

Solar Project Development: the Special Case of Agrivoltaic Projects

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[1] As it becomes more challenging to develop large-scale solar projects in Massachusetts, it is worth taking a closer look at “dual use” or “agrivoltaic” projects – solar projects designed with specially elevated and spaced solar panels to allow for continued agricultural use of the land beneath. Some view solar development on “greenfield” sites (open space, forested land, farmland) as less desirable than installing solar on rooftops, parking lots, brownfields, and other previously developed sites. Agrivoltaic projects present an important opportunity to install additional clean energy generation in Massachusetts without the trade-offs often associated with greenfield development. Any solar project where farmland is converted to exclusive solar use gives the landowner the opportunity to supplement farm income by renting out a portion of the land to a solar developer. An agrivoltaic project can provide supplemental income without loss of farmland; it can even lead to the creation of new farmland or more active use of existing farmland, such as upgrading a hayfield to a vegetable farm. An agrivoltaic project can also play a dual role in the fight against climate change: increasing the share of energy generated from carbon-free sources while also promoting **regenerative agriculture**, the cultivation of plants and healthy soil that can help reduce the atmosphere’s existing carbon load. This article looks at three different regulatory frameworks that impact the development of agrivoltaic projects in Massachusetts: zoning; the Commonwealth’s solar incentive program; and taxation of agricultural land.

Local Permitting of Solar Projects

Like other commercial solar projects in Massachusetts, agrivoltaic projects face an array of permitting requirements. We will focus on the zoning landscape with special attention to several trends and dilemmas.

While state law limits the application of local zoning to solar facilities and both the Land Court and Superior Court have had occasion to interpret that law in recent years, there remains a good deal of confusion about the permissible scope of local zoning authority over solar projects. Zoning regulation of solar projects is limited by **M.G.L. c. 40A, § 3** (“Section 3”), which provides that “[n]o zoning ordinance or by-law shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare.” Section 3 evidences the legislature’s intent to protect solar facilities from certain local zoning restrictions but when and to what extent?

Many zoning bylaws do not mention solar energy use (or any broader use that would include solar energy use). Given that zoning bylaws almost universally prohibit uses that are not expressly permitted, this means that in the first instance solar would be prohibited under a bylaw that is silent as to solar use. In turn, however, one Land Court decision held that Section 3 would ordinarily preempt that prohibition, effectively rendering solar use a use allowed by right.^[2]

Notwithstanding Section 3, more and more municipalities are adopting solar bylaws that regulate solar projects in one or more ways. Some provide that solar projects are allowed by right in certain zoning districts, with or without a requirement for site plan approval (a mechanism for imposing reasonable conditions on as-of-right uses). Others provide that solar projects are allowed by special permit in certain districts. Still other solar bylaws purport to prohibit solar use in certain districts. Where solar facilities are allowed, a solar bylaw often lays out special dimensional and other requirements, such as requirements for vegetative screening or for posting of financial assurance to cover the costs of removing the facility at the end of its useful life. Larger scale ground mounted solar projects are often the only subject of solar bylaws or are subject to more extensive requirements than other types of solar facilities.

With the proliferation of solar bylaws, questions have arisen about the extent to which they are enforceable in light of Section 3. In its role as reviewer of the legality of new bylaws, the Office of the Attorney General has admonished municipalities to consult with counsel to ensure they do not run afoul of Section 3,^[3] but has not rejected any solar bylaw as facially inconsistent with Section 3. In addition, courts have offered some guidance, providing several prospective “rules of thumb” to local zoning boards and solar developers. For example, although a special permit granting authority (“SPGA”) can ordinarily exercise broad discretion to deny a special permit, it likely cannot do so outside the bounds of Section 3.^[4] Moreover, certain bylaw requirements (or permit conditions) may be inconsistent with Section 3 on an as-applied basis because they effectively prohibit a project or are not “necessary to protect public health, safety or welfare.”^[5] For example, given the benign nature of a typical ground mount solar facility it might be difficult to justify a 200-foot setback requirement as necessary to protect public health, safety or welfare.

It is also unclear under Section 3 under what circumstances a municipality may allow solar energy use in certain districts while prohibiting it in others. There are two key ways of viewing this issue through the lens of Section 3. One view is that if a municipality allows solar energy use in at least some locations, it cannot be deemed to have “prohibit[ed]” solar use within the meaning of Section 3. The alternative view is that Section 3 bars a municipality from prohibiting solar energy projects even in just a single district “except where necessary to protect public health, safety or welfare.” *Id.* While an initial Land Court decision seemed to provide some support for the first view,^[6] two subsequent clarifying Land Court decisions have endorsed the second.^[7]

In *Briggs v. Zoning Board of Appeals of Marion*, the Marion Zoning Board of Appeals argued that, as long as commercial solar energy use was allowed in some zoning districts, it could still be prohibited in a residential district consistent with Section 3. The court appeared to accept this reasoning, finding that it is “rational” and “reasonable” to prohibit commercial solar energy systems in residential districts,^[8] even though Section 3 expressly bars *any* prohibition of solar energy systems – not just irrational or unreasonable prohibition of solar energy systems – “except where necessary to protect the public health, safety or welfare.” *Id.* The court noted that the board made no findings on the impact of the proposed project on public health, safety or welfare, *id.* at *2, nor did the court in its *de novo* review make any such findings, *see id.* at *4-5.

In *Duseau v. Szawloski Realty, Inc.*, issued nearly a year later, the court reached a similar conclusion, but only because it determined that the defendant solar developer had the burden of proving that the prohibition of solar energy use in the town’s rural residential district was *not* necessary to protect public health, safety and welfare and the developer never even argued the issue.^[9]

More recently, in *PLH LLC v. Town of Ware*, the court ruled that a municipality could not require, and then could not deny or condition, a special permit for a solar project in a particular district “except where necessary to protect the health, safety or welfare.”^[10] Notably, it appears that no court has yet concluded that a prohibition of solar energy use, or a denial of a permit for solar energy use, has been necessary to protect public health, safety or welfare under Section 3. Given that many larger solar projects are now operating (including many in residential districts) across Massachusetts, and that many municipalities that have hosted such projects are supportive of additional solar development, it seems likely that the parties to future litigation on this point will have a good deal of experience from which to draw.

In short, developers of larger solar projects must navigate local land use regulation and differing interpretations of Section 3 as to which aspects of local regulation are actually enforceable. Meeting the Commonwealth’s clean energy goals will likely require more balanced regulation and more certainty about how municipalities can lawfully regulate clean energy projects.

SMART Program Incentives for Agrivoltaic Projects

The **Solar Massachusetts Renewable Target Program** (the “SMART Program”) implemented by the Massachusetts Department of Energy Resources (“DOER”) provides a base financial incentive for production of each unit of solar energy from eligible projects in Massachusetts. The **SMART Program regulations** also offer extra incentives known as “adders” to promote certain types of projects, such as solar carports, solar on landfills, and community solar facilities. Agrivoltaic facilities, referred to as Agricultural Solar Tariff Generation Units (“ASGTUs”) in the regulations, are the target of one such adder. In addition to providing adders for preferred project types, the SMART Program also has what are called “greenfield subtractors” which reduce the incentive payments for solar facilities located on greenfield sites. ASTGUs are not subject to the subtractor given that the land on which they are located will continue to be farmed.^[11] ASTGUs are also exempt from strict new rules adopted in July 2020 that generally bar solar facilities from participating in the SMART Program if they are located on land designated as priority habitat, core habitat, or critical natural landscape as identified by the Massachusetts Division of Fisheries and Wildlife BioMap2 framework with the Commonwealth’s Natural Heritage and Endangered Species Program.^[12]

At the same time, the process and standards for qualification of a SMART ASTGU are quite rigorous under state regulations and guidelines.^[13] For example, the reduction of direct sunlight relating to an ASTGU cannot exceed 50% – measured on every square foot of the project site. While a SMART facility can generally be up to 5 MW AC in size, under the current ASTGU Guideline an ASTGU would typically be capped at just 2 MW AC. *Id.* at 3. The current regulations also contain a number of other requirements including continuous growth, growing plans, and productivity reports. 225 C.M.R. 20.06(1) (d)(3), (5); ASTGU Guideline at 3. While it is important to ensure that there are not significant detrimental effects on agriculture from an ASTGU, there could be many appropriate reasons for reduced productivity, such as a drought year or appropriate crop rotation. The approval process thus far has raised questions about the appropriate baseline for measuring impacts, determining which impacts to attribute to the solar facility or to other causes, what type or magnitude of impact would result in disqualification of an ASTGU or removal of its adder.

There may well be many more types of symbiotic solar and agricultural uses that do not fit within the current requirements for ASTGUs. For example, mushroom cultivation, beekeeping and animal husbandry are all farming activities that might benefit from shade reduction greater than 50%. The state’s Department of Energy Resources (“DOER”) has a **process for seeking waivers** for unique and worthwhile alternatives but obtaining an exception is not easy, quick or predictable.

Based on experience gleaned from processing ASTGU applications for almost two years, DOER has recently issued a **“straw proposal”** to modify the guideline governing qualification of ASTGU projects. Among other things, the straw proposal raises the possibility of allowing for ASTGUs of up to 5 MW AC in certain instances and streamlining the approval process by permitting qualification by a third party organization, which should increase speed and predictability for approval of project designs. This change would provide greater certainty for the financing of these projects and allow the full range of potential climate change benefits to come to fruition.

Property Tax Incentives for Land in Agricultural/Horticultural Use

Land in active agricultural or horticultural use is entitled under **M.G.L. c. 61A** (“Chapter 61A”) to reduced property tax rates. Chapter 61A land that is converted from agricultural to commercial use must be removed from Chapter 61A. So what happens when Chapter 61A land serves as the site of an agrivoltaic facility?

Before land is to be removed from Chapter 61A, the landowner must deliver to the municipality a notice of intent to convert. Such notices are accompanied by plans showing the total acreage that will cease to be farmed (the “Converted Land”) and the balance of the land that will continue to be farmed (the “Remaining Land”). The Converted Land is removed from Chapter 61A and the landowner pays roll-back taxes (and, if

applicable, conveyance taxes) in connection with this removal. The Remaining Land should remain eligible for reduced taxation under Chapter 61A.

There is currently some confusion about the applicability of Chapter 61A to land under agrivoltaic facilities in light of the existence of **Section 2A** of Chapter 61A. Section 2A was inserted by the legislature in 2016 to address situations where ground mounted solar facilities are installed on farmland, precluding use of the land under the solar panels for agricultural or horticultural use but generating power used for the operation of the farm. Section 2A allows owners of agricultural or horticultural land who install a “renewable energy generating source” on their land which meets the requirements of Section 2A to maintain *all* of their land as agricultural or horticultural land under Chapter 61A, even the land that is exclusively occupied by the solar array and can no longer be farmed. Section 2A is not relevant to agrivoltaic facilities because they involve installation of solar panels above land which will continue to be farmed.

Land under and around an agrivoltaic facility is instead governed by Sections 1 and 2 of Chapter 61A. **Section 1** states that land shall be considered to be in agricultural use when “primarily and directly used in raising animals, including, but not limited to, dairy cattle, beef cattle, poultry, sheep, swine, horses, ponies, mules, goats, bees and fur-bearing animals, for the purpose of selling such animals or a product derived from such animals in the regular course of business.” **Section 2** states that land shall be considered to be in horticultural use when “primarily and directly used in raising fruits, vegetables, berries, nuts and other foods for human consumption for the purpose of selling these products in the regular course of business.” The Remaining Land at the site of an agrivoltaic facility, which will continue to be farmed, meets these definitions.

Note that farming the land underneath and surrounding the solar arrays of an agrivoltaic facility is something that, as noted above, facility owners are *required* to do under the SMART Program in order for the facilities to qualify for – and stay qualified as –ASTGUs under that program. If in the future the owner ceases farming the land underneath and surrounding the solar arrays and uses it for a non-qualifying purpose, the land would then lose eligibility for classification under Chapter 61A.

Chapter 61A and the publications of the Massachusetts Department of Revenue’s Division of Local Services (“DLS”) are clear that it is the *use of the land* that determines whether or not land is eligible for classification under Chapter 61A. Section 20 of a set of FAQs published by DLS states that, in the case of solar facilities that (like the agrivoltaic projects discussed here) don’t meet the requirements of Section 2A, only land “necessary for the operation of” the solar facility or “impacted by its operation” is ineligible for continued classification under Chapter 61A.**[14]** The Converted Land at the site of an agrivoltaic facility meets this definition and is the portion of the land no longer eligible for taxation under Chapter 61A. The Remaining Land is not “necessary for the operation of” the solar facilities. It will continue to be farmed and should remain eligible for classification under Chapter 61A.**[15]**

Whether land under and around an agrivoltaic facility can remain in Chapter 61A can have a significant impact on the economic viability of an agrivoltaic project. If land under an agrivoltaic project is not allowed to remain in Chapter 61A, that may not just mean that the project would have to be able to support higher property taxes (potentially reducing benefits to the farmer) but could also raise questions about the project’s ability to operate as an ASTGU under the SMART Program. An agrivoltaic project can qualify as an ASTGU if it is on land currently enrolled in Chapter 61A or land that has been in Chapter 61A in the previous five years. 225 C.M.R. 20.02 (definitions of ASTGU and Land in Agricultural Use). If a project also needs a waiver under the ASTGU Guideline, however, it must demonstrate that “the primary use of the land is for agricultural or horticultural production, as defined under [Chapter 61A].” ASTGU Guideline at 4. If the land is removed from Chapter 61A because of hosting the ASTGU, the rationale for such removal would presumably be that the primary use is no longer agricultural or horticultural. This would create tension rather than synergies between laws, and would highlight the importance of interagency coordination to further the

Commonwealth's policy goals, particularly with respect to climate change. Removing any uncertainty about this issue will be important to the growth of agrivoltaic facilities and the environmental and economic benefits that flow from them.

Development of larger scale solar projects is a challenging venture, and development of agrivoltaic projects involves special challenges and special opportunities. Overcoming those challenges and realizing those opportunities requires harmonization of and certainty in land use regulation, financial incentive qualification, and property taxation. Striking the right balance would be a victory for sensible land use planning, support of local agriculture, and the transition to a clean energy future.

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[2] *See Waller v. Alqaraghuli*, No. 17 MISC 000233, 2017 WL 3380387, at *4 (Mass. Land Ct. Aug. 4, 2017) (Scheier, J.). Although Section 3 does allow regulation of solar facilities as “necessary to protect the public health, safety or welfare,” in the case of a local zoning bylaw whose prohibition of solar use is preempted, a local zoning board cannot then choose to regulate solar use “by a case-by-case determination by the Board.” *Id.* at *5 n.7.

[3] *See, e.g.*, Letter from the Office of the Attorney General Municipal Law Unit to Town of Plympton, at 2 (Apr. 3, 2020), <https://massago.onbaseonline.com/MASSAGO/1801PublicAccess/mlu.htm> (input Case Number “9750”; then click “Search”; then follow hyperlink) (advising Town that, [i]n applying [solar bylaw amendments] the Town should consult closely with Town Counsel to ensure that the Town does not run afoul of [Section 3]”).

[4] *See PLH LLC v. Town of Ware*, No. 18 MISC 000648, 2019 WL 7201712, at *3 (Mass. Land. Ct. Dec. 24, 2019) (Piper, C.J.) (holding that zoning bylaw may require a special permit for solar energy use in a particular district but special permit review “must be limited and narrowly applied in a way that is not unreasonable, is not designed or employed to prohibit the use or the operation of the protected use, and exists where necessary to protect the health, safety or welfare”); *cf. Waller* at n.7 (suggesting that municipal authority under Section 3 to regulate solar use as necessary to protect public health, safety and welfare can only be exercised in crafting a generally applicable bylaw, not to justify case-by-case determination with respect to particular projects).

[5] *See, e.g., Ayotte v. Town of Cheshire Planning Board*, CA No. 17-275, slip. op. at 9-13 (Mass. Sup. Ct. May 4, 2018) (Ford, J.) (refusing to uphold planning board’s denial of special permit for solar project based on concerns about solar glare and inadequate screening and remanding to the board “for the consideration and imposition of any *reasonable* conditions”) (emphasis in original).

[6] *Briggs v. Zoning Board of Appeals of Marion*, No. 13 MISC 477257, 2014 WL 471951 at *4 (Mass. Land Ct. Feb. 6, 2014) (Sands, J.).

[7] *Duseau v. Szawloski Realty, Inc.*, Nos. 12 MISC 470612, 12 MISC 477351, 2015 WL 59500 at *8 (Mass. Land Ct. Jan. 2, 2015) (Cutler, C.J.); *PLH LLC*, 2019 WL 7201712 at *3.

[8] *Briggs*, 2014 WL 471951 at *4.

[9] *Duseau*, 2015 WL 59500 at *8 & n.11.

[10] *PLH LLC*, 2019 WL 7201712 at *3.

[11] *See* 225 CMR 20.07(4)(g); **Mass. Dep’t of Energy Resources, Guideline Regarding Land Use, Siting, and Project Segmentation at §§ 3, 4(b) (revised Oct. 8, 2020)** (the “Land Use Guideline”).

[12] *See* Land Use Guideline, §§ 5(4)-(5).

[13] *See* 225 CMR 20.02 (definition of Agricultural Solar Tariff Generation Unit) and 20.06(1)(d) (eligibility requirements); **Guideline Regarding the Definition of Agricultural Solar Tariff Generation Units** (the “ASTGU Guideline”).

[14] **Mass. Dep’t. of Rev., FAQs on Classified Forest, Agricultural/Horticultural and Recreational Land (revised Mar. 15, 2019)** (the “FAQs”).

[15] In addition, Sections 14(A) and (B) of the FAQs state that any roll-back and conveyance tax are to be assessed “only on that portion of the land on which the use has changed to the non-qualifying use.”

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