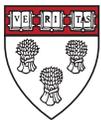


THE SOLAR PROPERTY TAX EXEMPTION IN MASSACHUSETTS: INTERPRETATION OF EXISTING LAW & RECOMMENDATIONS FOR AMENDMENTS



Harvard Law School
**Emmett Environmental
Law & Policy Clinic**

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JULY 2013

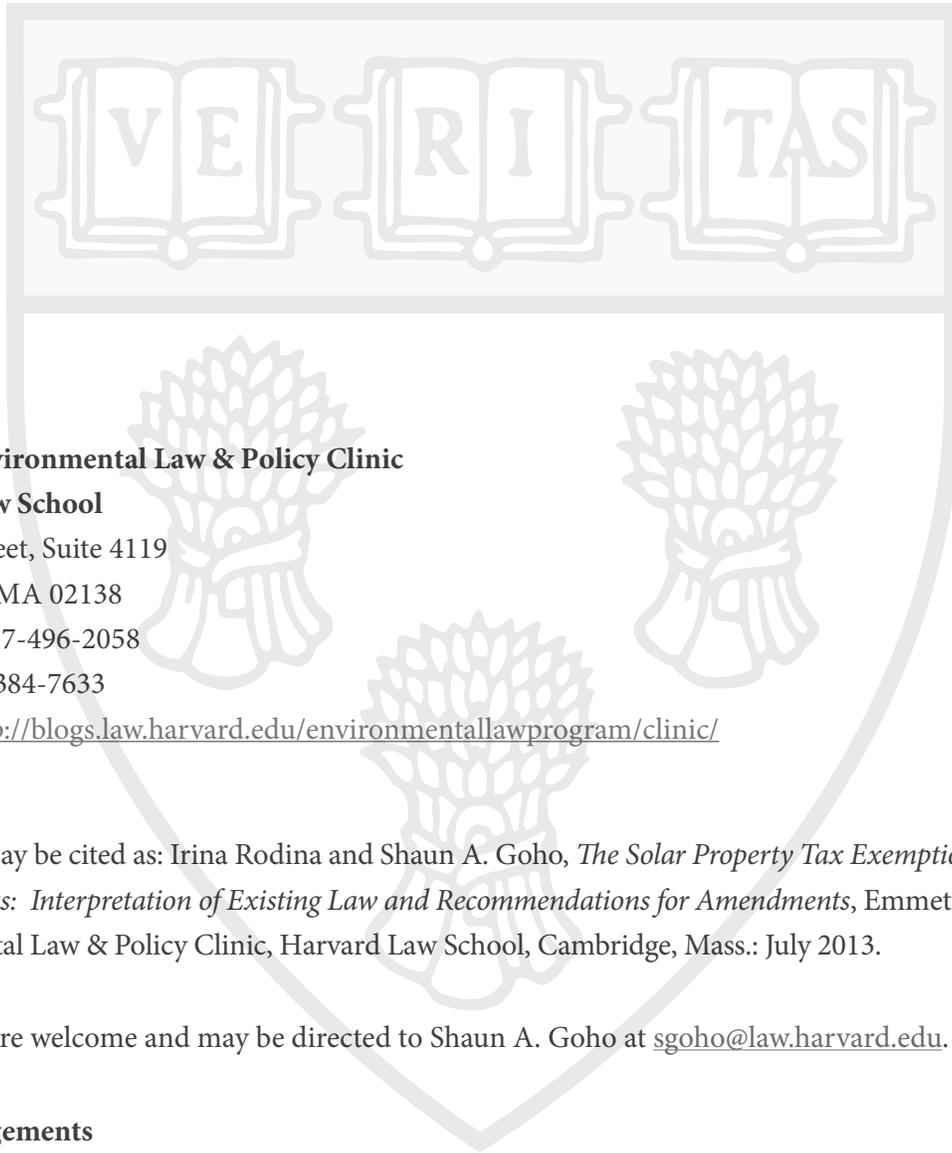
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Citation

This paper may be cited as: Irina Rodina and Shaun A. Goho, *The Solar Property Tax Exemption in Massachusetts: Interpretation of Existing Law and Recommendations for Amendments*, Emmett Environmental Law & Policy Clinic, Harvard Law School, Cambridge, Mass.: July 2013.

Comments are welcome and may be directed to Shaun A. Goho at sgoho@law.harvard.edu.

Acknowledgements

The Clinic thanks the following individuals, who generously shared their time and expertise with us: Gary Blau, Massachusetts Department of Revenue; Pam Bunker, Assessor, Town of Chilmark, MA; R. Lane Partridge, Assessor, Town of Concord, MA; Nathan Phelps, Massachusetts Department of Public Utilities; and Michael Stone, My Generation Energy.

The Emmett Environmental Law and Policy Clinic at Harvard Law School is directed by Wendy B. Jacobs and is dedicated to addressing major environmental issues in the United States and abroad and to providing its students an opportunity to do meaningful, hands-on environmental legal and policy work. Students and clinic staff work on issues such as climate change, pollution reduction, water protection, and smart growth.

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INTRODUCTION

The Commonwealth of Massachusetts has made the promotion of solar photovoltaic (“PV”) installations a prominent part of its climate change mitigation and economic development agendas. To this end, it has implemented a set of economic incentives and other policies designed to encourage homeowners, businesses, nonprofits, and local governments to install solar PV systems. The scope of one longstanding incentive—the exemption from property taxation under M.G.L. c. 59, § 5(45)—has, however, recently been mired in uncertainty. To address this situation, several bills to amend that provision are currently pending before the General Court.

This paper reviews the current controversy regarding the application of the exemption, highlighting areas of ambiguity in current law and the uncertainty they create for both solar developers and municipalities. It then analyzes current legislative proposals to amend the exemption, and concludes by recommending that the statute be amended to include:

- A property tax exemption for any solar PV system with a capacity of less than 60 kW and/or a capacity no greater than 125 per cent of the historic annual energy needs of the property upon which it is located; and
- A grant of authority to municipalities to enter into PILOT agreements for any PV installation not eligible for an exemption at any rate that is the result of good faith negotiations.
- We also recommend that the Department of Revenue issue guidance clarifying that solar PV installations should usually be assessed as personal property.

In April 2007, the Commonwealth announced a goal of seeing 250 MW of solar power capacity installed across the state by 2017 and 400 MW by 2020—up from 3.5 MW statewide at the time.¹ Since then, the state has implemented a set of policies designed to encourage the installation of solar PV systems. Examples of these programs include: net metering,² a solar carve-out in the state Renewable Portfolio Standard,³ rebates through the Commonwealth Solar and Commonwealth Solar

1 Press Release, Executive Office of Energy and Env'tl. Affairs, Patrick-Murray Administration Selects 10 Communities to Participate in Massachusetts Solar Incentive Program (Apr. 5, 2013), *available at* <http://www.mass.gov/eea/pr-2013/press-release-re-massachusetts-solar-incentive-program.html>.

2 See 220 CMR 18.01-18.09; Mass. Dep't of Pub. Utils., *Net Metering*, <http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/dpu/dpu-divisions/legal-division/dpu-and-green-communities-act/net-metering/net-metering.html> (last visited July 3, 2013).

3 See 225 C.M.R. 14.05(4); Mass. Exec. Office of Energy & Env'tl. Affairs, *About the Solar Carve-Out Program*, <http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/solar/rps-solar-carve-out/about-the-rps-solar-carve-out-program.html> (last visited July 3, 2013).

II programs,⁴ tax breaks,⁵ and the Solarize Massachusetts program.⁶

These initiatives have resulted in an 80-fold increase in solar energy capacity, with 281 MW of solar capacity installed in the state as of July 1, 2013.⁷ Now that the state has achieved its 2017 goal four years early, the administration recently announced a new goal of installing 1600 MW by 2020.⁸



Image: Governor Patrick announced that Massachusetts had reached its 250 megawatts of installed solar energy four years early. He also set a new goal of installing 1600 megawatts by 2020. From May 1, 2013 Solar 250 Event, available at Massachusetts Energy & Environmental Affairs photostream, <http://www.flickr.com/photos/masseea/8718861704>.

- 4 See Mass. Clean Energy Ctr., *Commonwealth Solar II*, <http://www.masscec.com/programs/commonwealth-solar-ii> (last visited July 3, 2013).
- 5 See Mass. Exec. Office of Energy & Env'tl. Affairs, *Renewable Energy Funding and Incentives*, <http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/renewable-energy-funding/> (last visited July 3, 2013).
- 6 "Solarize Massachusetts . . . is a program that encourages the adoption of small-scale solar photovoltaic (PV) projects by deploying a coordinated education, marketing and outreach effort, combined with a group purchasing model that provides increased savings as more people in the community go solar." Mass. Clean Energy Ctr., *Solarize Mass*, <http://www.solarizemass.com/index.cfm/page/About-Solarize/pid/12858> (last visited July 3, 2013).
- 7 See Mass. Dep't of Energy Resources, *Installed Solar Capacity in Massachusetts*, available at <http://www.mass.gov/eea/docs/doer/renewables/installed-solar.pdf>.
- 8 See *id.*; Erin Ailworth, *Dartmouth Leads the Way in Solar*, BOSTON GLOBE, May 2, 2013.

A property tax exemption for solar PV installations is codified in M.G.L. c. 59, § 5(45). For many years, some participants in the industry believed that this exemption applied broadly to almost all solar installations.⁹ Recently, however, the Department of Revenue has publicized its interpretation of the exemption to apply only when all energy generated by the system is “consumed on site at all times.”¹⁰ If this interpretation were applied uniformly across the Commonwealth, virtually no grid-connected solar PV systems would receive an exemption. As a result, the interpretation might make it more difficult for the state to achieve its solar development goals.

This paper is organized as follows. Following the introduction, it discusses the history of the property tax treatment of solar PV systems in Massachusetts. Next it considers the current situation, highlighting areas where there is uncertainty about how existing law should be applied. Third, it compares Massachusetts’ tax treatment of solar PV installations with other states’ approaches. The paper then describes the pending legislative proposals and concludes with recommendations for the type of bill that the legislature should adopt.

9 Written testimony, My Generation Energy, Endorse Massachusetts House Bill 2740, at 1 (Apr. 9, 2013).

10 Marilyn H. Browne, Chief, Bureau of Local Assessment, DOR, *Valuation Workshops for Solar PV Projects Scheduled*, CITY & TOWN, Jan. 3, 2013, at 2, 3; see Brenda Cameron, Bureau of Local Assessment, DOR, *Here Comes the Sun (and Wind Power)*, CITY & TOWN, Mar. 2012, at 1, 2.

PROPERTY TAX TREATMENT OF SOLAR PV SYSTEMS IN MASSACHUSETTS

Property taxation in Massachusetts is governed by M.G.L. c. 59, § 2, which reads: “[a]ll property, real and personal, situated within the commonwealth, and all personal property of the inhabitants of the commonwealth wherever situated, unless expressly exempt, shall be subject to taxation.” Categories of property exempt from taxation are listed in 59 M.G.L. c. 59, § 5. Property taxation is a municipal prerogative and is administered by local assessors, although the state Department of Revenue can advise municipalities regarding its interpretation of the relevant statutes. If a property owner disagrees with a local assessor’s determine, she can appeal to the Appellate Tax Board. G.L. c. 58A, § 6. Appellate Tax Board decisions can in turn be appealed to the Court of Appeals. G.L. c. 58A, § 13.

A. Uncertainty and Inconsistency in the Application of the Property Tax Exemption to Solar PV Systems.

Massachusetts first adopted a property tax exemption for solar- and wind- powered energy systems in 1975.¹¹ Under the initial law, such systems were exempt from taxation for 10 years; the legislature subsequently amended the statute in 1978 to increase the exemption period to 20 years.¹² Under both the original and amended versions of the statute, the exemption applied only to systems “being utilized as a primary or auxiliary power system for the purpose of heating or otherwise supplying the energy needs of property taxable under this chapter.”¹³

In the 1970s, most solar PV systems operated independently of the grid.¹⁴ The exemption would therefore have originally covered almost all solar installations. In the intervening years, however, the focus of the solar PV industry has changed. Now most solar PV installations in the Commonwealth are connected to the electrical grid. As a result, even systems that on net produce less energy than is used on-site still supply energy to the grid at least some of the time. Despite this change, however, some participants in the industry continued to assume that the exemption applied to all solar PV

11 See 1975 Mass. Acts, c. 734, § 1, available at <http://archives.lib.state.ma.us/actsResolves/1975/1975acts0734.pdf>.

12 See 1978 Mass. Acts, c. 388, § 1, available at <http://archives.lib.state.ma.us/actsResolves/1978/1978acts0388.pdf>.

13 The current version of the relevant provision, M.G.L. c. 59, § 5(45), reads:

Forty-fifth, Any solar or wind powered system or device which is being utilized as a primary or auxiliary power system for the purpose of heating or otherwise supplying the energy needs of property taxable under this chapter; provided, however, that the exemption under this clause shall be allowed only for a period of twenty years from the date of the installation of such system or device.

14 See DANIEL YERGIN, *THE QUEST: ENERGY, SECURITY, AND THE REMAKING OF THE MODERN WORLD* 572-75 (2011).

installations.¹⁵

Recently, however, the Department of Revenue has clarified its interpretation of the exemption, stating that “all energy must be consumed on site at all times in order for the system to be exempt from taxation.”¹⁶ Under this interpretation, only solar PV systems that generate energy purely for on-site use at all times qualify for the exemption. Therefore, because virtually any installation that is connected to the grid will send electricity off-site at least some of the time, in DOR’s view even a small residential system that produces less energy, on net, than is consumed on-site is not eligible for the exemption. The Department of Revenue considered other interpretations of the statute, including a netting approach under which systems whose return to the grid is negligible or incidental would be exempt, but ultimately concluded that the language of the statute was clear and that no netting was permissible.¹⁷

The Department of Revenue, however, possesses only oversight authority in the administration of local property taxation. Its guidance is not binding on local assessors, who have primary authority in applying the statute. Based on our interviews with local tax assessors and anecdotal evidence, it appears that many municipalities interpret the statute to exempt residential and commercial systems as long as the total output of the solar panels does not exceed onsite consumption.¹⁸ Neither the Board of Tax Appeals nor a court has yet ruled on the proper interpretation of the exemption.

As a result, there is considerable uncertainty in the Commonwealth regarding the scope of the exemption for solar PV systems. Without any authoritative ruling on the issue, property owners and solar developers potentially face the inconsistent application of the exemption across the 351 municipalities in the Commonwealth. Assessors also desire additional guidance and clarification.¹⁹ As one assessor was quoted as saying in a recent news article, “[t]here’s no standard for taxation purposes.”²⁰

15 My Generation Energy, *supra* note 9.

16 Browne, *supra* note 10, at 3 (emphasis added).

17 Telephone Interview with Gary Blau, Tax Counsel, Mass. Dep’t of Revenue (Apr. 16, 2013).

18 In practice, this means that all smaller systems in such communities are exempted, because it is impracticable for towns to monitor the comparative energy production and usage on all properties with solar PV systems. As one assessor described it, “there is no way to figure energy needs of the house . . . because no resident would report that they are not using all of their energy on site . . . the only way to do it is get NSTAR to provide data on how much energy is generated and how much is consumed and then tax the excess.” Telephone Interview with Pamela Bunker, Chilmark Tax Assessor (Apr. 12, 2013).

19 For example, recent solar PV valuation workshops organized by the Department of Revenue attracted over a hundred local assessors.

20 Laura Krantz, *State Offers Guidance On Solar Tax Questions*, METROWEST DAILY NEWS, Feb. 27, 2013, http://www.metrowestdailynews.com/top_stories/x1522329352/State-offers-guidance-on-solar-tax-questions?zc_p=0.

The possibility that even the smallest systems will be found ineligible for a tax exemption is of particular concern. If DOR's interpretation were to prevail, homeowners might be deterred from installing solar PV systems. This outcome would harm the Commonwealth's renewable energy goals. In addition, as discussed in more detail below, uncertainty about whether solar PV systems should be taxed as personal or real property can be an impediment to the development of innovative financing structures for residential systems if those systems are not exempt from property taxation. At the moment, these fears have generally not come to pass, but the uncertainty and confusion in the current legal landscape call for prompt legislative clarification.

B. Are Solar PV Installations Real or Personal Property?

An additional source of uncertainty relates to the classification of the solar PV installation: is it real property or personal property? This distinction does not affect the tax rate applied to the property,²¹ but is nonetheless important for at least two reasons. First, classification as real property gives a municipality power to get a tax lien on said property under G.L. c. 60, § 37 in case a taxpayer becomes insolvent, while no comparable provision exists for personal property.

Second, personal property is taxed to the owner of the asset, while real property value is included in the real estate assessment and is taxed to the owner of the land. As a result, the choice of classifying the PV installation as real or personal could affect who is responsible for paying the tax. For example, some residential property owners finance their rooftop solar installations by leasing them from a solar developer such as SunRun or SolarCity. If the solar equipment is considered to be personal property, then the solar developer would be responsible for the tax, whereas if it is real property, then the homeowner must pay the tax. A parallel situation arises when a large, ground-based installation is placed on land that the solar developer does not own but instead leases from an independent landowner. More fundamentally, if the land is owned by a tax-exempt entity, the solar PV installation would be exempt from taxation if treated as real property but not if treated as personal property and owned by a non-tax-exempt entity.

G.L. c. 59, §2A(a) defines real property as “all land within the commonwealth and all buildings and other things thereon or affixed thereto.” Property that does not meet this definition is personal property. Therefore, in general:

21 Whether assessed as personal property or as part of the real estate, the tax rate for the property would be the same; i.e. at the municipality's single tax rate, or at the commercial tax rate if the municipality has a split rate. See MASS. DEPT. OF ENERGY RESOURCES, THE GUIDE TO DEVELOPING SOLAR PHOTOVOLTAICS AT MASSACHUSETTS LANDFILLS 23 (2012), available at <http://www.mass.gov/eea/docs/doer/green-communities/pubs-reports/pvlandfillguide.pdf>.

machinery and equipment may be assessed as part of the real estate if they are intended to remain on the site for their entire useful lives, are designed specifically for the parcel, or might cause damage to the land or equipment if removed. However, if they are easily removable or intended to be removed and replaced periodically while located at the site, they could be separately assessed as personal property.²²

For example, in one case the Supreme Judicial Court found that two steam-powered turbine generators, each “mounted on a massive concrete pedestal, thirty-three feet high and sunk deep into the ground” were real property.²³ Similarly, in multiple decisions, the Appellate Tax Board has found that cell phone towers are real property; in one case, even though the tower was “theoretically able to be disassembled and removed, [it] was nonetheless intended to be permanently situated upon the subject property, as indicated by its attachment by concrete foundations and guy wires.”²⁴

By contrast, the Supreme Judicial Court found that a “semiportable asphalt plant” that “c[ould] be moved from place to place by removing a few nuts,” was not real property.²⁵ In another case, the Appellate Tax Board classified underground chemical storage tanks as personal property when:

the tanks at issue are designed to be removable. They are set on foundations by means of removable straps. Sand or peastone is placed around the tanks, enabling them to be removed quickly in an emergency with no destruction to the tanks or to their surroundings. Because they are removable from their surroundings, the tanks resemble other items that the Board has previously found to be personal property.²⁶

Under these precedents, there are legitimate arguments that solar PV installations could be properly classified as either real or personal property. On the one hand, the solar modules themselves are, like the asphalt plant in *B.A. Simeone*, detachable “by removing a few nuts.” On the other, at least some systems are custom-designed for a particular location and are “intended to be permanently situated upon the subject property.” Thus the Department of Revenue has stated that solar panels and associated machinery and equipment may be assessed as real property if they are intended to remain on the site for their entire useful lives, are designed specifically for the parcel, or might cause damage

22 Cameron, *supra* note 10, at 2.

23 *Boston Edison v. Board of Assessors of Boston*, 402 Mass. 1, 4, 8 (1988).

24 *I. Fred Dicenso Trust v. Board of Assessors of the Town of Wilmington*, Nos. F276917-18(04), F279687-88(05), F283762-63(06), 2009 WL 943056, at *18 (Mass. App. Tax. Bd. Apr. 8, 2009).

25 *Bd. of Assessors of Dartmouth v. B. A. Simeone, Inc.*, 359 Mass. 756, 756 (1971).

26 *Perma, Inc. v. Bd. of Assessors, Town of Billerica*, Nos. F249189, F257001, 2001 WL 34399733, at *5 (Mass. App. Tax. Bd. Oct. 25, 2001).

to the land or equipment if removed.²⁷

Looking more closely at the elements of a solar PV installation, there is a strong argument that taxing authorities should distinguish between the modules themselves and the support structures such as footers, racks, and rails. The modules are generic, off-the-shelf products that are easily removed from the property; as such, they should be classified as personal property. The support structures, however, can be more permanently attached to the property (as in ground-mounted systems with a concrete base) or can be custom-sized and -designed for a particular property and therefore, at least in some cases, have the characteristics of real property. Dividing up the installation in this way would, however, create a greater administrative burden for assessors and increase the complexity of arrangements between solar developers and landowners. Given that the modules make up by far the largest share of the value of an installed PV system, taxation of the entire installation as personal property is therefore probably the simplest course for most projects. The Department of Revenue could issue guidance to this effect to provide greater certainty and consistency for solar developers and municipalities.

C. PILOT and TIF Agreements Offer Some Potential for Greater Clarity and Certainty, but Have Their Own Problems.

Some solar PV facilities that do not qualify for a tax exemption under M.G.L. c. 59, §5(45) may still receive alternative tax treatment through either payment-in-lieu-of-taxes (PILOT) or tax increment financing (TIF) agreements. These mechanisms do not fully resolve the problems identified above, however. First, PILOT agreements are intended to restructure rather than reduce a property owner's tax burden. Second, the statutory basis for their application to many solar PV installations is uncertain. Third, it would not be feasible for municipalities and property owners to negotiate PILOT agreements for every solar installation in the Commonwealth. Finally, while TIF agreements could in some circumstances reduce the tax burden for a solar PV installation, their applicability is limited and they are administratively burdensome. As a result, to date no TIF agreement has yet been negotiated for a solar PV installation in Massachusetts.

1. PILOT Agreements.

A PILOT agreement is a contract between the municipality and the developer, in which both sides agree to an alternative tax payment structure that reasonably approximates what the taxes would otherwise be over the term of the agreement. PILOT payments are treated as property

²⁷ *Id.*

taxes for tax classification purposes and are subject to the municipality's levy limit. Roughly twenty municipalities have already entered into PILOT agreements with solar developers.²⁸

The purpose of PILOT agreements is not to provide an exemption or reduced tax rate, but is instead to allow the town and taxpayer to restructure the course of payments over time. Nevertheless, both solar developers and municipalities have some incentives to enter into such agreements. First, PILOTs can provide payment predictability for project owners and revenue stream stability for municipalities. Second, PILOT agreements can be structured to provide flat or increasing payments over the life of the agreement, which some project owners might prefer to taxation based on property value, which will be highest at the beginning and then decline over time.²⁹ Third, given the legal uncertainty over the scope of the section 5(45) tax exemption, some municipalities believe that a PILOT provides a clearer taxation mechanism. As explained by Gus Abalo, a solar developer in Warren, MA, in a newspaper article last year, "the reason for a PILOT is because the state didn't give a clear mandate as to how to tax solar projects."³⁰

Despite these advantages, PILOT agreements are not without their problems. First, both the municipality and project developer can find it expensive and time-consuming to negotiate a PILOT. For example, in towns, a PILOT agreement must be approved by the town meeting before it can go into effect, which can add uncertainty and delay to the process. As a result, PILOT agreements are feasible only for relatively large solar PV installations.

Second, cities and towns have only limited legal authority to enter into PILOT agreements for PV installations under existing law. Municipalities have been entering into such agreements under the authority provided by M.G.L. c. 59, § 38H(b), which provides that:

A generation company or wholesale generation company . . . may, in order to comply with its property tax liability obligation, execute an agreement for the payment in lieu of taxes with the municipality in which such generation facility is sited, and said company shall be exempt from property taxes, in whole or in part, as provided in any such agreements during the terms thereof.

This statute therefore allows communities to enter into PILOT agreements only with a

28 See Appendix A for a table of sample PILOT agreement terms for solar PV projects in Massachusetts.

29 There are basic two types of payment arrangements under PILOTs: (1) payments based on gross revenue and cash flow or (2) fixed payments for the duration of the PILOT agreement. The former scheme is more volatile and requires more monitoring and auditing, while the latter creates the most certainty and is the easiest to administer. PILOT agreements may be 5, 10, or 20 years in duration.

30 Christy Bertini, *Voters Approve Solar Tax Agreement*, QUABOAG CURRENT, Feb. 16, 2012, at 12.

“generation company” or “wholesale generation company.”

These terms are defined in M.G.L. c. 164, § 1. A “generation company” is “a company engaged in the business of producing, manufacturing or generating electricity or related services or products, including but not limited to, renewable energy generation attributes for retail sale to the public.” A “wholesale generation company” is “a company engaged in the business of producing, manufacturing or generating electricity for sale at wholesale only.”

Given these definitions, municipalities lack the authority to enter into PILOT agreements with many owners of PV systems. Homeowners and store owners, for example, are not engaged in the business of selling electricity at wholesale or retail. Therefore, if DOR’s interpretation of the section 5(45) exemption were to prevail, these individuals would find themselves both ineligible for the tax exemption and unable to negotiate a PILOT agreement.

Even when it comes to solar developers, the authority of municipalities to enter into PILOT agreements is not entirely clear. These companies would appear to be “generation companies” or “wholesale generation companies” because they are in the business of generating electricity and related renewable energy generation attributes. In the context of solar PV projects, however, the Department of Public Utilities has significantly limited the reach of these terms. In particular, it prohibits generation companies (and presumably also wholesale generation companies) from qualifying for net metering.³¹

Since 2008, a privately-owned solar PV installation of up to 2 MW has been eligible for net metering.³² In addition, public entities can have up to 10 MW of net metering generating capacity.³³ The vast majority of solar PV installations in the Commonwealth are below these size thresholds. Given that net metering provides favorable financial terms by allowing the generator to be compensated at the retail price of electricity, most projects that are eligible for net metering will avail themselves of it. Therefore, given that most PV installations are net metering facilities, and given that the owner of a net metering facility cannot be a generation company or wholesale generation company, it would seem that very few PV installations would be eligible for PILOT agreements under M.G.L. c. 59, § 38H(b).

There is yet another layer of complexity, however. The entity that qualifies for net metering is the customer of the distribution utility. By contrast, the entity that enters into the PILOT agreement with the municipality is the owner of the PV installation. These two entities are not

31 See 220 CMR 18.06.

32 M.G.L. c. 164, § 138.

33 M.G.L. c. 164, § 139(f).

necessarily the same for a given PV project. For example, a private company may develop the solar PV installation (to be eligible for tax credits and other incentives), while a public entity might own the land and be the customer of record for the distribution company (and thus be eligible for the higher net metering threshold).³⁴ Therefore it is possible that some facilities that qualify for net metering are also eligible for PILOT agreements.

Given the uncertainty and needless complexity created by this legal scheme, the legislature should clarify the eligibility of solar PV installations for PILOT agreements.



Image: This 49-kilowatt photovoltaic system atop the Artists for Humanity EpiCenter in Boston generates 50% of the building's electricity needs, available at Massachusetts Energy & Environmental Affairs photostream, <http://www.flickr.com/photos/masseea/6260744813/>

2. TIF Agreements.

TIF agreements are another financing mechanism for restructuring or reducing a project's property tax burden. A TIF agreement provides a full or partial exemption from property taxation on the "incremental" value of a property as a result of new development. Massachusetts law allows

34 Note that this arrangement is eligible for a PILOT agreement only if the PV installation is assessed as private property (and therefore the solar developer is the taxable entity). If it is assessed as real property, the landowner (who is not a generation company or wholesale generation company, M.G.L. c. 59, § 38H(b)) would not be able to enter into a PILOT agreement.

municipalities to use TIF agreements to promote job creation in economically depressed areas.³⁵ There are several restrictions on the use of TIF agreements that limit their usefulness for solar PV projects, however. First, only the largest commercial installations could plausibly be considered to have a sufficiently great economic impact to qualify for a TIF agreement. Second, TIF agreements are generally available only in an Economic Opportunity Area, as designated by the Economic Advisory Coordinating Council.³⁶ If the proposed location of the installation is not in an Economic Opportunity Area, the Undersecretary of Business Development must approve the proposed location as an area “presenting exceptional opportunities for increased economic development.”³⁷ The agreement must also be approved by the Economic Assistance Coordinating Council and the municipality where the project is located.³⁸

There are currently relatively few TIF projects in Massachusetts and none involve solar PV installations. Renewable energy projects are eligible for TIF agreements under the Green Communities Act of 2008, however,³⁹ and the town of Douglas has entered into a TIF agreement with a 30-MW wind farm.⁴⁰ The agreement provides for payments averaging about \$5,293 per MW annually for 15 years in lieu of property taxes.⁴¹

35 See M.G.L. c. 23A, §§ 3E, 3D(a)(ii)(K); c. 40, § 59; 760 CMR 22.03(1).

36 See 760 CMR 22.04(1).

37 760 CMR 22.04(2).

38 760 CMR 22.06-22.07.

39 M.G.L. c. 23A, § 3D(a)(ii)(K).

40 Thomas Mattson, *Douglas Voters Okay Tax Break for Wind Farm*, BLACKSTONE VALLEY TRIBUNE, Nov. 20, 2009, at A1, available at <http://www.blackstonevalleytribune.com/pdf/BLA.2009.11.20.pdf>.

41 *Id.* at A6.

PROPERTY TAXATION OF SOLAR PV SYSTEMS IN OTHER STATES

To better understand the implications of Massachusetts' current approach to taxing solar PV systems and to explore the range of options available for the Commonwealth, we have reviewed the approaches to property taxation of solar PV systems in the 48 contiguous states and the District of Columbia. This review revealed that twenty-nine states offer some variation of a property tax incentive for solar PV systems, while eighteen states and the District of Columbia do not. In this Part, we briefly summarize the different approaches that states have taken in adopting property tax incentives for solar PV systems and some of the advantages and disadvantages of each approach.

A. States with No Exemption.

First, as noted above, eighteen states and the District of Columbia offer no property tax exemption for solar PV systems. It is difficult to draw any general lessons regarding the reasons for or effect of these states' failure to provide an exemption, but some tentative suggestions are possible.

As for the possible reasons: first, these states are largely located in the South Atlantic, East South Atlantic, and Mountain regions, all of which receive relatively high amounts of solar energy.⁴² As a result, it is possible that in these states solar PV installations are not as dependent on this form of financial support as they are in other parts of the country. Some of the states, including Nebraska, Oklahoma, and Pennsylvania, appear to have prioritized wind over solar and offer property tax incentives for wind systems only.⁴³ Most of the states do offer a variety of other financial incentives for solar projects, including tax credits, rebates, or grants, so it is also possible that they have simply chosen a different portfolio of incentives that could have as great a cumulative effect.

As for the effects of a state not providing a tax exemption—given the complexities just described, it is again difficult to draw general lessons. It is worth noting, however, that none of these states is in the top eight states in the country in terms of the amount of solar capacity installed.⁴⁴

42 See NATIONAL RENEWABLE ENERGY LABORATORY, PHOTOVOLTAIC SOLAR RESOURCE OF THE UNITED STATES MAP (2012), available at http://www.nrel.gov/gis/images/eere_pv/national_photovoltaic_2012-01.jpg.

43 Neb. Rev. Stat. § 77-6203(2)(a); Okla. Stat. tit. 68, § 2902; 53 Pa. Cons. Stat. §§ 8811, 8842.

44 See Solar Energy Industries Ass'n, *Solar Industry Data*, <http://www.seia.org/research-resources/solar-industry-data> (last visited July 3, 2013).

B. State-mandated Property Tax Exemption.

A plurality of states—twenty-two of them—mandate that municipalities offer some form of property tax exemption. This group includes the top five states in installed solar PV capacity as of the end of 2012—California, Arizona, New Jersey, Nevada, and North Carolina.⁴⁵ Although all of these states provide tax exemptions for at least some solar PV installations, a number of them limit the availability of the exemption in various ways.

1. Property- or Place-based Approaches.

First, some states require that energy produced by a solar PV system be used on-site to qualify for a property tax exemption. For example, New Jersey exempts systems used to supply the “general energy needs of [the building],”⁴⁶ Oregon limits its exemption to systems “primarily designed to offset onsite electricity use,”⁴⁷ and Arizona’s exemption applies to systems “used to produce energy primarily for on-site consumption.”⁴⁸ In these states, it makes no difference whether the system is installed on residential, commercial, industrial, or mixed-use property.

Recognizing that a grid-connected, net-metered system will inevitably feed some energy into the grid, most such states either explicitly or implicitly allow some energy to be sent off-site without losing the exemption. Thus, for example, Nevada provides that its exemption applies “regardless of whether the owner . . . participates in net metering,”⁴⁹ and Oregon specifies that exempt systems include “a net metering facility.”⁵⁰ In Iowa, as explained in a Department of Revenue opinion letter, a system is exempt as long as the system “is primarily used to provide energy” to the property where it is located, even if excess energy is sold to the grid.⁵¹

2. Purpose-Based Approach.

A second group of states limit the availability of the exemption based on the purpose for which the solar system is installed and used. Under the most common purpose-based limitation, an exemption

45 *Id.*; DSIRE, *Property Tax Incentives for Renewable Energy*, <http://www.dsireusa.org/incentives/index.cfm?SearchType=Property&EE=0&RE=1> (last visited July 3, 2013).

46 N.J. Stat. 54:4-3.113a.

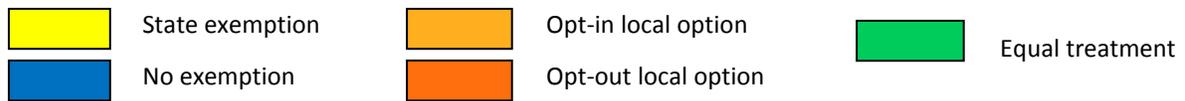
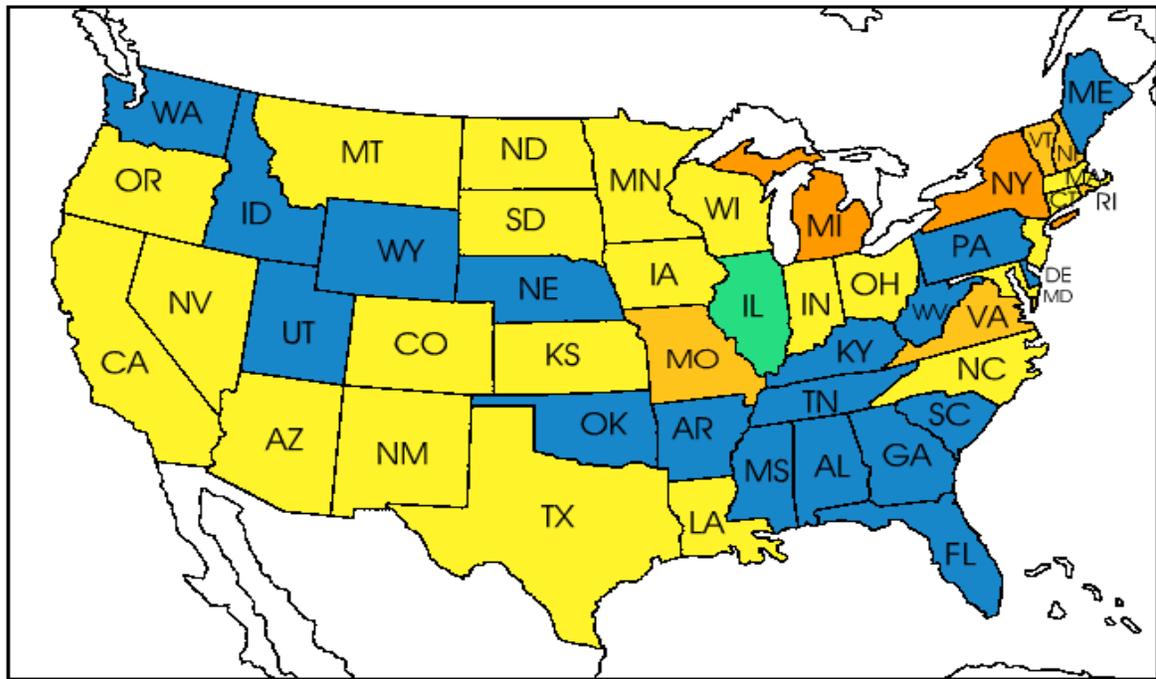
47 Or. Rev. Stat. § 307.175.

48 Ariz. Rev. Stat. § 42-11054.

49 Nev. Rev. Stat. § 701A.200.

50 Or. Rev. Stat. § 307.175.

51 See Letter from Dale Hyman, Administrator, Property Tax Division, Iowa Dep’t of Revenue, to John Lawson, Clay County Assessor (Jan. 16, 2009), available at <http://www.iowa.gov/tax/locgov/prop011609.html>.



is available only for solar PV installations on residential properties. For example, Connecticut limits the exemption to installations “for a single family dwelling, multifamily dwelling consisting of two to four units, or a farm.”⁵² Other states with similar approaches include New Mexico,⁵³ North Carolina,⁵⁴ and Louisiana.⁵⁵

52 Conn. Gen. Stat. § 12-81(57).

53 N.M. Stat. § 7-36-21.2 (providing exemption for residential property).

54 North Carolina exempts 80% of the valuable of taxable solar VP systems. N.C. Gen. Stat. § 105-275. In addition, however, the Department of Revenue has determined that residential PV systems are completely exempt. See Memorandum from David B. Baker, Director, Local Gov’t Div., N.C. Dep’t of Revenue, to County Assessors 1 (Feb. 15, 2011) (“[S]ystems owned by individuals and **not** used to produce income or in connection with a business are not taxable. Photovoltaic systems installed on a private residence may fit into either category. Photovoltaic systems installed on the premises of a business will normally be business personal property and therefore taxable.”).

55 La. Rev. Stat. § 47:1706 (exempting “any equipment attached to any owner occupied residential building or swimming pool as part of a solar energy system”).

3. Capacity-based Approach.

A third group of states provide a property tax exemption for solar PV systems below a certain size threshold. For example, South Dakota exempts systems with a capacity of less than 5 MW,⁵⁶ Ohio exempts systems of 250 kW or less,⁵⁷ and Colorado exempts independently-owned residential systems of no more than 100 kW.⁵⁸ All of these states base the exemption on the system's capacity rather than its actual energy production.

4. Other Limits on Eligibility for the Exemption.

Besides application of a property, purpose, or size-based approach or a combination thereof, most states do not impose any other restrictions on property tax exemption for solar PV systems. Two states, however, impose monetary limits. Montana exempts from taxation PV systems up to \$20,000 in value for single-family homes or up to \$100,000 for multi-family dwellings and non-residential structures.⁵⁹ South Dakota exempts up to the first \$50,000 or 70 percent of the assessed value of the renewable energy property, whichever is greater.⁶⁰ In addition, a number of states have temporal limits, under which the property tax exemption is available only for a fixed number of years from the date of installation, such as 5 in Iowa⁶¹ and North Dakota⁶² and 10 in Montana.⁶³

C. Local Option Property Tax Exemptions.

Some states do not mandate a state-wide approach to property tax exemptions for solar PV systems but instead provide municipalities with flexibility in deciding whether to adopt or reject a property tax incentive for solar PV systems. States use one of two models to implement this approach.

56 S.D. Codified Laws § 10-4-44.

57 Ohio Rev. Code § 5709.53(B).

58 Colo. Rev. Stat. § 39-3-102. An “[i]ndependently owned residential solar electric generation facility” is a facility “located on residential real property” and “owned by a person other than the owner of the residential real property.” Colo. Rev. Stat. § 39-1-102(6.8). As discussed below, Colorado also provides local governments with the option of providing exemptions for other residential PV systems and for commercial systems.

59 Mont. Code § 15-6-224. The exemption is calculated based on the Department of Revenue's determination of the system's market value. Mont. Admin. R. 42-19-1104(2)(e).

60 S.D. Codified Laws § 10-4-44.

61 Iowa Code § 441.21.

62 N.D. Cent. Code § 57-02-08.

63 Mont. Code § 15-6-224.

1. *Opt-in Model.*

An opt-in model is used by six states, with three of them—New Hampshire, Rhode Island, and Vermont—in the New England region. States in this group provide each municipality with an option to adopt a property tax exemption for particular energy sources. The opt-in approach provides municipalities with significant autonomy with regard to property taxation matters but may discourage residents of municipalities that choose not to opt-in from installing solar PV systems. One state—Missouri—has adopted a compromise approach by setting a state-mandated property tax exemption floor of 50 per cent and allowing municipalities to raise the exemption amount up to 100 per cent.⁶⁴ Colorado also has a hybrid system, with a statewide exemption for independently-owned residential systems below 100 kW (as described above) and a local option to provide exemptions for other residential systems and for commercial systems.⁶⁵ The opt-in approach is also sometimes used by states with two levels of property taxation—state and local—as is the case in Vermont, which provides a uniform exemption from the state property tax for projects below a size threshold and an option for municipalities to exempt solar projects from local property taxes.⁶⁶

2. *Opt-out Model.*

An opt-out approach is relatively rare and is used only by two states: New York and Michigan.⁶⁷ Under this model, the state creates a statewide default property tax exemption but allows municipalities to opt out of it. The opt-out model presents a compromise between a state-mandated exemption and an opt-in approach, and is more favorable to residents seeking to invest in solar PV systems and solar developers than an opt-in approach because municipalities have to go through a formal process to opt out.

64 Missouri Department of Economic Development, *Enhanced Enterprise Zone*, <http://www.ded.mo.gov/BCS%20Programs/BCSProgramDetails.aspx?BCSProgramID=39> (last visited July 3, 2013).

65 Colo. Rev. Stat. §§ 31-20-101.3 (providing authority to municipalities); 30-11-107.3 (providing authority to counties).

66 32 Va. Code Ann. §§ 3802(17); 8701(c) (statewide); 32 Va. Code Ann. § 3845 (local option).

67 Mich. Comp. Laws § 211.9i; N.Y. Real Prop. Tax Law § 487. Note that Michigan's exemption, which was adopted in 2002, expired at the end of 2012.

D. Equal Treatment.

The equal treatment model is used in only two states: Rhode Island and Illinois. This approach mandates that the solar equipment is valued at no more than the value of “energy production capacity that otherwise could be necessary to install in the building.”⁶⁸ In practice, this approach should result in a complete exemption for systems used primarily for on-site energy consumption.⁶⁹ Rhode Island has a hybrid approach, granting local governments an option to provide an exemption and mandating equal treatment in municipalities that choose not to offer an exemption.⁷⁰



Image: The Greater Boston Food Bank’s solar panels, available at Massachusetts Energy & Environmental Affairs photostream, <http://www.flickr.com/photos/masseea/5857332148/>

68 R.I. Gen. Laws § 44-57-4(a)(6); 35 Ill. Comp. Stat. 200/10-10.

69 See Michelle Hickey, *Special Assessment for Illinois Solar Energy Systems*, ILLINOIS SOLAR ENERGY ASSOCIATION BLOG (July 11, 2012), <http://www.illinoissolar.org/blog?mode=PostView&bmi=1005734>.

70 R.I. Gen. Laws §§ 44-3-21 (“The city or town councils of the various cities and towns may, by ordinance, exempt from taxation any renewable energy system located in the city or town.”); 44-57-4(a)(6) (“Notwithstanding any other provisions of the general laws, for purposes of local municipal property tax assessment, qualifying renewable energy systems shall not be assessed at more than the value of a conventional heating, conventional hot domestic hot water systems, or energy production capacity that otherwise could be necessary to install in the building.”).

CURRENT LEGISLATIVE PROPOSALS

In this Part, we draw on the observations in the previous Parts to assess the pros and cons of several bills currently pending in the state legislature that would amend the laws relating to the taxation of solar PV systems. Each bill contains two central provisions: (1) a property tax exemption for solar PV systems under a certain size threshold,⁷¹ and (2) specific authority for PILOT agreements. In reviewing the bills, we focus on their impact on the state's goal of promoting solar energy development and on municipalities' ability to generate tax revenue. We also consider the bills under some of the traditional criteria for assessing a tax system, including equity, economic efficiency, certainty, and administrability.⁷²

A. Summary of Introduced Bills.

There are four bills addressing the taxation of solar PV systems that have been introduced in the General Court in the current legislative session:

- H.2677 An Act relative to the equitable taxation of ground mounted solar systems.
- H.2740 An Act to modernize the renewable energy tax exemption.
- S.1329 An Act relative to the equitable taxation of solar systems.
- H.2505 An Act relative to solar taxation.

Because H.2677 does not purport to provide a comprehensive revision of the law, but instead addresses only ground-mounted systems, our discussion focuses on the other three bills.

1. H.2740

H.2740 was introduced by Representative Smizik and Senator Joyce and has nine co-sponsors. It would amend G.L. c. 59, § 5(45), the statute creating the tax exemption for solar PV systems, to:

- Exempt solar PV systems with a capacity no greater than 60 kW for 20 years;

71 The exception is H.2677, which eliminates the tax exemption for ground mounted solar systems.

72 U.S. GOV'T ACCOUNTABILITY OFFICE, UNDERSTANDING THE TAX REFORM DEBATE: BACKGROUND, CRITERIA, AND QUESTIONS 24 (2005), available at <http://www.gao.gov/new.items/d051009sp.pdf>. Equity includes both horizontal equity, which requires taxpayers in similar situations to receive the same tax treatment, and vertical equity, which requires the tax burden to correspond to taxpayers' ability to pay. *Id.* at 27-28. Economic efficiency encompasses the degree to which a tax program distorts the economic decisions of taxpayers. *Id.* at 35. Certainty refers to predictability, transparency, and overall understanding of the tax system by taxpayers. *Id.* at 45-48. Administrability encompasses cost and ease of implementation, enforcement, and compliance. *Id.* at 49.

- Exempt 85% of the appraised value of solar PV systems with a capacity greater than 60 kW for 20 years; and
- Provide explicit authority for municipalities and project owners to enter into PILOT agreements, which “shall be the result of good faith negotiations and shall be the equivalent of the property tax obligation based on full and fair cash valuation.”

2. S.1329

S.1329 is sponsored by Senators Downing, Jehlen, and Eldridge. It would amend G.L. c. 59, § 5(45) to:

- Exempt a solar PV system “that is capable of producing not more than 125 per cent of the annual energy needs of the property upon which it is located;” and
- Exempt other solar PV systems, provided that the owner makes a “payment in lieu of taxes equal to 6 percent of the system’s gross electricity sales.”

3. H.2505

H.2505 is sponsored by Representatives Beaton and Ferguson. It is identical to S.1329, except that, rather than set a fixed PILOT rate of 6 percent, it instructs municipalities to “establish a rate between 0 and 20 percent that will be used in calculating all payments in lieu of taxes relative to this section, which then shall be applied to a system’s gross electricity sales.”

B. Areas of Broad Agreement.

There are three topics regarding which there are uncontroversial, win-win changes to the law that all sides should favor. First, there is a consensus that the status quo is unsatisfactory and some clarification of the law is necessary. As explained above, there are significant ambiguities and uncertainties in the application of current law regarding both the renewable energy property tax exemption and PILOT agreements to solar PV projects. This uncertainty hinders the development of renewable energy projects and increases the administrative burden on municipalities. It is therefore not a surprise that both the solar industry and municipal assessors have requested that the legislature clarify the scope of the exemption.⁷³

73 See My Generation Energy, *supra* note 9; Memorandum from Peter Rothstein, President, New England Clean Energy Council, to Members of the Massachusetts House of Representatives 3 (June 27, 2012) (“Today, solar project developers face as many different views on how to assess solar generation facilities for local taxation as there are local assessors. . . . The property tax burden can be priced into the product, but an uncertain future property tax liability cannot be.”); See Letter from R. Lane Partridge, Assessor, Town of Concord, to Jay Kaufman, Chair, Massachusetts House of Representatives, Michael Rodrigues, Chair, Massachusetts Senate, and Joint Committee on Revenue (April 22, 2013), at 1 (“I can not stress enough the need for Chapter 59, Section 5,

Second, there is consensus that at least some smaller PV systems should be exempt from local property taxes.⁷⁴ Municipal assessors are already generally treating residential systems as exempt and R. Lane Partridge, President-Elect of the Massachusetts Association of Assessing Officers, has indicated that he supports an exemption for systems from which most energy is used on-site.⁷⁵ As discussed below, however, there remains disagreement about how best to identify the subset of solar PV installations that should be eligible for this exemption.

Third, there is broad agreement that the authority of municipalities to enter into PILOT agreements with solar PV project owners should be clarified. As discussed above, under current law, municipalities do not have the authority to enter into PILOT agreements with respect to all solar PV projects that are not eligible for a property tax exemption. A legislative amendment that clearly established this authority would eliminate any lingering legal uncertainty about current agreements and would allow project owners and municipalities to negotiate new agreements with the confidence that these agreements will be upheld if challenged later. Here too, however, there remain disagreements about the precise dimensions of this authority.

C. Contested Provisions.

1. Scope of the Property Tax Exemption.

There are three, interrelated points of contention regarding the appropriate scope of the exemption. The first involves how many projects should be exempted. The second concerns the manner in which the threshold should be identified, whether by the PV system's capacity or by the proportion of the energy produced by the system that is used on-site. The third involves the treatment of larger projects that do not qualify for an exemption: should they receive a partial exemption or have their taxes capped?

As for the first issue, the exemption should be large enough to cover all installations whose energy is wholly or primarily used on site. These installations are not intended as profit-making businesses. In

Clause 45 to be clarified.”); *but see* Letter from Geoffrey Beckwith, Executive Director, MMA, to Jay R. Kaufman, House Chair, et al. (Apr. 9, 2013), *available at* <http://www.mma.org/advocacy-mainmenu-100/letters-to-state-leaders/11817-mma-letter-to-revenue-committee-opposing-bills-that-would-alter-local-taxing-authority-on-renewable-energy-equipment> (“There is no need to change the current law.”).

74 Note that this agreement reflects the implicit assumption that there should be a statewide exemption, rather than an opt-in or opt-out exemption, as adopted in some other states, as discussed above. *See* text accompanying notes 64-67, *supra*. We believe that a uniform, statewide exemption is better than a local option approach, because it better promotes renewable energy development and is also preferable from the perspectives of administrability and horizontal equity.

75 Telephone Interview with R. Lane Partridge (Apr. 16, 2013).

addition, according to a report prepared last year by the Vermont Department of Public Services and Vermont Department of Taxes, “there is no market evidence suggesting that the presence of small scale solar . . . projects increase the value of the real estate.”⁷⁶ Failing to exempt these systems would also greatly increase the administrative burden on municipalities and impede the Commonwealth’s renewable energy goals.

On the second issue, the bills before the legislature adopt two approaches. H.2740 proposes a specific numerical threshold for eligibility—equivalent to what we described as the “capacity-based approach” in our discussion of other states, above.⁷⁷ H.2505 and S.1329 instead would establish a threshold based on a percentage of the property’s annual energy needs—what we referred to above as a “property- or place-based approach.”⁷⁸

The specific numerical threshold of 60 kW included in H.2740 provides the most certainty and predictability. Residential, nonprofit, or commercial property owners who choose to install solar systems with less than 60 kW capacity would benefit from the property tax exemption regardless of whether the energy produced by their systems is used as primary or backup power system for the property or was sold to the grid. Considering a typical residential system capacity in Massachusetts is approximately 5 kW, this threshold would exempt virtually all residential systems in the Commonwealth, which would be consistent with both the spirit of the statute as originally adopted in the 1970s and with the most common current interpretation of the provision by local assessors. Larger-scale commercial projects, such as those listed in Appendix A, would not qualify for an exemption under this scheme. Municipalities would also benefit from lower administrative costs due to ease of interpretation and enforcement of the statute, and lower compliance costs.

An approach based on a percentage of the property’s annual energy needs, as proposed by H.2505 and S.1329, is harder to administer and enforce because local tax assessors would have to determine “annual energy needs” of the property either through self-reporting or the use of historic energy consumption data, assuming it constitutes an accurate prediction of the future energy needs. If actual energy use is used, this approach also creates a perverse incentive for the property owner to increase

76 Vt. Dept. of Public Service & Vt. Dept. of Taxes, *Report on the Valuation of Renewable Energy Property 3* (2012), available at <http://www.state.vt.us/tax/pdf.word.excel/misc/Renewable%20Energy%20value%20report%20to%20legislature%201%2010%2012%20%282%29.pdf>.

77 All of the bills use “energy generating capacity” rather than actual energy production to determine which systems qualify for the exemption. Using the actual energy production figure would result in a more equitable property taxation system but would be overly complex to administer, because actual energy production is likely to fluctuate from year to year. A capacity-based tax also “provides additional incentives to property owners to design, locate, operate and maintain their systems to maximize the electricity generated.” *Id.* at 6.

78 None of the bills adopts a purpose-based approach. *Cf.* text accompanying notes 52-55, *supra*.

its energy use in order to qualify for the exemption. This approach also provides less certainty than a numerical limit, especially in cases of new residential or commercial construction projects where no historic data exists with regard to annual energy needs.

Another possible solution, not advanced in the current bills, is a hybrid system. Under this approach, any solar PV project with generating capacity of less than 60 kW or over 60 kW but less than 125 per cent of the energy needs of the property would be exempt.⁷⁹ The hybrid system would provide certainty and flexibility but it would also result in a somewhat greater administrative burden. (The burden will be less than under a pure “annual energy needs” approach because all projects below the size threshold would automatically qualify without any need for measuring that property’s energy use.) To enhance the administrability of a hybrid scheme, exemptions based on energy generation as a percentage of energy needs should be calculated using the historic energy consumption of the property. This approach would also avoid the perverse incentive to increase energy use identified above.

2. PILOT Agreements.

Each of the bills includes a clause allowing municipalities to enter into PILOT agreements with the owners of solar PV systems not otherwise exempt from property tax. The proposals range from setting a state-mandated fixed rate for a PILOT agreement (S.1329), to providing a range of permissible rates (H.2505), to giving municipalities power to negotiate any rate “in good faith” (H.2740). The basic dispute on this issue is between solar developers’ preference for a low fixed rate and municipalities’ preference for greater flexibility.⁸⁰

79 The main beneficiaries of this approach would likely be large industrial or commercial projects. For example, REI has added 200 kW of solar PV capacity to its Framingham store and IKEA in Stoughton has installed a 591 kW system. Erin Ailworth, *Mass. Businesses Driving Growth in Solar Investments*, BOSTON GLOBE, Sept. 23, 2012. Because these systems have a capacity of more than 60 kW, but nevertheless produce less electricity than is used on-site, they would qualify for an exemption under this hybrid scheme, but not under a pure size threshold approach.

80 This dispute played out last year, when both S.2214, passed by the Senate, and H.4198, passed by the House, included fixed rates for PILOT agreements (five percent and six percent, respectively). After significant opposition from cities and towns represented by Massachusetts Municipal Association (MMA), *see, e.g.*, Letter from Geoffrey Beckwith, Executive Director, MMA, to Therese Murray, Senate President (Mar. 28, 2012), *available at* <http://www.mma.org/advocacy-mainmenu-100/letters-to-state-leaders/6420-mma-letter-to-senate-president-urging-caution-on-solarwind-tax-exemption>, the provision was removed from the bill in conference committee before it was enacted as An Act Relative to Competitively Priced Electricity in the Commonwealth. 2012 Mass. Acts ch. 209.

Municipalities are concerned that a low fixed PILOT rate provides solar developers with a windfall and reduces municipal revenues necessary for critical local services,⁸¹ forcing municipalities either to make budget cuts or to increase property tax rates for other businesses and homeowners. Cities and towns further argue that it is impossible to set a fair fixed rate at the state level without taking into account multiple factors that influence the negotiated PILOT rates, including property tax rates, land values, and power purchase agreements (PPA).⁸² Under power purchase agreements, municipalities may buy power from solar projects at a discount and simultaneously agree to a lower tax rate in a coordinated PILOT agreement. Solar developers on the other hand favor a fixed rate for its certainty and predictability and argue that a fixed rate would help smaller communities that do not have significant negotiating experience and allow solar facilities to be developed in the best locations based on infrastructure and the power grid and not on the availability of local tax rate incentives.⁸³

H.2505 provides a range of permissible PILOT rates from 0 to 20 percent of electricity sales, giving more flexibility in the administration of property taxes to municipalities and certainty to solar developers. H.2740 goes even further, allowing municipalities to negotiate PILOT agreements for any amount as long as the rate is “the result of good faith negotiations.” This proposal provides the most autonomy to municipalities and allows competition among municipalities. At the same time, however, it disadvantages smaller municipalities that are not experienced in negotiations.⁸⁴ This shortcoming could be remedied by DOR- or MAA-administered educational programs for local officials. This model may also result in higher transaction costs for developers and municipalities and not give solar developers their desired level of certainty. Solar projects rarely advance past the planning stage before the property tax arrangement is settled, however, meaning developers would undertake capital expenditures with full knowledge of their expected property tax liability regardless of the PILOT rate model in place. It is also important to note that PILOTs are entirely voluntary for municipalities and mandating a fixed PILOT rate or a range of PILOT rates may discourage municipalities from offering PILOT agreements, thus hindering the Commonwealth’s goal of promoting solar energy development.

81 Ken Cleveland, *Solar Taxation Remains Up in the Air in Mass.*, WORCESTER TELEGRAM & GAZETTE (Sep. 5, 2012), <http://www.telegram.com/article/20120905/NEWS/109059894/1237>.

82 Letter from R. Lane Partridge, *supra* note 73, at 1.

83 Cleveland, *supra* note 81.

84 This shortcoming could be remedied by DOR- or MMA-administered educational programs for local officials.

On the whole, the open-ended PILOT authority of H.2740 is the best approach. It is sufficiently flexible to accommodate municipalities' concerns. In addition, as long as it is combined with a sufficiently generous exemption from taxation, it should not impede the expansion of solar power in Massachusetts.⁸⁵

85 None of the bills address whether PV installations should be taxed as real or personal property. Despite the uncertainty surrounding this issue, as discussed above, it is best for the legislature not to address it at this time. There is too much diversity in solar PV installations, and the technology is changing too rapidly, for a one-size-fits-all legislative solution to work. As indicated above, however, we believe that the Department of Revenue should issue guidance indicating that most PV installations, which use off-the-shelf PV modules that can easily be removed, should be taxed as personal property. This approach would also ensure that when the owner of the PV installation is not the owner of the land, which is the case under the increasingly popular solar leasing arrangements, it is the owner of the PV installation against whom the tax is assessed.

CONCLUSIONS

We recommend that the legislature pass a law containing the following elements:

- A property tax exemption for any solar PV system with a capacity of less than 60 kW, combined with an exemption for a system that has a capacity no greater than 125 per cent of the historic annual energy needs of the property upon which it is located; and
- A grant of authority to municipalities to enter into PILOT agreements for any PV installation not eligible for an exemption at any rate that is the result of good faith negotiations.

This statutory scheme would achieve several goals:

- resolve ambiguity in G.L. c. 59, § 5(45);
- provide an automatic tax exemption for residential and small commercial and industrial solar PV systems, which is consistent with the spirit of the original statute and current practice;
- preserve municipal autonomy to negotiate PILOT agreements based on local property tax rates, associated PPAs, and the municipality's financial position; and
- promote solar development in accordance with the Commonwealth's stated renewable energy goals.

APPENDIX A: SAMPLE PILOT AGREEMENT TERMS FOR SOLAR PV PROJECTS IN MASSACHUSETTS

The following table presents a sample of currently active PILOT agreements in the Commonwealth:⁸⁶

Location	Project Size	Average Annual Payment	Price/MW
Ashburnham	3 MW	\$75,000	\$25,000
Berkley	6 MW	\$31,568	\$5,261
Berkley	2.9 MW	\$20,300	\$7,000
Carver	6 MW	\$88,000	\$14,667
Chicopee	2.5 MW	\$25,000	\$10,000
Douglas	2 MW	\$48,950	\$24,475
Groveland	3.5 MW	\$22,000	\$6,430
Mashpee	1.83 MW	\$25,446	\$13,905
Millbury	6.0 MW	\$73,000	\$12,166
Northbridge	4 MW	\$39,224	\$9,806
Rochester	4.2 MW	\$40,000	\$9,524
Shrewsbury	3.326 MW	\$37,424	\$11,252
Southbridge	1.6 MW	\$22,751	\$14,219
Uxbridge	2.5 MW	\$41,000	\$16,400
Uxbridge	0.9 MW	\$15,300	\$17,000
Warren	6 MW	\$42,000	\$7,000
Whateley	2.4 MW	\$20,167	\$8,403
Winchendon	6 MW	\$140,000	\$23,333
Winchendon	3 MW	\$70,000	\$23,333

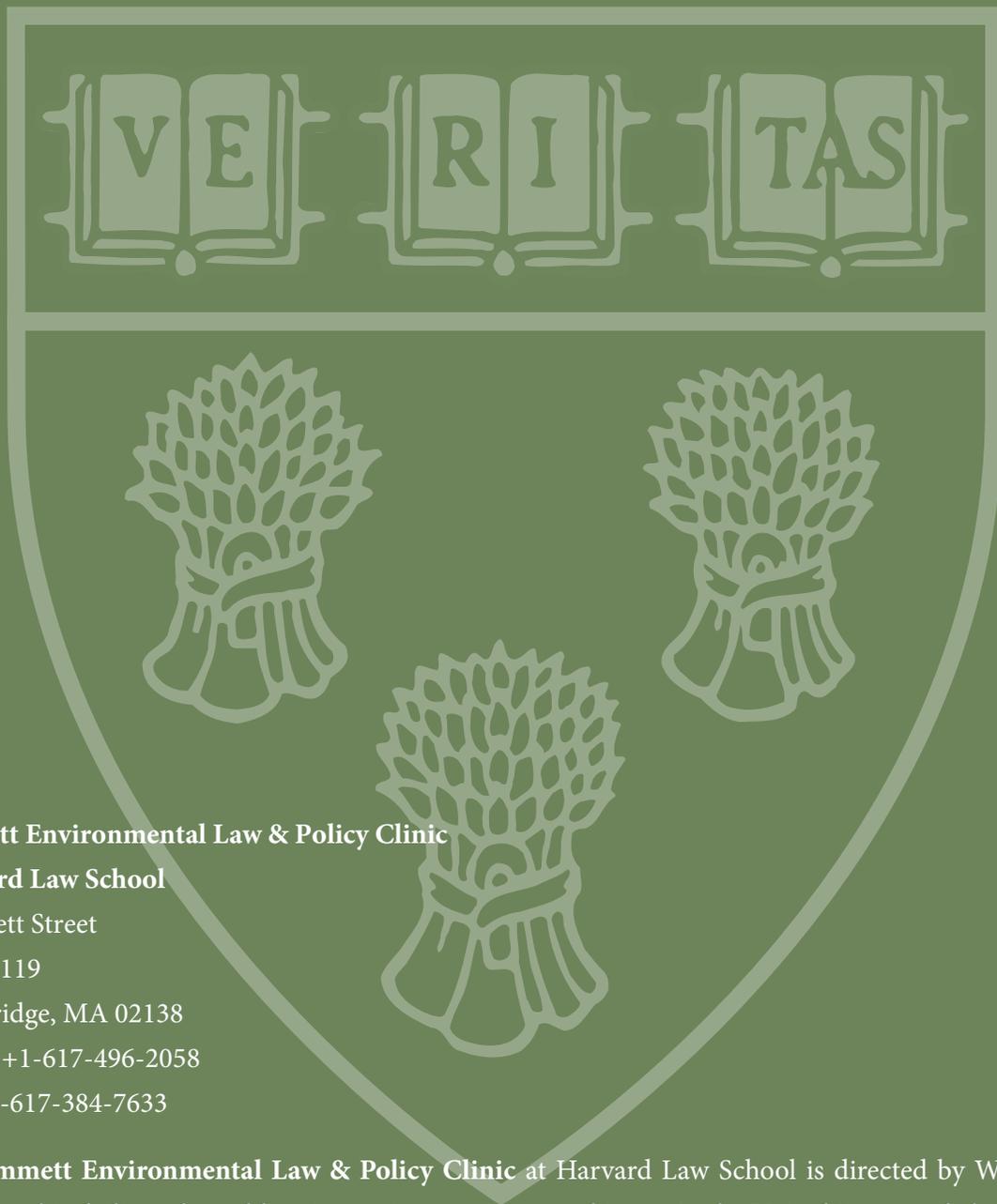
⁸⁶ The data have been compiled from the following sources: George Sansoucy, Solar Photovoltaic (PV) Projects for *Ad Valorem* Tax Purposes or for Negotiation of PILOT Agreements, Presentation (Feb. 27, 2013); Deborah Gauthier, *Northbridge Oks Solar Power Agreement with Con Edison*, NORTHBRIDGE DAILY VOICE, Feb. 12, 2013, available at <http://northbridge.dailyvoice.com/politics/northbridge-oks-solar-power-agreement-con-edison/>; Christopher Nichols, *Solar Power Soars to New Highs in Berkley*, SOUTHERN SKY RENEWABLE ENERGY (Jul. 14, 2012), available at <http://southernskyrenewable.com/news/>; Town of Ashburnham, Board of Selectmen Meeting Minutes (Apr. 2, 2012), available at http://www.ashburnham-ma.gov/Pages/AshburnhamMA_BOS-Min/2012%20BOS%20Minutes/2012-4-2%20BOS%20Minutes.pdf; as well as copies of PILOT agreements produced by the Department of Revenue in response to a public records request and on file with the authors.

Note, however, that a straight per-megawatt comparison does not necessarily provide a full picture of the economic arrangement between the municipality and the solar developer. Municipalities that operate their own electric utility will typically also enter into a power purchase agreement (PPA) with the solar developer to buy the energy produced by the solar installation. Given that negotiations over the PPA and PILOT agreements can occur simultaneously, a lower PILOT rate may be exchanged for a lower per-megawatt purchase price for the energy.⁸⁷

For the same reason, it does not necessarily provide a complete picture to compare the per-megawatt rates imposed on solar PV projects or negotiated for these projects in PILOT agreements to the per-megawatt tax rates for conventional power plants. Nonetheless, it is striking that, by this measure, all virtually all of the PILOT rates identified above are higher than the average tax rate for such plants in Massachusetts.⁸⁸

⁸⁷ See Letter from R. Lane Partridge, *supra* note 73.

⁸⁸ See My Generation Energy, *supra* note 9.



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The Emmett Environmental Law & Policy Clinic at Harvard Law School is directed by Wendy B. Jacobs and is dedicated to addressing major environmental issues in the United States and abroad and to providing its students an opportunity to do meaningful, hands-on environmental legal and policy work. Students and clinic staff work on issues such as climate change, pollution reduction, water protection and smart growth.