

Oil and Gas, Natural Resources, and Energy Journal

Volume 5 | Number 4

April 2020

Identifying the Pillars of a Pro-Solar Energy Policy: A Multi-State Survey of Distributed Solar Energy Generation Laws

Samuel Moore

Follow this and additional works at: <https://digitalcommons.law.ou.edu/onej>



Part of the [Energy and Utilities Law Commons](#), [Natural Resources Law Commons](#), and the [Oil, Gas, and Mineral Law Commons](#)

Recommended Citation

Samuel Moore, *Identifying the Pillars of a Pro-Solar Energy Policy: A Multi-State Survey of Distributed Solar Energy Generation Laws*, 5 OIL & GAS, NAT. RESOURCES & ENERGY J. 695 (2020), <https://digitalcommons.law.ou.edu/onej/vol5/iss4/5>

This Article is brought to you for free and open access by University of Oklahoma College of Law Digital Commons. It has been accepted for inclusion in Oil and Gas, Natural Resources, and Energy Journal by an authorized editor of University of Oklahoma College of Law Digital Commons. For more information, please contact Law-LibraryDigitalCommons@ou.edu.

ONE J

Oil and Gas, Natural Resources, and Energy Journal

VOLUME 5

NUMBER 4

IDENTIFYING THE PILLARS OF A PRO-SOLAR ENERGY POLICY: A MULTI-STATE SURVEY OF DISTRIBUTED SOLAR ENERGY GENERATION LAWS

SAMUEL MOORE*

Increasing the use of solar panels to generate electricity can reduce greenhouse gas emissions¹ and reduce dependence on foreign oil². Improvements in technology and a federal rebate program, which currently allows for 30% of the costs of solar energy system to be deducted from a tax-payer's federal income tax liability³, have contributed to the slow but steady growth in solar energy production, but states vary in their levels of solar energy production. State and federal tax incentives alone may have limited success in spurring the development of solar energy generation, specifically distributed generation by consumer-generators. This note argues that there are three key policies best suited for states to encourage the development of solar energy by consumer-generators: guaranteed net metering, renewable energy portfolio standards, and the invalidation of land-use controls. It then catalogues the presence (or absence) of these laws in each of the fifty states and categorizes the states into four group from most to least supportive based on those laws.

* The author is a student at the University of Oklahoma College of Law.

1. See Arthur J. Clarke, *Climate Change Ushers in a New Paradigm for Regulatory Compliance*, ASPATORE, 2008 WL 5689295, at *9 (2008).

2. Tawny L. Alvarez, Note, *Don't Take my Sunshine Away: Right-to-Light and Solar Energy in the Twenty-First Century*, 28 PACE L. REV. 535, 535 (Spring 2008).

3. 26 U.S.C.A. §25D (Westlaw through Pub. L. 116-138).

I. Background

A solar panel, which one might see either in massive solar farms, on solar-powered calculators, or on rooftops are comprised of photovoltaic cells. These cells have chemical properties which allow them to convert sunlight directly into electricity.⁴ Compared to other types of electricity production, this technology requires minimal amount of water⁵ and is ideal for distributed generation.

Distributed generation refers to the use of technologies that produce electricity at or near the point at which it is consumed.⁶ In the residential sector, technologies such as gasoline or diesel powered emergency backup generators and solar photovoltaic panels are often used for distributed generation.⁷ Distributed generation reduces the demand for electricity from centralized plants and reduces “line loss”: the phenomenon in which electricity is wasted or “lost” as it is transmitted through the electricity distribution system.⁸

Consumer-generators are customers of electric service providers who participate in distributed-generation.⁹ In a sense, they are concurrently customers and suppliers of their electric service providers. They purchase from the utilities when their consumption outpaces their generation. Alternatively, at times when they consume less than they generate, excess is fed back into the electricity distribution system. Net metering is the term for the accounting systems employed to measure and pay for electricity produced by consumer-generators. Electricity is measured (typically with a bi-directional meter, capable of registering flows in both directions) both as it is drawn in from the grid and as it is put into the grid by consumer-generators.¹⁰

4. *Solar Photovoltaic Cells Basics*, OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY (Aug. 16, 2013) <https://www.energy.gov/eere/solar/articles/solar-photovoltaic-cell-basics>.

5. Robert Glennon & Andrew M. Reaves, *Solar Energy's Cloudy Future*, 1 ARIZ. J. ENVTL. POL'Y 91, 96 (Fall 2010).

6. *Distributed Generation of Electricity and its Environmental Impacts*, ENVTL. PROT. AGENCY, <https://www.epa.gov/energy/distributed-generation-electricity-and-its-environmental-impacts> (last visited Mar. 29, 2020).

7. *Id.*

8. *Id.*

9. See, e.g., *Using Alternative Energy at Home in Pennsylvania*, PENN. PUB. UTILS. COMM'N (2017), http://www.puc.state.pa.us/general/consumer_ed/pdf/Home_Alt_Energy_FS.pdf.

10. Chandra Shah, *Energy Efficiency and Renewable Energy*, U.S. DEP'T OF ENERGY (2014).

II. Three Policies for Promoting Solar Energy Distributed Generation

Guaranteed net metering, the preemption of land-use controls, and the establishment of renewable energy portfolio standards are the three essential policies for encouraging the distributed generation of solar energy because they change the incentive structure of both potential consumer-generators and electric service providers. Guaranteed net metering and land-use control preemptions remove disincentives for consumer-generators. Renewable energy portfolio standards incentivize electric utilities, who may be indifferent or hostile towards distributed generation¹¹, to instead encourage it.

The availability of net-metering is the threshold question for whether the use of solar panels on residential property can generally be economically viable. Solar photovoltaic energy generation has an intermittency problem: the cells cannot produce electricity when there is no sunlight.¹² Due to technological limitations, consumer-generators cannot efficiently store excess generation from when the cells are able to produce electricity.¹³ Guaranteed net-metering resolves this problem, as least from the perspective of the consumer generator. In net-metering, the customer-generator's property remains connected to the electric grid, drawing from the grid when their electricity use exceeds their production and feeding electricity into the grid when their production exceeds their consumption.¹⁴ In calculating the consumer-generator's bill, the utility deducts the number of kilowatt hours produced from the number consumed and credits any surplus to the next billing period.¹⁵

Most states allow net-metering, varying somewhat in how much generation is permitted and when payouts to the consumer-generators are required. Consumers may hesitate to use solar energy if they cannot guarantee access to adequate sunlight.¹⁶ This is why net metering is the threshold question for the economic viability of residential solar energy production by consumer-generators: without net metering, the risk of little sunlight and therefore low production is allocated entirely upon the

11. Glennon & Reaves, *supra* note 5, at 124.

12. *Id.* at 97.

13. RAN FU ET AL., 2018 U.S. UTILITY-SCALE PHOTOVOLTAICS-PLUS-ENERGY STORAGE SYSTEM COSTS BENCHMARK, NAT'L RENEWABLE ENERGY LAB. 2 (2018).

14. Luke Basset, *Net Energy Metering: Growth and Accountability in the Distributed Energy Market*, CTR. FOR AMERICAN PROGRESS (July 14, 2016, 5:38 p.m.), <https://www.americanprogress.org/issues/green/reports/2016/07/14/141336/net-energy-metering/>.

15. *Id.*

16. Alvarez, *supra* note 2.

consumer-generator. When net metering is available, the risk is diminished, as the consumer-generator becomes able to offset losses or insufficient returns from low-light periods with payouts from periods of greater sunshine.

Requiring electric service providers to make net metering available to consumer-generators changes the consumer-generators' incentive structures and thereby favors increased distributed generation of solar energy. It increases the amount of benefits from production the consumer-generator is able to capture. Excess generation is not lost or wasted but instead transmitted for use elsewhere, for which the consumer-generators are compensated. The installation of solar panels is transformed into a much less risky investment.

Beyond the fear that nature will not co-operate, potential consumer-generators of solar energy may fear resistance from their neighbors. Land use controls, imposed by local actors such as developers and homeowners or by private agreements, can hinder the installation of solar panels. States which invalidate such land-use controls remove the primary legal obstacle to solar energy production by consumer-generators. These may similarly be imposed by local governments such as counties and municipalities, and strongly pro-solar states proscribe the ability of the bodies to limit solar energy production.

Preempting local restrictions removes a legal risk just as requiring net metering removes a natural risk. Potential consumer-generators in states without preemptions run the risk that a third party may hinder or block their abilities to participate in distributed generation. Fines and legal battles, in addition to preventing the installation of photovoltaic panels outright, may have a chilling effect as such contentions become publicly known. A potential consumer-generator who is unsure of whether he or she will be subject to such proceeds may elect not to pursue this course at all, to simply avoid the hassle. When instead a state passes a blanket preemption, consumer-generators do not need to worry about determining if they will be so resisted.

These two policies make participating in distributed generation attractive to consumer-generators, whereas establishing renewable energy portfolio standards incentivize electric service providers to encourage it. Renewable energy portfolio standards require minimum thresholds of electricity production to come from renewable sources, and sometimes from solar specifically. Left to their own devices, electric utility companies often do not have strong incentives to update their infrastructure to make greater use

of solar and other renewable energy sources.¹⁷ However, renewable energy standards may help shift their preferences towards distributed generation and away from concentrated generation.¹⁸

The utility companies' preferences are shifted this way because of how renewable portfolio standards compliance is typically structured. Generally, electric service providers are not required to produce electricity from qualifying source themselves.¹⁹ Instead, they are merely required to provide a certain percentage from qualifying services at the point of delivery, and may purchase the electricity from other parties to meet this requirement.²⁰ So, they are given a choice between purchasing and producing. However, concentrated renewable-source energy plants, such as solar farms, are extremely land-intensive compared to traditional power plants.²¹ Rather than making massive investments in such plants, the electric service providers simply make use of the bi-directional meters required for net metering. Instead of being incentivized to provide the absolute minimum amount of net metering required by the state, the utilities are incentivized to make increasing use of them, as the portfolio standards increase over time.

Employing these three policies encourage consumer-generators to work with electric service providers to increase production of solar energy in distributed generation by reducing risks to the consumer-generators and shifting the providers' incentives away from concentrated generation towards purchasing energy created in distributed generation. These parties who may have been indifferent towards, unsure of, or even hostile towards using photovoltaic cells installed on residential roofs are transformed into parties who stand to benefit from it.

17. Lauren Gillespie, Note, *It's Always Sunny in Florida: Reexamining the Role of Energy Monopolies after Recent Solar Ballot Initiatives*, 42 WM. & MARY L. & POL'Y REV. 1051 (Spring 2018).

18. See Glennon & Reaves, *supra* note 5, at 124.

19. See, e.g., PENN. PUB. COMM'N, *supra* note 9.

20. *Id.*

21. See Glennon & Reaves, *supra* note 5, at 103.

III. Catalog of State Laws²²

1. Alabama

Alabama authorizes the Alabama Public Services Commission to approve proposals submitted by utility companies to purchase renewable energy, including solar energy, but prohibits the Commission from requiring utilities to purchase at a price above certain types of costs.²³ The state has no net metering laws, no renewable portfolio standards (which require utilities to increase production of energy from renewable sources), and no property, income, or sales tax exemptions for solar energy production systems.²⁴ A search of the state's laws did not reveal any protections against local anti-solar land-use controls.

2. Alaska

The State of Alaska has empowered the Regulatory Commission of Alaska to regulate electric utilities.²⁵ Under this authority, the RCA has generally required utilities to permit net metering by consumers for solar and other types of renewable energy production.²⁶

Alaska has neither a state personal income or state sales tax, and so there are no state tax credits or sales tax exemptions for solar systems.²⁷ Municipalities may, but are not required to, exempt renewable energy systems, including solar systems, from municipal property tax.²⁸ The State has no renewable energy portfolio standards.²⁹ A search of the state's laws did not reveal any protections against local anti-solar land-use controls.

22. In case in which a state has a particular type of solar energy law, the relevant statute is directly cited. Where such statutes are absent, industry sources are provided to further support the absence of the particular law or policy.

23. ALA. CODE § 37-4-140 (West, Westlaw through Act 2020-72 and Act 2020-74 through Act 2020-88).

24. *Renewable Energy Incentives*, DASOLAR.COM (2015), http://energy.dasolar.com/energy-incentives-map-us-tax-credits-rebates-grants?_ga=2.82156180.38503409.1571620648-1001844492.1571620648 (last visited Apr. 10, 2020).

25. ALASKA STAT. ANN. § 42.05.141 (West, Westlaw through Ch. 7 of the 2020 2d Reg. Sess., 31st Leg.).

26. ALASKA ADMIN. CODE tit. 3, §§ 50.910-930 (LexisNexis through Register 233).

27. DASOLAR.COM, *supra* note 24.

28. ALASKA STAT. ANN. § 29.45.050 (West, Westlaw through Ch. 7 of the 2020 2d Reg. Sess., 31st Leg.).

29. DASOLAR.COM, *supra* note 24.

3. Arizona

Arizona has net metering regulations requiring utilities to credit excess electric production by consumer-generators to following months; at the end of the year, the utilities have the option of paying out remaining credits by check or rolling the credits over into the next year.³⁰ The state's renewable energy portfolio standard requires utilities to procure 10% of retail electricity from renewable sources during 2020, with that standard increasing yearly by one percentage point until it reaches 15% in 2025.³¹ Arizona has a tax credit for renewable energy generators, including solar panels, if they first produced electricity from December 31, 2010 to January 1, 2021.³² The tax credit is highest for solar panels and is based on a 10-year schedule of payments per kilowatt hour.³³ It authorizes aggregate tax credits of twenty million dollars per calendar year on a first-come, first-served basis up to 2 million dollars per calendar year.³⁴

Solar energy devices are exempt from the use tax applied to purchases, if the device was purchased from a registered solar energy retailer or contractor.³⁵ Furthermore, when property value for certain types of properties are calculated for the purposes of taxation, renewable energy systems, including solar systems, are not considered to add to the value of the property.³⁶

4. Arkansas

Arkansas provides for net metering produced from renewable energy sources, including solar.³⁷ Arkansas empowers a commission to establish rates a terms for net metering: the commission may allow utilities to recapture some of the costs not avoided by electricity production by the consumer and to prevent costs from being unfairly shifted to non-net metering consumers, but only after balancing the utilities' needs against

30. ARIZ. ADMIN. CODE § R14-2-2306 (LexisNexis through Register 26, Issue 12) (published Mar. 20, 2020).

31. *Id.* § R14-2-1804.

32. ARIZ. REV. STAT. ANN. § 43-1083.02 (LexisNexis through 54th Leg., 2nd Reg. Sess. (2020)).

33. *Id.*

34. *Id.*

35. *Id.* § 42-5159.

36. *Id.* § 42-12056.

37. ARK. CODE ANN. § 23-18-604 (West, Westlaw current through 2020 1st Extraordinary Sess. of 92nd Ark. Gen. Assemb.).

public policy benefits.³⁸ Arkansas allow municipalities some leeway in regulating net-metering, provided that the municipality does not establish a net metering rate below a certain threshold.³⁹

Beyond net metering Arkansas does little to incentivize residential solar energy production. The state does not offer tax credits to offset the cost of solar panels, exempt the panels from sales tax, or exempt the value added from solar panels from the calculation of real property tax.⁴⁰ The state also does not have any renewable energy portfolio standards.⁴¹ A search of the state's laws did not reveal any protections against local anti-solar land-use controls.

5. California

California has an aggressive renewable portfolio standards schedule requiring local publicly-owned utilities to procure 60% of electricity for retail sale by December 31, 2030.⁴² The state requires electric utilities to provide net metering to consumers that also produce renewable energy.⁴³ California allows real property owners to exclude the value added from solar energy improvements for the purposes of calculating property taxes⁴⁴, but does not offer sales tax exemptions or income tax credits.⁴⁵ California voids covenants and other restrictions in deeds and other instruments affecting interests in land that have the effect of prohibiting the use of solar energy collectors.⁴⁶

6. Colorado

Colorado has an aggressive renewable energy portfolio standard, requiring most electric utilities to produce or cause to be produced 30% of retail electricity sales in the state from renewable sources by 2020.⁴⁷ The State also requires municipality utilities, serving 5000 customers or more, to provide for net metering at non-discriminatory rates.⁴⁸ The other major

38. *Id.* § 23-18-604.

39. *Id.* § 23-18-605.

40. CAL. PUB. UTIL. CODE § 399.15 (West, Westlaw through Ch. 3 of 2020 Reg. Sess.).

41. DASOLAR.COM, *supra* note 24.

42. CAL. PUB. UTIL. CODE § 399.15 (West, Westlaw through Ch. 3 of 2020 Reg. Sess.).

43. *Id.* § 2827.

44. CAL. REV. & TAX. CODE § 73 (West, Westlaw through Ch. 3 of 2020 Reg. Sess.).

45. DASOLAR.COM, *supra* note 24.

46. CAL. CIV. CODE § 714 (West, Westlaw through Ch. 3 of 2020 Reg. Sess.).

47. COLO. REV. STAT. ANN. §40-2-124 (West, Westlaw through legislation effective April 1, 2020 of the 2020 Reg. Sess.).

48. *Id.*

type of electric utility in the state, cooperative electric associations, may be a vote of their members elect to be exempt from most of the state's public utility law.⁴⁹ However, these utilities are still required to provide for net metering as municipal electric utilities are required to do.⁵⁰

The state exempts "all sales, storage, and use of components" used in producing renewable electricity from its sales and use tax.⁵¹ Renewable energy devices, including solar systems, are also not subject to valuation in determining real and personal property tax in the state.⁵² However, the state does not offer solar income tax credits.⁵³

Importantly, the state also voids restrictive covenants that unreasonably prohibit or restrict the use of renewable energy generation devices, including solar panels.⁵⁴ Interestingly, the state also requires a solar pre-wire option or solar consultation for newly built detached single-family homes: for new home built under contract for sale, the buyer must have the option to have a solar system include, and for all new homes sold the seller must provide the buyer with a list of companies that provide residential solar installation services.⁵⁵

7. Connecticut

Connecticut provides clear net-metering laws, requiring utilities to credit kilowatt-hours produced by renewable energy systems in excess of consumption to the next month's billing period and pay out any surplus at the end of the billing-year to the consumer-generators.⁵⁶ The state provides for an aggressive renewable energy portfolio standard schedule, requiring at least 21% of electricity generated to come from renewable sources by 2020, and increase in increments yearly to 40% by the year 2030.⁵⁷

Connecticut exempts many types of renewable energy sources, including solar panels, from its property taxes.⁵⁸ Solar energy systems and other

49. *Id.* § 40-9.5-103.

50. *Id.* § 40-9.5-118.

51. *Id.* § 39-26-724.

52. *Id.* § 39-5-104.7.

53. DASOLAR.COM, *supra* note 24.

54. COLO. REV. STAT. ANN. § 38-30-168 (West, Westlaw through legislation effective April 1, 2020 of the 2020 Reg. Sess.).

55. *Id.* § 38-35.7-106.

56. CONN. GEN. STAT. ANN. §16-243h (West, Westlaw current through enactments of Pub. Act 20-1).

57. *Id.* §16-245a.

58. *Id.* §12-81(57).

renewable energy systems are also exempt from the state sales tax.⁵⁹ The state does not offer an income tax credit for the purchase or installation of a solar energy system.⁶⁰ A search of the state's laws did not reveal any protections against local anti-solar land-use controls.

8. Delaware

Delaware has a strong renewable energy portfolio standards schedule, requiring total electricity retail sales to include a minimum of 20% from renewable sources and 2.25% to come specifically from solar photovoltaic sources by 2020; these thresholds increase by 1 percentage point and 0.25 percentage points, respectively, until 2025, after which time an energy commission may continue to increase them.⁶¹ Electricity retailers who fail to meet these targets are required to make payments in lieu of compliance, on a payment schedule that increases for multiple years of missed target deadlines.⁶² The state has clear net-metering laws, requiring all utility companies in the state to allow for residential generation of up to 25 kilowatts and prohibiting charging net-metering customers discriminatory rates, except for fees in limited circumstances to recover direct costs.⁶³

Delaware also prohibits restrictive covenants and other land-use controls that effectively prohibit or unreasonably restrict the use of roof-mounted solar panels; state statute declares the development of alternative energy to be within the public interest, and defines restrictions that significantly increase the costs of solar panels or significantly decrease their efficiency to be unreasonable.⁶⁴ The state does not offer property tax exemptions or income tax credits, but has no state sales tax.⁶⁵

9. Florida

Florida state law prevents local governing bodies from adopting ordinances that prohibit the installation of solar collectors and other renewable energy devices, and prevents restrictive covenants and similar binding agreements from doing the same.⁶⁶ The state has also required

59. *Id.* §12-412(117).

60. DASOLAR.COM, *supra* note 24.

61. DEL. CODE. ANN. tit. 26, § 354 (West, Westlaw through ch. 239 of the 150th Gen. Assemb. (2019-2020)).

62. *Id.* §358.

63. *Id.* §1014.

64. *Id.* §318.

65. DASOLAR.COM, *supra* note 24.

66. FLA. STAT. § 163.04 (West, Westlaw through 2020 2d Reg. Sess. of the 26th Leg.).

public utilities to provide net metering programs for their customers since 2009.⁶⁷ Florida exempts one hundred percent of the assessed value added of solar devices in calculating real property tax on residential property, and eighty percent of that value for calculating property taxes on commercial property.⁶⁸ The state also exempts solar energy systems and their component parts from the state's sale and use taxes.⁶⁹ However, the state has no renewable portfolio standards.⁷⁰

10. Georgia

Georgia offers little to support the development of solar energy in the state. The state does require electric service providers to make net metering available to customers.⁷¹ However, the statute requires that the direct costs of interconnecting and administering be assessed upon the consumer-generator with no consideration of public policy benefits, and allows without restriction the state's electric service provider regulators to permit electric service providers to impose other charges on consumer-generators.⁷² The state does not have sales or property tax exemptions, or tax credits to support residential solar energy and has no renewable portfolio standards.⁷³

11. Hawaii

Hawaii requires electric utilities to make net metering available to consumer on a first-come, first-served basis until the total capacity of consumer-generators equal 0.5% of the utilities peak demand and prohibits utilities from charging discriminatory rates to consumer-generators.⁷⁴ Consumer-generators are entitled to have their monthly excess generation credited to the following month's bill within a twelve month period; however, those credits expire at the end of the twelve month period, and the utility companies may but are not obligated to financial compensate the consumer-generators for the credits.⁷⁵

67. *Id.* § 366.91.

68. *Id.* § 193.624.

69. *Id.* § 212.08.

70. DASOLAR.COM, *supra* note 24.

71. GA. CODE ANN. § 46-3-54 (West, Westlaw through Laws 2020, Act 322).

72. *Id.*

73. DASOLAR.COM, *supra* note 24.

74. HAW. REV. STAT. § 269-102 (West, Westlaw through the end of the 2019 Reg. Sess.).

75. *Id.* §§ 296-106, 108.

Hawaii has one of the strongest renewable energy portfolio standards in the nation, requiring 30% of net electricity sales to come from renewable sources by 2020, 40% by 2030, 70% by 2040 and 100% by 2045; the state also empowers its utility commission to set and enforce penalties against electric service providers who fail to meet those targets.⁷⁶ The state invalidates by law land-use controls such as restrictive covenants that prevent homeowners from installing solar energy devices on their homes.⁷⁷

Hawaii offers an income tax credit of up to the lesser of \$5000 or 35% of the actual cost of the solar energy system.⁷⁸ The state does not offer sales tax exemptions for solar energy systems.⁷⁹

12. Idaho

Idaho is among the least supportive states of solar energy production by consumer-generators. The state does not require utilities to provide net metering and has no renewable energy portfolio standards.⁸⁰ However, the state does limit the use of restrictive covenants against solar energy systems by preventing homeowners' associations from prohibiting the installation of rooftop solar panels.⁸¹

Idaho does offer an income tax credit for the installation of alternative energy devices, including solar energy systems, on residences of up to 40% of the cost in the year of purchase and 20% of the cost in the subsequent three years, provided that the tax credit in a year does not exceed \$5000.⁸² The state does not offer property or sales tax exemptions for solar energy systems.⁸³

13. Illinois

Illinois requires electric service providers to make net metering available to consumer-generators whose renewable energy systems do not exceed 2000 kilowatts at non-discriminatory rates until the generating load of net metering consumer-generators equals 5% of the electric service providers peak demand during the previous year.⁸⁴ Excess energy generated is to be

76. *Id.*

77. *Id.* § 196-7.

78. *Id.* § 235-12.5.

79. DASOLAR.COM, *supra* note 24.

80. *Id.*

81. 2020 Idaho Sess. Laws Ch. 242.

82. *Id.* § 63-3022c.

83. DASOLAR.COM, *supra* note 24.

84. 220 ILL. COMP. STAT. 5/16-107.5 (West, Westlaw through Pub. Act 101-629).

credited to the consumer-generators' next monthly bill at a one-to-one ratio, however such credits expire at the end of an annual billing period.⁸⁵

The state has renewable portfolio standards requiring its Planning and Procurement Bureau to ensure that 25% of electricity procured is to come from renewable sources by 2025.⁸⁶ Illinois also voids land use controls such as deed restrictions and restrictive covenants that prohibit or have the effect of prohibiting solar energy systems on residential property.⁸⁷ Illinois does not offer income tax credits or sales tax exemptions for solar energy systems.⁸⁸ The state does offer property tax exemptions for solar energy systems, in which consumer-generators may request to have their property assessed as if the system were not in place.⁸⁹

14. Indiana

Indiana provides for a net metering system for consumer-generators in which excess is credited to consumer-generators following monthly bill for so long as the consumer is a customer of the electric supplier.⁹⁰ The state has a fairly complex formula for how long utilities are required to make net metering available to consumers. Firstly, utilities are required to make the service available until either the consumer-generators' aggregate capacity reaches 1.5% of the previous year's peak summer demand, or July 1, 2022, whichever comes first.⁹¹ Consumer-generators who install net metering facilities before that deadline are entitled to continue the service for several years afterwards, depending on the date of installation.⁹² A state commission is responsible for determining at what rates consumer-generators shall be credited for excess production⁹³ and may recover reasonable additional fees from consumer-generators at the approval of the state commission.⁹⁴

The state has a limited renewable energy portfolio standard. Its administrative code provides for a voluntary standard to reach 10% of

85. *Id.*

86. 20 ILL. COMP. STAT. 3855/1-75 (West, Westlaw through Pub. Act 101-629).

87. 765 ILL. COMP. STAT. 165/15-165/20 (West, Westlaw through Pub. Act 101-629).

88. DASOLAR.COM, *supra* note 24.

89. 35 ILL. COMP. STAT. 200/10-10 (West, Westlaw through Pub. Act 101-629).

90. IND. CODE § 8-1-40-18 (West, Westlaw through 2020 2d Reg. Sess. of the 121st Gen. Assemb.).

91. *Id.* § 8-1-40-10.

92. *Id.* § 8-1-40-13 & -14.

93. *Id.* § 8-1-40-15.

94. *Id.* § 4-1-40-19.

electricity obtained from renewable sources by 2025.⁹⁵ The state limits land-use controls against solar panels by preventing units of local government from effectively prohibiting or unreasonably restricting the use of solar energy systems.⁹⁶

Indiana reduces the value added from solar energy systems in calculating property tax⁹⁷ but does not offer income tax credits for solar energy systems.⁹⁸

15. Iowa

Iowa provides for net metering in its administrative code but does little to elaborate the specific conditions of net metering.⁹⁹ Iowa permits its local government to prohibit restrictive covenants that unreasonably restrict solar energy collection.¹⁰⁰

Iowa provides an income tax credit for solar energy systems of up to 50% of the federal income tax credit, provided that an excess of that credit is not to be refunded but carried over into subsequent years.¹⁰¹ The state also exempts solar energy systems from its state sales tax.¹⁰² Furthermore, Iowa does not add the value added by solar systems in calculating real property taxes.¹⁰³

16. Kansas

The state of Kansas offers clear net metering laws: residential consumer-generators whose renewable energy facilities were installed prior to July 1, 2014 are entitled to net metering of up to 25 kilowatts and consumer-generators whose facilities were installed after that date are entitled to net metering up to 15 kilowatts.¹⁰⁴ Similarly, consumers whose facilities were installed by the 2014 cut off are entitled, until 2030, to credit excess kilowatt-hours to the next month's bill with the credits expiring at the end

95. 170 IND. ADMIN. CODE 17.1-3-3 (West, Westlaw through the Indiana Weekly Collection, Apr. 22, 2020).

96. IND. CODE ANN. § 36-7-2-8 (West, Westlaw through 2020 2d Reg. Sess., 121st Gen. Assemb.).

97. *Id.* §6-1.1-12-26.1

98. DASOLAR.COM, *supra* note 24.

99. IOWA ADMIN. CODE r. 199-15.11(476) (West, Westlaw through Mar. 24, 2020).

100. IOWA CODE § 564A.8 (West, Westlaw through legislation effective Mar. 18, 2020 from the 2020 Reg. Sess.).

101. *Id.* § 422.11L.

102. *Id.* § 423.3(90).

103. *Id.* § 441.21.

104. KAN. STAT. ANN. § 66-1267 (West, Westlaw through 2020 Reg. Sess.).

of an annual period; but for other consumer-generators currently and for all consumers beginning in 2030, crediting will be based not on kilowatt-hours but on the utility's average kilowatt-hour generating cost for the month.¹⁰⁵ The state allows utilities to recover "reasonable costs" incurred in net metering.¹⁰⁶

Kansas sets a voluntary renewable energy portfolio standards goal of 20% of electricity generated in the state to come from renewable sources by 2020.¹⁰⁷ Electric utilities may recover "reasonable costs" to comply with this goal.¹⁰⁸ Furthermore, every kilowatt of renewable energy derived from a net metering source shall be counted as 1.1 kilowatts for the purposes of compliance with the renewable standard.¹⁰⁹

Kansas exempt solar energy systems from all state property and ad valorem taxes for ten years following an application for exemption, (although only if the application came before 2017),¹¹⁰ but does not offer income tax credits or sales tax exemptions for solar energy systems.¹¹¹ A search of the state's laws did not reveal any preemptions of anti-solar land use controls.

17. Kentucky

Kentucky requires electric utilities to make net metering available to consumer-generators: the utilities must credit excess generation in a month to the following month's bill but are not required to pay out the excess in cash when a consumer closes his or her account.¹¹² Utilities are currently not permitted to charge discriminatory rates, but beginning in 2020 they may recover additional costs from consumer-generators.¹¹³ The state does not have renewable energy portfolio standards.¹¹⁴

Kentucky's latest income tax credit against its state income tax seems to have expired in 2016, though it provided for up to a \$500 credit for single-

105. *Id.* § 66-1266.

106. *Id.* § 66-1270.

107. *Id.* § 66-1256.

108. *Id.* § 66-1259.

109. *Id.* § 66-1271.

110. *Id.* § 79-201.

111. DASOLAR.COM, *supra* note 24.

112. KY. REV. STAT. ANN. § 278.466 (West, Westlaw through Ch. 78 of the 2020 Reg. Sess.).

113. *Id.* § 278.466.

114. DASOLAR.COM, *supra* note 24.

family homes.¹¹⁵ The state does not have property or sales tax exemptions.¹¹⁶ A search of the state's law did not reveal any preemptions of anti-solar land use controls.

18. Louisiana

Louisiana requires electric utilities in the state to make net-metering available to consumer-generators and charges its utility commission to establish terms, rates, and conditions for net metering, including when a utility may recover additional costs from net metering customers.¹¹⁷ The state does not have renewable energy portfolio standards.¹¹⁸ Louisiana does prohibit "any person or entity" from unreasonably restricting property owners from unreasonably restricting property owners to install solar energy devices, but exempts historical districts from this prohibition.¹¹⁹

Louisiana provides for tax credits for the cost of a solar energy system that in the aggregate do not exceed \$5 million per year, until a final year of fiscal year 2020-21.¹²⁰ The state also exempts solar energy systems from its ad valorem property taxation. Louisiana does not offer sales tax exemptions for solar panels and does not have renewable energy portfolio standards.¹²¹

19. Maine

The state of Maine permits its utility commission to adopt rules concerning net metering.¹²² The adopted regulations permit net metering for systems of up to 660 kilowatts or less, depending on the ownership structure of the utility.¹²³ Maine's net metering allows excess kilowatt-hours from one month's billing period to be carried over to future billing periods, save that such credits expire at the end of an annualized period.¹²⁴

The state has a complex renewable energy portfolio standard, requiring at least 40% of energy generated in the state to come from renewable

115. KY. REV. STAT. ANN. 141.436 (West, Westlaw through Ch. 78 of the 2020 Reg. Sess.).

116. DASOLAR.COM, *supra* note 24.

117. LA. STAT. ANN. § 51:3063 (West, Westlaw through the 2019 Reg. Sess.).

118. DASOLAR.COM, *supra* note 24.

119. LA. STAT. ANN. § 9:1255 (West, Westlaw through the 2019 Reg. Sess.).

120. *Id.* § 47:6030.

121. DASOLAR.COM, *supra* note 24.

122. ME. STAT. tit. 35-A, § 3209-A (West, Westlaw through Ch. 676 of the 2019 2d Reg. Sess., 129th Leg.).

123. 65-407-313 ME. CODE R. § 3 (LexisNexis through Apr. 2, 2020).

124. *Id.*

sources by 2030.¹²⁵ Maine also has a robust preemption of anti-solar land use controls, prohibiting local governments, associations, and individuals from enforcing covenants and restrictions against solar energy systems, save for limited reasonable restrictions.¹²⁶ Maine state does not offer income tax credits, sales tax exemptions, or property tax exemptions for solar energy systems.¹²⁷

20. Maryland

This state requires electric utilities to make net metering available to consumer-generators at non-discriminatory until the total generating capacity owned by the consumer-generators in the state reaches 1500 megawatts.¹²⁸ A single consumer-generator's system may not exceed a capacity of 2 megawatts, and excess generation may be credited to following months until the end of an annualized period, at which time any excess shall be paid out to the consumer-generator.¹²⁹ The state has a detailed renewable energy portfolio standard, requiring 30.5% of electricity produced by most electricity retailers in the state to come from renewable sources by 2020, and over 50% to come from those sources by 2030.¹³⁰

Maryland exempts solar energy equipment from its sales and use tax.¹³¹ Solar energy systems are exempt from state property tax¹³² and local governments in the state are permitted to exempt solar energy devices in calculating property tax liability.¹³³ A search of the state's laws did not reveal any preemption of anti-solar land use controls.

21. Massachusetts

Massachusetts offers net metering to consumer generators, providing that excess generation shall be carried over from month to month without

125. ME. STAT. tit. 35-A, § 3210 (West, Westlaw through Ch. 676 of the 2019 2d Reg. Sess., 129th Leg.).

126. *Id.* § 1423.

127. DASOLAR.COM, *supra* note 24.

128. MD. CODE ANN., PUB. UTIL., § 7-306 (West, Westlaw through Chs. 1–18, 2020 Reg. Sess. of the Gen. Assemb.).

129. *Id.*

130. *Id.* § 7-703.

131. MD. CODE ANN., TAX – GEN., § 11-230 (West, Westlaw through Chs. 1–18, 2020 Reg. Sess. of the Gen. Assemb.).

132. MD. CODE ANN., TAX – PROP., § 7-242 (West, Westlaw through Chs. 1–18, 2020 Reg. Sess. of the Gen. Assemb.).

133. *Id.* § 9-203.

expiration.¹³⁴ The Massachusetts Department of Energy Resources is empowered to create renewable energy portfolio standards for retail electricity standards.¹³⁵ Those standards require 15% of electricity sold in the state to come from renewable sources by 2020, and for that amount to increase by 1 percentage point in each year thereafter.¹³⁶ The state voids provisions in instruments relative to the use or ownership of real property that forbid or unreasonably restrict the installation or use of solar energy systems.¹³⁷ Zoning ordinances and by-laws that unreasonably regulate or prohibit solar energy devices are similarly prohibited.¹³⁸

The state exempts solar energy devices from sales tax.¹³⁹ Massachusetts also exempts solar equipment from property taxation for 20 years following the installation of the system¹⁴⁰ and provides for an income tax credit of up to the lesser of 15% of the net cost or \$1000 for the purchase of a renewable energy system, including a solar energy system.¹⁴¹

22. Michigan

The state of Michigan requires utilities to provide net metering for consumer-generators by crediting excess generation to subsequent months' bills and permits electric service providers to charge a fee to net metering customers.¹⁴² The state's renewable energy portfolio standards require 15% of retail electricity sold to come from renewable sources by 2021.¹⁴³ Michigan does not offer income tax credits, sales tax exemptions, or property tax exemptions for solar energy systems.¹⁴⁴

23. Minnesota

Minnesota provides for net metering that allows electric service providers to recover only limited costs from consumer-generators, requiring

134. MASS. GEN. LAWS ch., 164 § 139 (West, Westlaw through Ch. 44 of the 2020 2d Ann. Sess.).

135. *Id.* ch., 25A § 11F.

136. 225 MASS. CODE REGS. 14.07 (LexisNexis through Feb. 21, 2020).

137. MASS. GEN. LAWS ch., 184 § 23C (West, Westlaw through Ch. 44 of the 2020 2d Ann. Sess.).

138. *Id.* ch., 40A § 3.

139. *Id.* ch., 64H § 6(dd).

140. *Id.* ch., 59 § 5.

141. *Id.* ch., 62 § 6.

142. MICH. COMP. LAWS § 460.1173 (West, Westlaw through Pub. A. 2020, No. 84, of the 2020 Reg. Sess., 100th Leg.).

143. *Id.* 40-1028.

144. DASOLAR.COM, *supra* note 24.

them to credit excess production in one month to the following month's bill and then pay out any accumulated excess value and the end of the calendar year.¹⁴⁵ The state has moderately strong renewable portfolio standards, requiring 20% of retail electricity sold in the state to come from renewable sources by 2020 and 25% by 2025; electric service providers are permitted to purchase and sell renewable energy credits for the purpose of complying with this standard.¹⁴⁶ Electric service providers are required to report their compliance plans to the state utility commission, which is in turn charged with enforcing the standard and imposing financial penalties for non-compliance.¹⁴⁷

Minnesota zoning ordinance law empowers municipalities to regulate land use for serving various public policy outcomes, including guaranteeing direct access to sunlight for solar energy systems, and such access is a *per se* practical difficulty to be considered in granting zoning variations.¹⁴⁸

In Minnesota solar energy systems are exempt from the state sales tax¹⁴⁹ and solar energy systems as personal property are exempt from property taxes¹⁵⁰. The state does not offer income tax credits to offset the costs of solar energy systems.¹⁵¹

24. Mississippi

Mississippi law, strangely, implies that the state's utility commission may have the power to require electric service providers to offer net metering to consumers, but does not explicitly grant the commission that power.¹⁵² Mississippi does not have any renewable energy portfolio standards and the state does not offer income, sales, or property tax exemptions for solar energy systems.¹⁵³ A search of the state's laws did not reveal any preemptions against anti-solar land use controls.

145. MINN. STAT. ANN. § 216B.164 (West, Westlaw through Apr. 18, 2020 from the 2020 Reg. Sess.).

146. *Id.* § 216B.1691.

147. *Id.*

148. *Id.* § 462.357.

149. *Id.* § 297A.67.

150. *Id.* § 272.02.

151. DASOLAR.COM, *supra* note 24.

152. *See* MISS. CODE ANN. § 77-5-235 (West, Westlaw through 2020 Reg. Sess.).

153. DASOLAR.COM, *supra* note 24.

25. *Missouri*

In Missouri retail electricity suppliers are required to make net metering available to consumer-generators on a first-come, first-serve basis until the consumer-generators' aggregate capacity reaches 5% of the previous year's peak load; after this point, the state utility commission may raise this cap incrementally.¹⁵⁴ Kilowatt-hours produced in excess of consumption are credited against the following months' bill at a minimum rate equal to avoid fuel costs; however, the retailers are not required to make cash payments to the consumer-generators for these credits, and the credits expire 12 months after they are issued.¹⁵⁵

The state of Missouri requires each least 15% of the electricity sold in the state to come from renewable sources by the beginning of the year 2021, and for at least 2% of that 15% to come from solar energy sources.¹⁵⁶ Electricity producers can trade renewable energy credits or bank them for up to three years, and penalties for non-compliance are required to be at least twice the average market value of the credits.¹⁵⁷ State law recognizes access to solar energy as a property right, and prevents that right from being taken by eminent domain.¹⁵⁸

Missouri does not offer sales or income tax exemptions for the purchase of solar energy systems.¹⁵⁹ However, the state requires electric some utilities, up to an aggregate cap, to pay rebates for the purchase of solar energy systems of \$0.25 per watt until the end of 2023.¹⁶⁰ It also exempts solar energy systems from property taxes.¹⁶¹

26. *Montana*

The state of Montana requires electric utilities to make net metering available to consumer-generators with no cap, and generally permits the utilities to charge discriminatory rates to consumer-generators only if the state utility commission finds that direct costs to the utilities associated with

154. MO. REV. STAT. ANN. § 386.890 (West, Westlaw through 2019 1st Extraordinary Sess., 100th Gen. Assemb.).

155. *Id.*

156. *Id.* § 393.1030.

157. *Id.*

158. *Id.* § 442.012.

159. DASOLAR.COM, *supra* note 24.

160. MO. REV. STAT. ANN. § 393.1670 (West, Westlaw through 2019 1st Extraordinary Sess., 100th Gen. Assemb.).

161. *Id.* § 137.100.

net metering exceed their benefits.¹⁶² Excess generation is credited to the billing periods in following months, with those credits expiring at the end of a fixed annualized period.¹⁶³ The state has had a renewable energy standard of 15% of electricity sold within its borders to be from renewable standards by 2015.¹⁶⁴

Montana exempts renewable energy systems, including solar energy systems, which have a generational capacity of less than one megawatt, from property taxation for five years from when the system first produces electricity.¹⁶⁵ There are no sales taxes in Montana, and thus no sales tax exemptions.¹⁶⁶ A search of the state's law did not reveal any preemptions against anti-solar land use controls.

27. Nebraska

The state of Nebraska provides for a net metering scheme in which excess energy generated is applied to a consumer-generator's following monthly bills based on the utility's avoided cost and paid out at the end of an annualized period.¹⁶⁷ Interestingly, the state explicitly prohibits severing an interest in solar energy from the surface estate of real property.¹⁶⁸ Zoning ordinance governing bodies are authorized, but not required, to grant variances in situations in which a zoning ordinance would make the use of a solar energy system unduly difficult, if such variance would not defeat the purpose of the zoning regulation as a whole.¹⁶⁹ The state has no renewable energy portfolio standards and does not offer either sales tax or property tax exemptions for solar energy systems.¹⁷⁰

28. Nevada

In Nevada utilities are required to offer net metering in a scheme in which the consumer-generator's ability at a given site must continue, from its inception, for at least twenty years.¹⁷¹ The consumer-generators are credited based on a schedule of percentages of kilowatt-hours fed back into

162. MONT. CODE ANN. § 69-8-602 (West, Westlaw through the 2019 Sess.).

163. *Id.* § 69-8-603.

164. *Id.* § 69-3-2004.

165. *Id.* § 15-6-225.

166. DASOLAR.COM, *supra* note 24.

167. NEB. REV. STAT. ANN. §§ 70-2002, 2003 (West, Westlaw through 2d Reg. Sess., 106th Leg.).

168. *Id.* § 66-912.02.

169. *Id.* § 66-914.

170. DASOLAR.COM, *supra* note 24.

171. NEV. REV. STAT. ANN. 704.773 (West, Westlaw through 80th Reg. Sess.).

the grid that decreases as the aggregate capacity of the consumer-generators increases.¹⁷² In this system credits roll over indefinitely from month to month, but may not be cashed out.¹⁷³ The state has a strong renewable energy portfolio standard, increasing incrementally to require 34% of electricity sold in the state to come from renewable sources by 2024 and 50% of electricity sold in the state to come from renewable sources by the year 2030.¹⁷⁴

Nevada prohibits unreasonably restricting using a solar system to gather energy. Neither governing bodies passing local ordinances nor private party through the use of restrictive covenants may unreasonably limit the use of solar energy system, and the state defines any such restriction that (1) reduces the system's efficiency by 10% or more and (2) does not allow for any comparable alternative as per se unreasonable.

The state has adopted an incentive program in which its electrical commission is required to develop a rebate system in which it may grant rebates of up to 50% of installation costs for solar energy systems.¹⁷⁵ Nevada does not offer sales tax exemptions for the purchase of solar energy systems, does not offer property tax exemptions for solar panels on individual residences, and does not have a state income tax, so there are no income tax credits to incentivize solar energy.¹⁷⁶

29. *New Hampshire*

New Hampshire requires its electric utilities to make net metering available to consumer-generators at non-discriminatory rates until the aggregate capacity of such systems reaches 100 megawatts and empowers its utility commission to adopt specific rules and orders concerning net metering.¹⁷⁷ The state requires excess production to be credited against later billing periods indefinitely or, at the consumer-generator's election and under "reasonable" terms established by the state commission, to receive payments based on the electric service provider's avoided costs less limited fixed-cost recovery.¹⁷⁸ New Hampshire prohibits its local governments from unreasonably restricting solar energy production by consumer-

172. *Id.* 704.7732.

173. *Id.* 704.775.

174. *Id.* 704.7821.

175. *Id.* 701B.200.

176. DASOLAR.COM, *supra* note 24.

177. N.H. REV. STAT. ANN. § 362-A:9 (West, Westlaw through Ch. 7 of the 2020 Reg. Sess.).

178. *Id.*

generators either explicitly or through the interpretation of zoning ordinances.¹⁷⁹

The state has a relatively complex renewable energy portfolio schedule: by combining four different categories of renewable energy sources, New Hampshire will require 24.8% of the energy provided to end-use customers in the state by the year 2025 to come from renewable sources.¹⁸⁰ The state has also established a permanent fund, which a state commission is entitled to invest and into which electric utilities who cannot meet some renewable portfolio standard targets may make alternative payments, to support the purchase and development of renewable energy sources in New Hampshire.¹⁸¹ Without state sales or personal income tax, there are no tax exemptions of these types to encourage the development of solar energy.¹⁸² However, in New Hampshire local governments are permitted to exempt the assessed value added from solar energy systems in calculating real property taxes.¹⁸³

30. *New Jersey*

New Jersey provides for a broad, simple net metering arrangement in which consumer-generators of any type may be credited against future expenses for excess production and paid out at the end of an annualized period for electricity produced from renewable energy systems; once such systems provide for 5.8% of the electricity sold by an electric service provider in the state, the utility board may authorize that electric service provider to stop offering net metering to new consumer-generators.¹⁸⁴

The state also provides that by 2020, 2025, and then 2030, respectively, at least 21%, then 35%, and then finally 50% of electricity sold in the state come from renewable energy sources.¹⁸⁵ Electric service providers are allowed to comply with these requirements, under the supervision of both the utility board and the state Department of Environmental Quality, by engaging in a renewable energy trading program.¹⁸⁶

179. *Id.* § 672:1.

180. *Id.* § 362-F:3.

181. *Id.* § 362-F:10.

182. DASOLAR.COM, *supra* note 24.

183. N.H. REV. STAT. ANN. § 72:62 (West, Westlaw through Ch. 7 of the 2020 Reg. Sess.).

184. N.J. STAT. ANN. § 48:3-87 (West, Westlaw through 2020 Leg., ch. 17.).

185. *Id.*

186. *Id.*

New Jersey prohibits homeowners' association from prohibiting the installation of roof-mounted solar panels.¹⁸⁷ The state exempts solar energy systems from its state sales and use taxes.¹⁸⁸ Real property owners with renewable energy systems may have the value added by these systems excluded in the calculation of value for real property taxes.¹⁸⁹ New Jersey does not offer income tax credits for solar energy systems.¹⁹⁰

31. *New Mexico*

New Mexico has one of the most aggressive renewable energy portfolio standards in the nation: the state requires twenty percent of electricity sold in the state by public utilities to come from renewable sources by 2020, 50% to come from renewable sources by 2030, 80% to come from renewable sources by 2040, and 100% to come from renewable sources by 2045.¹⁹¹ This state also has a strong, clear prohibition against anti-solar land use controls: local governments may restrict the installation of solar energy collection only in special historic districts, and land-use controls in deeds prohibiting solar energy collections are void if they were entered into after July 1, 1978.¹⁹²

The state previously offered income tax credits for the purchase of solar energy systems until the end of 2016, but does not seem to have extended such credits beyond that date.¹⁹³ New Mexico currently exempts solar energy system from sales tax.¹⁹⁴ The state also exempts the value added from the installation of solar energy systems from the calculation of real property in a roundabout fashion: there are percentage-based limits on how much the assessed value of a parcel of real property may be increase from one year to the next.¹⁹⁵ Improvements to the land are exempt from this limitation, but improvements from installing a solar energy system are not included in this exemption.¹⁹⁶

187. *Id.* § 45:22:A-48.2.

188. *Id.* § 54:32B-8.33.

189. *Id.* § 54:4-3.11b.

190. DASOLAR.COM, *supra* note 24.

191. N.M. STAT. ANN. § 62-16-4 (West, Westlaw through 2020 Reg. Sess.).

192. *Id.* § 3-18-32.

193. *Id.* § 7-2-18.14.

194. *Id.* § 7-9-112.

195. *Id.* § 7-36-21.2.

196. *Id.*

32. *New York*

The state of New York requires electric service providers to make net metering available to certain classes of consumer-generators, including those using solar energy systems, on a first-come, first-served basis until such consumer-generators provide an aggregate capacity equal to 1% of the service provider's electricity demand in 2005, though the state electric commission may increase this minimum if it finds such an increase to be in the public interest.¹⁹⁷ Excess is credited to the following months' bills, and avoided costs must be paid to the consumer-generators at the end of an annualized period.¹⁹⁸

The state has one of the most ambitious renewable energy portfolio standards in the nation, requiring 70% of the state's end-use consumers' electrical demand to be met by renewable sources by 2030 and for the year 2040, there will be "zero emissions" to meet the statewide electrical demand.¹⁹⁹

New York exempts the value added from renewable energy systems, such as solar systems, from the calculation of the value of real property in determining the real property tax.²⁰⁰ The state also exempts solar energy systems from sales taxes.²⁰¹

33. *North Carolina*

North Carolina requires its energy commission to establish otherwise non-discriminatory rates with some allowance for direct fixed cost recovery for consumer-generators producing electricity from renewable sources.²⁰² The state has renewable energy and energy efficiency portfolio standards which set a target of 12.5% of all North Carolina retail sales by 2021.²⁰³ North Carolina also prohibits municipalities from passing ordinances that prohibit the installation of rooftop solar panels, subject to a few limitations

197. N.Y. PUB. SERV. LAW § 66-j (McKinney through 2019 Leg., ch. 758 & 2020 Leg., chs. 1–25, 59).

198. *Id.*

199. *Id.* § 66-p.

200. N.Y. REAL PROP. TAX LAW § 487 (McKinney through 2019 Leg., ch. 758 & 2020 Leg., chs. 1–25, 59).

201. NY TAX LAW § 1115 (McKinney through 2019 Leg., ch. 758 & 2020 Leg., chs. 1–25, 59).

202. N.C. GEN. STAT. ANN. § 62-126.4 (West, Westlaw through 2019 Reg. Sess. of the Gen. Assemb.).

203. *Id.* § 62-133.8.

concerning location.²⁰⁴ Deed restrictions against solar energy collection are similarly prohibited.²⁰⁵

North Carolina does not offer sales tax exemptions or income tax credits for the purchase of solar energy systems.²⁰⁶ However, it does exempt 80% of the appraised value of such a system from its state property tax.²⁰⁷

34. *North Dakota*

North Dakota has empowered its public services commission to regulate electric utilities, including the power to require net metering.²⁰⁸ The commission requires utilities to make net metering available to consumer-generators whose systems have a capacity of 100 kilowatts or less.²⁰⁹

North Dakota does not have any renewable energy portfolio standards.²¹⁰ The state previously provided an income tax credit for solar energy devices installed before the beginning of 2015²¹¹ but does not currently offer income tax credits for new solar systems.²¹² Solar energy systems are exempt from property tax²¹³ but not sales tax²¹⁴. A search of the state's laws did not reveal any preemptions of anti-solar land use controls.

35. *Ohio*

Ohio requires electric utilities operating within the state to make nondiscriminatory net metering available to consumer-generators by crediting excess generation in a billing period to the following billing period.²¹⁵ The Ohio regulatory commission requires this credit to be

204. *Id.* § 160A-201.

205. *Id.* § 22B-20.

206. DASOLAR.COM, *supra* note 24.

207. N.C. GEN. STAT. ANN. § 105-275 (West, Westlaw through 2019 Reg. Sess. of the Gen. Assemb.).

208. N.D. CENT. CODE ANN. 49-02-02 (West, Westlaw through Jan. 1, 2020, from the 66th Gen. Assemb.).

209. N.D. ADMIN. CODE ANN. 69-09-07-09 (West, Westlaw through Supp. 376 (Apr. 2020)).

210. DASOLAR.COM, *supra* note 24.

211. N.D. CENT. CODE ANN. 57-38-01.8 (West, Westlaw through Jan. 1, 2020, from the 66th Gen. Assemb.).

212. DASOLAR.COM, *supra* note 24.

213. N.D. CENT. CODE ANN. 57-02-08 (West, Westlaw through Jan. 1, 2020, from the 66th Gen. Assemb.).

214. DASOLAR.COM, *supra* note 24.

215. OHIO REV. CODE ANN. § 4928.67 (West, Westlaw through File 30 of the 133rd Gen. Assemb.).

carried forward indefinitely, but does not require utilities to pay out those credits in cash to the consumer-generators.²¹⁶

Interestingly, Ohio has two separate renewable energy portfolio standards requires, one by statute and one by administrative code. By statute, 8.5% of retail electricity sold in the state to come from renewable sources by 2026.²¹⁷ However, the Administrative Code requires 12.5% of retail electricity sales in the state to be supplied by renewable sources.²¹⁸ This regulation has not been struck down, and so the current actual requirement seems to be higher than what the statute suggests. The state seems to have previously exempted solar energy systems from sales tax, but no longer.²¹⁹ Ohio does not offer income tax credits for solar energy systems.²²⁰ The state does not seem to have any preemptions against anti-solar land use controls.

36. *Oklahoma*

Oklahoma does not offer sales tax or property tax exemptions for solar power systems, nor does the state offer rebates for installing solar energy systems.²²¹ The state does prevent electricity providers from charging increased rates or surcharges beyond what is necessary to recover costs to consumers who install devices that generate electricity on the customer side of the meter.²²² This is not true net metering in that excess generation is not credited against later use, but it is similar in that it allows solar generation to offset electricity drawn concurrently from the grid. The state does not have mandatory renewable energy portfolio standards²²³ and does not seem to have any preemptions of anti-solar land use controls.

216. OHIO ADMIN. CODE ANN. 4901:1-10-28 (West, Westlaw through Mar. 6, 2020).

217. OHIO REV. CODE ANN. § 4928.64 (West, Westlaw through File 30 of the 133rd Gen. Assemb.).

218. OHIO ADMIN. CODE ANN. 4901:1-40-03 (West, Westlaw through Mar. 6, 2020).

219. OHIO REV. CODE ANN. § 5739.02 (West, Westlaw through File 30 of the 133rd Gen. Assemb.).

220. DASOLAR.COM, *supra* note 24.

221. *Id.*

222. OKLA. STAT ANN. tit. 17, § 156 (West, Westlaw through Ch. 5 of the 2d Reg. Sess. of the 57th Leg.).

223. DASOLAR.COM, *supra* note 24.

37. *Oregon*

Oregon provides for net-metering, allowing for extra fees to be charged to consumer-generators for direct costs and only if the state electric commission or appropriate governing body finds that assessing such costs on the consumer-generator are within the public interest.²²⁴ The state has an aggressive renewable energy portfolio standards for large utilities (defined as those that sell 3% or more of all electricity to retail customers in the state) requiring 20% of retail electricity sales to come from renewable sources by 2020, 27% percent to come from renewable sources by 2025, and increasing in increments until 2040, when 50% of all retail electricity sales by large retailers must come renewable sources.²²⁵ Smaller utilities are exempt and have a lower standard, but lose that exemption if they produce electricity using coal.²²⁶

Oregon voids land-use controls against solar energy systems in a fairly comprehensive if somewhat piecemeal fashion. The state prevents cities in the state from restricting the use of solar energy systems by consumer-generators, classifying solar systems as “outright permitted use[s]” on residences in any area zoned for residences.²²⁷ Oregon also prohibits restrictive covenants against solar energy systems in conveyances of fee title to real property²²⁸ and planned community bylaws prohibiting the installation of solar energy systems are similarly unenforceable.²²⁹

The state has a clear property tax exemption for alternative energy systems, including solar energy systems, exempting the value they add to property in calculating property tax.²³⁰ Oregon also provides for a tax credit against the state income tax for the installation of a solar electricity system of up to \$6000.²³¹ However, the state does not offer a sales tax exemption for solar energy systems.²³²

224. OR. REV. STAT. ANN. § 757.300 (West, Westlaw through 2020 Reg. Sess., 80th Leg. Assemb.).

225. *Id.* § 469A.052.

226. *Id.* § 469A.055.

227. *Id.* § 227.505.

228. *Id.* § 105.88.

229. *Id.* § 94.778.

230. *Id.* § 307.175.

231. *Id.* § 316.116.

232. DASOLAR.COM, *supra* note 24.

38. *Pennsylvania*

Pennsylvania requires electric utilities to give “full-retail value” to excess annual production by consumer generators and empowers its utility commission to develop specific rules for implementing this policy.²³³ Consumer-generators are entitled to net-metering on a first-come, first-served basis for systems with a capacity of 50 kilowatts or less until an aggregate limit defined either by the commission or by agreement between the utility and consumers is met.²³⁴ Utilities are required to credit excess generation to the following month’s bill pay out any remaining excess at the end of the annualized period.²³⁵

Pennsylvania has a modest renewable energy portfolio standard: having increased by half a percentage point per year for the past 15 years, from 2020 onwards at least 8% of electricity sold in the state must come from renewable sources, and 0.5% must come from solar photovoltaic energy specifically.²³⁶ However, the state does not offer income, sales, or property tax exemptions or deductions to offset the costs of solar energy systems.²³⁷ A search of Pennsylvania’s laws did not reveal any protections against anti-solar land use controls.

39. *Rhode Island*

Rhode Island provides for net metering for renewable energy systems with a capacity of 10 megawatts or less until the aggregate capacity of the consumer-generators’ systems reach 3% of their respective utility districts’ total peak load.²³⁸ Consumer-generators are entitled to credits against later billing periods for excess generation of up to 25% of their use; the utilities are allowed, but not required, to make cash payments in lieu of credits.²³⁹

Rhode Island’s renewable energy portfolio standard, in effect since 2007, requires 17.5% of electricity sold in the state to come from renewable sources; that number is to increase by 1.5 percentage points each year until 2035, at which point the standard will be 40%.²⁴⁰ The state offers a tax credit of up to 25% of the cost of solar energy systems, to a maximum of

233. 73 PA. CON. STAT. ANN. § 1648.5 (West, Westlaw through 2020 Reg. Sess. Act 13).

234. 52 PA. CODE ANN. § 75.13 (West, Westlaw through Penn. Bulletin, Vol. 50, Num. 15).

235. *Id.* § 75.13.

236. 73 PA. CON. STAT. ANN. § 1648.3 (West, Westlaw through 2020 Reg. Sess. Act 13).

237. DASOLAR.COM, *supra* note 24.

238. 39 R.I. GEN. LAWS § 26.4-3 (LexisNexis through Ch. 6 of the 2020 Sess.).

239. *Id.*

240. *Id.* § 24-4.

\$3,750.²⁴¹ Solar energy systems are exempt from sales taxes in the state as well.²⁴² A search of the state's laws did not reveal any protections against anti-solar land use controls.

40. *South Carolina*

South Carolina requires electric utilities to make net-metering available to all consumer-generators who apply for the statute before June 1st, 2021, and to keep net-metering available to those consumer-generators through May 31st, 2029.²⁴³ The state has charged its utility commission to develop a "solar choice metering tariff" to balance the costs of competing interests associated with distributed generation; after May 31st, 2021, utilities may offer either net metering or the newly established solar choice metering tariff to consumer-generators.²⁴⁴

South Carolina has a weak, voluntary renewable energy portfolio standard.²⁴⁵ Utilities may apply to the state Public Service Commission to participate in the Distributed Energy Resources program, which allows those utilities to recover additional costs and requires them to have renewable energy sources equal to 2% of the capacity of the utility's average peak demand of the previous five years by 2021.²⁴⁶

Consumer-generators in South Carolina may recover up to 25% of the costs of their solar energy systems as a credit against their income taxes; the credit may not exceed \$3500 in one year, but excess cost above that limit may be carried forward as an additional credit for the next ten years.²⁴⁷ The state does not offer property or sales tax exemptions for solar energy systems.²⁴⁸ A search of the state's laws did not reveal any protections against anti-solar land use controls.

41. *South Dakota*

South Dakota does not offer net metering, has no renewable energy portfolio standards, and does not offer sales tax credits (and does not offer

241. 44 R.I. GEN LAWS § 57-5 (LexisNexis through Ch. 6 of the 2020 Sess.).

242. *Id.* § 18-30.

243. S.C. CODE ANN. § 58-40-20 (West, Westlaw through 2020 Act No. 115).

244. *Id.*

245. DASOLAR.COM, *supra* note 24.

246. S.C. CODE ANN. § 58-39-150 (West, Westlaw through 2020 Act No. 115).

247. *Id.* § 12-6-3587.

248. DASOLAR.COM, *supra* note 24.

income tax credits as it has no state income tax).²⁴⁹ The state does not seem to preempt local anti-solar land use controls.

42. Tennessee

Tennessee does not offer net metering, has no renewable energy portfolio standards, and with no state income tax, has no income tax credits for solar energy systems.²⁵⁰ The state limits the assessment of solar energy systems to 12.5% of their installation costs in determining value for calculating property taxes.²⁵¹ The state does not seem to preempt local anti-solar land use controls.

43. Texas

Texas has a renewable energy portfolio standard with a goal of reaching a statewide cumulative production capacity of 10,000 megawatts from renewable sources by 2025.²⁵² The state has a law against restrictive covenants that moderately protects against restrictive covenants preventing the use of solar panels. Property owners' associations may place some restrictions regarding safety, placement, and aesthetics, and may require pre-approval for installing solar panels to ensure compliances with such restrictions.²⁵³ Aside from those limit circumstances, property owners' associations may not restrict a property owner from installing a solar energy device (although developments of fifty units or less are exempt if the restriction is declared during the development period).²⁵⁴

Texas does not offer sales tax exemptions for solar energy devices.²⁵⁵ However, the state does offer property tax exemptions, preventing the value added from the solar devices to be used in determining property value for calculating property taxes.²⁵⁶ Texas does not offer net metering.²⁵⁷

249. *Id.*

250. *Id.*

251. TENN. CODE ANN. § 67-5-601 (West, Westlaw through 2020 First Reg. Sess., 111th Gen. Assemb.).

252. 16 TEX. ADMIN. CODE ANN. § 25.173 (West, Westlaw through 45 Tex. Reg. No. 2266).

253. TEX. PROPERTY CODE. ANN. § 202.010 (West, Westlaw through 2019 Reg. Sess. of the 86th Leg.).

254. *Id.*

255. DASOLAR.COM, *supra* note 24.

256. TEX. TAX CODE ANN. § 11.27 (West, Westlaw through 2019 Reg. Sess. of the 86th Leg.).

257. DASOLAR.COM, *supra* note 24.

44. Utah

Utah requires electrical corporations in the state to make net metering available to consumer-generators at least until their aggregate capacity reaches 0.1% of the peak demand for 2007.²⁵⁸ Excess generation is credited to the following months' bills, with the credits expiring at the end of the annualized period.²⁵⁹

The state has a voluntary renewable standard that provides for electric retailers, to the extent it is cost-effective, to have 20% of their retail sales come from renewable sources by 2025.²⁶⁰ The utilities are required to file periodic reports of their progress towards this goal, which must include an explanation of why the utility has not met the goal, if necessary.²⁶¹ The state has a moderate protection against anti-solar land-use controls, requiring any new restrictions in association rules to require the assent of 67% of the voting interests in the association.²⁶²

Utah allows an income tax credit to offset the cost of a solar energy system up to the lesser of \$2,000 or 25% of the system's costs.²⁶³ The state does not offer property tax exemptions.²⁶⁴

45. Vermont

Vermont provides for net-metering.²⁶⁵ Excess generation is credited to the following monthly billing periods, except that credits expire after 12 months if unused.²⁶⁶ The state's renewable energy standards required 55% of electricity sold in the state to come from renewable sources by 2017, and for that standard to increase by 4 percentage points each year until it reaches 75% in 2032.²⁶⁷ Vermont also generally prohibits municipalities from restricting the use of solar energy systems.²⁶⁸ Deed restrictions and

258. UTAH CODE ANN. § 54-15-103 (West, Westlaw through May 11, 2020 of the 2020 Gen. Sess.).

259. *Id.* § 54-15-104.

260. *Id.* § 10-19-201.

261. *Id.* § 10-19-301.

262. *Id.* § 57-8a-701.

263. *Id.* § 59-10-1024.

264. DASOLAR.COM, *supra* note 24.

265. VT. STAT. ANN. tit. 30, § 8010 (West, Westlaw through acts 1–92 of Adjourned Sess., 2019-2020 Gen. Assemb.).

266. 18 VT. ADMIN. CODE § 17-5-129 (West, Westlaw through through March 2020).

267. VT. STAT. ANN. tit. 30, § 8005 (West, Westlaw through acts 1–92 of Adjourned Sess., 2019-2020 Gen. Assemb.).

268. VT. STAT. ANN. tit. 24, § 2291a (West, Westlaw through acts 1–92 of Adjourned Sess., 2019-2020 Gen. Assemb.).

covenants that have the effect of prohibiting solar collectors are similarly prohibited.²⁶⁹

Vermont exempts solar energy systems, as property to be incorporated into a net metering system, from sales taxes.²⁷⁰ Towns in the state are permitted to exempt solar energy systems from real and personal property taxes.²⁷¹ However, the state does not offer income tax credits for the purchase of solar energy systems.²⁷²

46. *Virginia*

Virginia provides for net energy metering for consumer-generators operating renewable energy systems with capacities up to 20 kilowatts until their aggregate capacity reaches 1% of the previous year's peak load.²⁷³ To be compensated, consumer-generators must request a purchase agreement, which electric suppliers may pay directly or credit towards future bills, and in which payments are to be calculated based on adjusted state averages.²⁷⁴ The state prohibits organizations such as home owners' associations from banning solar energy systems, unless the organization's foundational document includes such a provision.²⁷⁵ Similarly, a residential dwelling may not be prohibited by zoning ordinances from having a rooftop solar energy system that provides energy to that dwelling.²⁷⁶

Virginia has an optional renewable energy portfolio standard, in which participating utilities aim to procure 15% of their sales from renewable sources, must make reports to the state commission regarding their progress to that goal, and may recover certain costs associated with reaching the goal.²⁷⁷ The state permits local governments from exempting solar energy systems from property taxes.²⁷⁸ However, it does not offer income tax credits for solar energy systems and does not exempt those systems from sales tax.²⁷⁹

269. VT. STAT. ANN. tit. 27, § 544 (West, Westlaw through acts 1–92 of Adjourned Sess., 2019-2020 Gen. Assemb.).

270. VT. STAT. ANN. tit. 32, § 9741(46) (West, Westlaw through acts 1–92 of Adjourned Sess., 2019-2020 Gen. Assemb.).

271. *Id.* § 3845.

272. DASOLAR.COM, *supra* note 24.

273. VA. CODE ANN. § 56-594 (West, Westlaw through 2019 Reg. Sess.).

274. 20 VA. ADMIN. CODE 5-315-50 (West, Westlaw through 36:14 Va. R. Mar. 2, 2020).

275. VA. CODE ANN. § 67-701 (West, Westlaw through 2019 Reg. Sess.).

276. *Id.* § 15.2-2288.7.

277. *Id.* § 56-585.2.

278. *Id.* § 58.1-3661.

279. DASOLAR.COM, *supra* note 24.

47. *Washington*

Washington requires its electric utilities to make net metering available to consumer-generators on a first-come, first-served basis until the first of either June 30, 2029, or when the cumulative generating capacity of the net metering systems is equal to the utility's 1996 peak demand.²⁸⁰ The state does not have a state income tax and does not offer property tax exemptions.²⁸¹ However, the state does require that all electric utilities serving 25,000 customers in the state to meet 15% of their loads using renewable energy by January 1, 2020.²⁸² A search of the state's law did not reveal any preemptions of anti-solar land use controls.

48. *West Virginia*

Electric utilities in West Virginia are required to make net-metering available to consumer-generators with systems as large as 500 kilowatts until their aggregate capacity reaches 3% of the previous year's peak demand, and charges its Public Service Commission to establish a "fair value" at which consumer-generators are to be compensated.²⁸³

West Virginia voids restrictions, covenants, and conditions by housing associations made after June 8, 2012, that effectively prohibit solar energy systems.²⁸⁴ The state does not have renewable energy standards and does not offer property, income, or sales tax exemptions for solar energy systems.²⁸⁵ It used to allow an income tax credit of up to 30% of the system's purchase and installation costs, to a maximum of \$2000,²⁸⁶ but now prevents any tax payer from claiming the credit for any system installed after July 1, 2013.²⁸⁷

49. *Wisconsin*

Wisconsin offers net metering for consumer-generators with systems of up to 20 kilowatts.²⁸⁸ The state generally prevents its political subdivisions

280. WASH. REV. CODE ANN. § 80.60.020 (LexisNexis through 2020 Reg. Sess.).

281. DASOLAR.COM, *supra* note 24.

282. WASH. REV. CODE ANN. § 19.285.030-40 (LexisNexis through 2020 Reg. Sess.).

283. W. VA. CODE ANN. § 24-2F-8 (West, Westlaw through 2020 Reg. Sess.).

284. *Id.* § 35-4-19.

285. DASOLAR.COM, *supra* note 24.

286. W. VA. CODE ANN. § 11-13Z-1 (West, Westlaw through 2020 Reg. Sess.).

287. *Id.* § 11-13Z-3.

288. *Net Metering and Buy-Back Tariffs*, PUB. SERV. COMM'N OF WIS., <https://psc.wi.gov/Pages/ForUtilities/Energy/NetMeteringandBuyBackTariffs.aspx> (last visited Apr. 23, 2020).

from prohibiting the use of solar energy systems.²⁸⁹ Wisconsin's renewable energy target is to have 10% of electricity sold in the state to come from renewable sources by 2015 and each year afterwards.²⁹⁰

Solar energy systems are exempt from general property tax in Wisconsin.²⁹¹ The state does not, however, offer income tax credits to offset their costs.²⁹²

50. Wyoming

Wyoming provides for a net metering system in which excess generation in a month is credited against a consumer-generator's next monthly bill, with excess credits at the end of the annual period bought out at the utility's avoided cost.²⁹³ The state prevents local governments from prohibiting the use of solar energy collectors, except as in necessary for public health and safety.²⁹⁴ Wyoming has no renewable energy standards, does not offer sales or property tax exemptions for solar energy systems, and as it has no state income tax does not offer an income tax credit for the systems.²⁹⁵

IV. Categorizations

The strongly solar supportive states are California, Colorado, Connecticut, Delaware, Maryland, Minnesota, New Jersey, New Mexico, New York, Oregon, and Vermont. California is an excellent example of a strongly solar supportive state. Its ambitious renewable portfolio standards and guaranteed net metering²⁹⁶ provide a major driving force to the switch to solar. The state's preemption of restrictive covenants²⁹⁷ and strong ongoing financial support for investing in solar energy production in the form a property tax reduction²⁹⁸ round out the state's strongly pro-solar policy. Oregon is much the same with strong renewable standards²⁹⁹ and

289. WIS. STAT. ANN. § 66.0401 (West, Westlaw through 2019 Act 184).

290. *Id.* § 196.387.

291. *Id.* § 70.111.

292. DASOLAR.COM, *supra* note 24.

293. WYO. STAT. ANN. § 37-16-103 (West, Westlaw through 2020 Budget Sess.).

294. *Id.* § 34-22-105.

295. DASOLAR.COM, *supra* note 24.

296. *See* CAL. PUB. UTIL. CODE § 399.15 (West, Westlaw through Ch. 3 of 2020 Reg. Sess.).

297. CAL. CIV. CODE § 714 (West, Westlaw through Ch. 3 of 2020 Reg. Sess.).

298. CAL. REV. & TAX. CODE § 73 (West, Westlaw through Ch. 3 of 2020 Reg. Sess.).

299. OR. REV. STAT. ANN. § 469A.052 (West, Westlaw through 2020 Reg. Sess., 80th Leg. Assemb.).

land-use control preemptions³⁰⁰, net metering laws limiting the assessment of extra costs against consumer-generators³⁰¹, and generous tax reductions³⁰² to support solar.

These two states are representative of the strongly solar supportive states—every one of them has clear net metering and strong renewable energy standards to push both consumers and utilities towards solar. The lowest standard in in any of these states is 25% from renewable sources by 2025 in Delaware³⁰³. Most of them have clear preemptions of anti-solar land use controls and allow net metering credits to carry over indefinitely; or, if they do not, make up for this with very strong renewable energy portfolio standards, often over 50% by target dates.

The states that are generally solar supportive are Arizona, Florida, Hawaii, Illinois, Iowa, Massachusetts, Michigan, Montana, Nevada, New Hampshire, North Carolina, Ohio, Rhode Island, Washington, and Wisconsin. Florida, Arizona, Florida, Michigan, Washington, and Massachusetts are good examples of the variety of generally supportive states. Both Arizona and Florida exempt purchasers of solar energy systems from property³⁰⁴ and sales taxes³⁰⁵ and provide for net metering to reduce ongoing costs³⁰⁶. However, of the two only Arizona has renewable portfolio standards³⁰⁷, which help push the use of renewable energy sources in general. Similarly, Washington offers limited support with a low renewable portfolio standard³⁰⁸ and decent net metering³⁰⁹ but seemingly no protections against land-use controls. In general, these states are characterized by clear net metering, moderate tax incentives, and either land

300. *See, e.g., id.* § 105.88.

301. *Id.* § 757.300.

302. *See, e.g., id.* §307.175.

303. DEL. CODE ANN. tit. 26, § 354 (West, Westlaw through ch. 239 of the 150th Gen. Assemb.).

304. ARIZ. REV. STAT. ANN. § 42-12056 (West, Westlaw through 2d Reg. Sess., 54th Leg.); FLA. STAT. ANN. § 193.624 (West, Westlaw through 2020 2d Reg. Sess. of the 26th Leg.).

305. ARIZ. REV. STAT. ANN. § 42-5159 (West, Westlaw through 2d Reg. Sess., 54th Leg.); FLA. STAT. ANN. § 212.08 (West, Westlaw through 2020 2d Reg. Sess. of the 26th Leg.).

306. ARIZ. ADMIN. CODE § R14-2-2306 (West, Westlaw through 2d Reg. Sess., 54th Leg.); FLA. STAT. ANN. § 366.91 (West, Westlaw through 2020 2d Reg. Sess. of the 26th Leg.).

307. ARIZ. ADMIN. CODE § R14-2-1804 (West, Westlaw through 2d Reg. Sess., 54th Leg.).

308. *See* WASH. REV. CODE § 19.285.030-40 (LexisNexis through 2020 Reg. Sess.).

309. *See id.*, § 80.60.020.

use-control preemptions and low renewable portfolio standards, or—if there are no land-use protections—moderate renewable standards.

The states that are moderately solar supportive are Alaska, Indiana, Kansas, Louisiana, Maine, Missouri, Nebraska, North Dakota, Utah, Pennsylvania, South Carolina, Texas, Utah, and Wyoming. Alaska is representative of the moderately supportive states. Alaska meets the threshold question of providing for net metering³¹⁰, but has little in the way of tax incentives, has no renewable standards, and does not seem to limit anti-solar land use controls. Alternatively, Texas offers property tax exemptions³¹¹, preemption of anti-solar land use controls³¹², and renewable portfolio standards³¹³, but does not offer net metering. Texas is an interesting example of a state that, even though it does not guarantee net metering, is still somewhat supportive of solar, as the renewable standards may push utilities to offer net metering regardless. In general (with the exception of Texas) these states meet only the threshold question, rarely having preemption of land-use controls or renewable standards and having only limited tax incentives to support solar energy.

The states that are not generally solar supportive are Alabama, Arkansas, Georgia, Idaho, Kentucky, Mississippi, Oklahoma, South Dakota, Tennessee, Virginia, and West Virginia. None of these states have renewable energy portfolio standards. Most of these states either do not offer net metering or offer so limited a form of net metering that it only questionably passes the threshold stand. For example, Georgia's offers some net metering, but has a low cap and does nothing to protect consumer-generators from discriminatory fees.³¹⁴ Oklahoma similarly has little support, with neither property or sales tax exemptions and offering only a limited form of net metering³¹⁵. Alabama fairs even more poorly: it has little to encourage the use of solar and it specifically does not require its utilities to purchase renewable energy³¹⁶. Furthermore, these states offer little to no financial incentives to defray the costs of purchasing a solar

310. See ALASKA ADMIN. CODE tit. 3, §§ 50.910-930 (LexisNexis through Register 233).

311. TEX. TAX CODE ANN. § 11.27 (LexisNexis through 2019 Reg. Sess., 86th Leg.).

312. TEX. PROPERTY CODE. ANN. § 202.010 (LexisNexis through 2019 Reg. Sess., 86th Leg.).

313. 16 TEX. ADMIN. CODE § 25.173 (West, Westlaw through 45 Tex. Reg. No. 2266).

314. See GA. CODE ANN. § 46-3-54 (West, Westlaw through Laws 2020, Act 322).

315. See OKLA. STAT. ANN. tit. 17, § 156 (West, Westlaw through Ch. 5, 2d Reg. Sess., 57th Leg.).

316. ALA. CODE § 37-4-140 (West, Westlaw through Act 2020-72, Act 2020-74, & Act 2020-88).

energy system, and none seem to have and protection from local anti-solar land use controls. With little to support the ability to use and profit from solar on the part of both the consumer-generators and the utilities, these states cannot be said to meaningfully support the development of solar energy.

V. Conclusion

How supportive of solar production by individuals a state is depends on its general posture towards renewables and its system to provide immediate and ongoing financial incentives to install solar systems. This is most commonly done through a straightforward incentive system, and virtually all states provide for some minimum level of financial support for solar energy collection.

The threshold regulation is whether states account for net-metering, allowing consumer-generators to sell excess power back to their electric utilities. The purchase and installation of a solar energy system is, like any investment, subject to risk: if the system is not exposed to enough sunlight, there may not be a satisfactory return. Net metering abates this risk by dissipating it over time—the high returns on the investment in periods of increased electricity generation are effectively banked against periods of low returns. Essentially all states provide for net metering, with some variations in the total net metering capacity allowed. Most state restrict the ability of utilities to charge discriminatory rates or extra fees, allowing such rate discrimination only to recover direct costs or if an appropriate governing body finds that it is within the public interest to pass on such costs to the consumer-generators.

The most important laws in expanding solar energy production are renewable energy portfolio standards and restrictive covenant preemptions. Renewable standards are elegant in their simplicity: establishing a target and clear penalties for failure to meet that target allow utilities the flexibility to employ creative solutions to bring more solar systems online in their areas. Renewable portfolio standards place some of the onus on electric service providers themselves to facilitate the development of solar energy production.

On the other hand, voiding restrictive covenants removes the primary legal obstacle to residential solar energy generation in the United States. No states themselves have much in the way of direct legislative hostility towards the use of solar power. Those with little interest in expanding the use of this renewable simply do not provide many incentives. However,

local developers and homeowners' associations often impose restrictive covenants limiting or preventing the use of solar panels. Voiding these covenants in a sense creates a "right" to engage in residential solar energy production, enforceable against the main parties actively imposing it.

A state looking to support the development of solar energy should therefor focus on these three pillars of solar energy law: clear net metering, ambitious renewable energy portfolio standards, and strong preemption of anti-solar land use controls. This basis, with tax incentivizes as an added bonus, is one of the most reliable avenues to increased solar energy generation.