives and skyspace easements can help. If this paper contributes in some small way to their overall effectiveness, it will have served its purpose.

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254. D. H. Meadows, *supra* note 2, at 84-87.