Final Report of the Agricultural Solar Stakeholder Group

Credit: Longroad Energy

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Table of Contents

List of acronyms and terms 3

Executive Summary 4

Stakeholder Group Purpose 5

Maine Won't Wait 5

L.D. 820 6

Purpose of this report 7

Stakeholder Group Membership 8

Co-Chairs 8

Stakeholders 8

Staff 8

Facilitator 8

Stakeholder Group Process 9

Meetings 9

Consensus 9

Public engagement 9

Background overview of Maine solar energy policy and industry landscape 11

Maine energy policy context 11

Net energy billing 13

Background overview of Maine agriculture and solar development potential 15

Primary areas of Stakeholder Group research 19

Other states' solar and siting practices 19

Maine's solar programs and results 21

Other topics 24

Conclusions and Recommendations 27

Conclusions 27

Recommendations 31

Appendix A – LD 820 – Resolve, To Convene a Working Group To Develop Plans To Protect Maine's Agricultural Lands When Siting Solar Arrays 34

Appendix B – LD 802 – An Act To Ensure Decommissioning of Solar Energy Developments 36

List of acronyms and terms

Unless noted or context indicates otherwise, the following acronyms and terms have these meanings when used in this report:

Term	Meaning
AAFM	Vermont Agency of Agriculture, Food and Markets
ADA	New Jersey agriculture development area
Agencies	DACF and GEO jointly
DACF	Maine Department of Agriculture, Conservation and Forestry
DEP	Maine Department of Environmental Protection
GEO	Maine Governor's Energy Office
kW	Kilowatts
LUPC	Land Use Planning Commission
MW	Megawatts
NEB	Net energy billing
NRPA	Natural Resources Protection Act
PBR	Permit-by-rule
PUC	Public Utilities Commission
REC	Renewable energy credit
REGMA	Maine Renewable Energy Goals Market Assessment
Resolve	L.D. 820 – Resolve, To Convene a Working Group To Develop Plans To Protect Maine's Agricultural Lands When Siting Solar Arrays
RPS	Renewable portfolio standard
Site Law	Site Location of Development Law
SLODA	Site Location of Development Law
Stakeholder Group	Agricultural Solar Stakeholder Group
USDA	United States Department of Agriculture

Executive Summary

Prime farmland, and soils of statewide importance that are used or could be used as farmland in the future, are finite and critical natural resources for Maine's agricultural productivity, biodiversity, and food security. At the same time, solar energy development is key to achieving Maine's renewable energy goals, reducing greenhouse gas emissions, and growing Maine's clean energy sector. As the state continues to make progress towards both increasing the vitality of the agricultural sector and advancing the growth of the renewable energy economy, the nexus of solar development and agricultural lands becomes an increasingly important conversation.

This report is the product of the Agricultural Solar Stakeholder Group, a diverse group of stakeholders convened by the Department of Agriculture, Conservation and Forestry and the Governor's Energy Office to discuss, review, and consider potential avenues that may adequately protect important agricultural land while helping to reach solar generation goals. The subject matter of this report is complex and multi-faceted. Over the course of seven months, the Stakeholder Group strove to hear all opinions, consider varying viewpoints, and work to gain consensus where possible on important recommendations. It is the intention of the Stakeholder Group that this report catalyze action by providing recommendations the Group views as important steps to build on existing progress, advancing opportunities for protecting prime farmland and soils of statewide importance while also supporting solar development, and providing information and resources to inform practitioners and decisionmakers on the ground. While this report focuses specifically on the intersection of solar development and agricultural lands, the Stakeholder Group regularly noted that not all solar will be developed on agricultural lands and substantial opportunity exists for solar development in other areas, including the built environment and on various contaminated or previously-developed areas, although the direct costs of developing these areas may in many cases be higher. Further, solar is not the only form of development that has and will continue to impact agricultural, natural, and working lands, such as commercial or residential development.

Based on its research and discussions, and additional input received from the public, the Stakeholder Group advances seven consensus recommendations to the Department of Agriculture, Conservation and Forestry and the Governor's Energy Office. The Stakeholder Group also developed relevant definitions and a matrix of siting considerations for practitioners. Recommendations are numbered for reference only, and not to indicate prioritization of one recommendation over another.

- Recommendation 1: Creation of a centralized clearinghouse of information
- Recommendation 2: Dual-use pilot program
- Recommendation 3: Consideration of current use taxation
- Recommendation 4: Consideration of standards for dual-use and co-location in permit-by-rule review
- Recommendation 5: Development of hosting capacity maps
- Recommendation 6: Increased support for municipal planning capacity
- Recommendation 7: Consideration of program preference based on agricultural site characteristics

Stakeholder Group Purpose

Prime farmland, and soils of statewide importance[1] that are used or could be used as farmland in the future, are finite and critical natural resources for Maine's agricultural productivity, biodiversity, and food security. At the same time, solar energy development is key to achieving Maine's renewable energy goals, reducing greenhouse gas emissions, and growing Maine's clean energy sector.

To ensure responsible siting of solar energy on agricultural lands, the Governor's Energy Office (GEO) and the Maine Department of Agriculture, Conservation and Forestry (DACF) (jointly "the Agencies") convened the Agricultural Solar Stakeholder Group (the "Stakeholder Group") to make policy recommendations to balance the need to protect Maine's current and future farmland with the need to develop sources of renewable solar energy. The Stakeholder Group focused its research and recommendations on the intersection of agricultural lands and solar, informed in part by L.D. 820, while occasional discussion of other land uses and characteristics occurred incidentally. In addition, while much of Maine's prime and statewide important agricultural soils are currently occupied by forests, the Stakeholder Group did not focus on working forests in its deliberations or in this report. The Stakeholder Group's research included learning about existing requirements for solar project design and decommissioning enforced by the Department of Environmental Protection (DEP) and Land Use Planning Commission (LUPC) and acknowledged the existence of additional standards established at the municipal level, but did not extend to considering additional agriculture-specific standards beyond those already in law (see Appendix B).

Maine Won't Wait

The Agricultural Solar Stakeholder Group was recommended by *Maine Won't Wait*, Maine's four-year climate action plan from the Maine Climate Council, in recognition that both agricultural production and the opportunity to expand renewable energy generation are valued, and that thoughtful consideration of land use decisions and incentives should be explored more thoroughly.[2] *Maine Won't Wait*, released in December 2020, identifies data-driven strategies and recommendations to reduce Maine's greenhouse gas emissions, as required by law, to 45% below 1990 levels by 2030 and 80% by 2050.

Strategy E from *Maine Won't Wait* is to "protect Maine's environment and working lands and waters." As part of this strategy, the plan calls for "develop[ing] policies by 2022 to ensure renewable energy project siting is streamlined and transparent while seeking to minimize impacts on natural and working lands and engaging key stakeholders," as well as "increas[ing] by 2030 the total acreage of conserved lands in the state to 30% through voluntary, focused purchases of land and working forest or farm conservation easements." Strategy D from *Maine Won't Wait* is to "grow Maine's clean-energy economy

[1] "Prime farmland" and "soils of statewide importance" (or "statewide important farmland") are defined pursuant to Maine Instruction 430-380 – Prime, Statewide, Unique and Locally Important Designation (May 2020). Soils meeting these definitions possess desirable attributes for agricultural production including gradient, water table, rock material, and water holding capacity. Working definitions of these terms used by the Stakeholder Group are included in this report on page 14. The complete instruction is available here: https://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=nrcseprd1585016&ext=pdf

[2] For the full text of *Maine Won't Wait*, see https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MaineWontWait_December2020.pdf

and protect our natural-resource industries," including by "increas[ing] the amount of food consumed in Maine from state food producers from 10% to 20% by 2025 and 30% by 2030 through local food system development." Finally, Strategy C from *Maine Won't Wait* is to "reduce carbon emissions in Maine's energy and industrial sectors through clean-energy innovation," including by "achiev[ing] by 2030 an electricity grid where 80% of Maine's usage comes from renewable generation."

Consistent with these recommendations and acknowledging the rapid growth of solar energy taking place in the wake of other recent policy changes, the Stakeholder Group is specifically focused on minimizing the potential impact of solar development on Maine's prime farmland and soils of statewide importance.

L.D. 820

The 130th Maine Legislature passed L.D. 820 – Resolve, To Convene a Working Group To Develop Plans To Protect Maine's Agricultural Lands When Siting Solar Arrays (the "Resolve") on June 8, 2021. The Resolve directs DACF to "convene a working group of stakeholders to develop plans and consider ways to discourage the use of land of higher agricultural value and encourage the use of more marginal agricultural lands when siting a solar array." DACF is further directed to "submit its report and recommendations, including any suggested legislation, to the Joint Standing Committee on Agriculture, Conservation and Forestry; the Joint Standing Committee on Energy, Utilities and Technology; and the Joint Standing Committee on Environment and Natural Resources no later than January 14, 2022." The full text of the resolve is included in Appendix A of this report.

Purpose of this report

This report summarizes information provided to the Stakeholder Group and discussed at the group's meetings. It outlines conclusions made by the Stakeholder Group based on that information as well as on the expertise and experience of group members and information provided through comments from interested members of the public. Finally, based on the conclusions, this report advances recommendations made by the Stakeholder Group to the Department of Agriculture, Conservation and Forestry and the Governor's Energy Office some of which are relevant to LD 820.

Photo credit: ReVision Energy

Stakeholder Group Membership

The following members of the Agricultural Solar Stakeholder Group were appointed jointly by the Department of Agriculture, Conservation and Forestry and the Governor's Energy Office. The co-chairs on behalf of their agencies wish to express sincere gratitude for the time, energy, expertise, and thoughtful engagement contributed by every member of the group, as well as numerous members of the public who attended meetings, participated in public comment sessions, offered written and verbal feedback on the Group's report, and provided their input through other channels.

Co-Chairs

Celina Cunningham, Governor's Energy Office
Nancy McBrady, Department of Agriculture, Conservation and Forestry

Stakeholders

Nick Armentrout, Spring Creek Farm
Emily Cole, American Farmland Trust
Heather Donahue, Balfour Farm
Ellen Griswold, Maine Farmland Trust
Eliza Donoghue, Maine Audubon
Kaitlin Hollinger, BlueWave Solar
Matt Kearns, Longroad Energy
Fortunat Mueller, ReVision Energy
George O'Keefe, Town of Rumford
Jeremy Payne, Maine Renewable Energy Association
Andy Smith, The Milkhouse
Julie Ann Smith, Maine Farm Bureau
Patrick Wynne, City of Hallowell

Staff

Tom Gordon, Department of Agriculture, Conservation and Forestry
Yvette Meunier, Department of Agriculture, Conservation and Forestry
Ethan Tremblay, Governor's Energy Office

Facilitator

Jo D. Saffeir

Photo credit: Terra Firma Farm

Stakeholder Group Process

Meetings

The Stakeholder Group met eight times from its formation in June 2021 through December 2021: June 3 and 24, July 22, August 24, September 23, October 21, November 18, and December 16. Agendas, materials for discussion, and summaries of the immediate prior meeting were provided a week in advance to the Stakeholder Group members as well as a list of interested parties maintained by the agencies. Due to the ongoing COVID-19 pandemic, all meetings were conducted using the Zoom virtual meeting platform and were recorded.[3]

At several points during the Stakeholder Group's work, some members of the Stakeholder Group volunteered to form ad-hoc sub-groups to focus on specific topics of interest. Of particular note are the sub-groups that formed to conduct additional information-gathering and draft discussion materials related to the group's definitions of "dual-use" and "co-location," the group's discussion of a matrix of solar siting considerations, and the group's formulation of a set of policy options for consideration.

Consensus

The Stakeholder Group was presented with and agreed to the following ground rules for all of its meetings:

1. Meetings start and end on time.
2. Come prepared, having read all meeting materials in advance.
3. Be present and engaged.
4. Strive for equal air time, enabling everyone to participate fully.
5. Listen with curiosity and an openness to learning and understanding.
6. Adopt a creative problem-solving orientation.
7. Commit to working toward consensus.
8. Meetings and materials are public, and comments are on the record.
9. Humor is welcome; it's OK to laugh while addressing a serious topic.

Decision-making: Decisions by the Stakeholder Group are advisory and represent recommendations to the Department of Agriculture, Conservation and Forestry and the Governor's Energy Office. The Stakeholder Group sought to make decisions by consensus through a facilitated, discussion-based process, and did not hold votes on any specific decisions.

Public engagement

Meetings of the Stakeholder Group were open to attendance by the public. Each meeting reserved time on the agenda for the public to comment on any aspect of the Stakeholder Group's work. In addition, written comments were provided periodically through the Stakeholder Group staff and facilitator. This report was provided in draft form to the Stakeholder Group and interested parties as well as posted

[3] All meeting recordings are available on YouTube here: https://www.youtube.com/playlist?list=PLHmFAUsYQIxbA6L0Dr0XaEbVezxsTzDi0
All meeting materials, including presentations, are available here: https://www.maine.gov/energy/studies-reports-working-groups/current-studies-working-groups/agricultural-solar-stakeholder-group/past-meetings

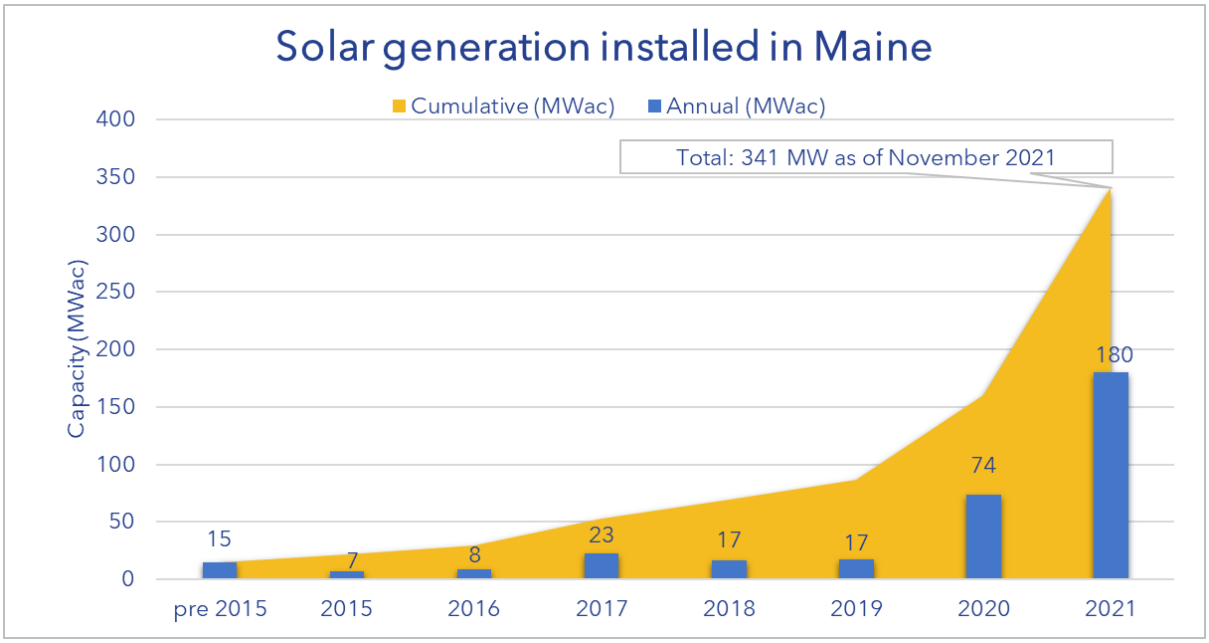
publicly by the agencies on November 12 for public comment. All comments received were summarized and provided to the Stakeholder Group to inform the final version of the report.

Photo credit: Longroad Energy

Overview of Maine solar energy policy and industry landscape

Solar electricity is a clean and renewable resource that can provide a variety of benefits to the electrical grid. Solar installed behind-the-meter, such as on a homeowner's rooftop, lowers load on the distribution system and can offset the building's energy bill, while larger utility-scale solar projects provide clean power to the grid throughout the course of the day. When paired with energy storage, solar can continue to provide clean, renewable power even after the sun sets.

Solar photovoltaic (PV) panels can be installed in arrays ranging from small, residential rooftop installations that power a home to an array covering many acres[4] that can power entire towns – thousands of homes, businesses, schools, and other buildings. Maine has established in law a specific goal of "ensuring that solar electricity generation, along with electricity generation from other renewable energy technologies, meaningfully contributes to the generation capacity of the State."[5] Recent policy changes have accelerated the deployment of solar in the state; as illustrated in the figure below, less than 30 MW of solar was operational in 2016 – an amount that has since increased more than tenfold.



Source: Governor's Energy Office

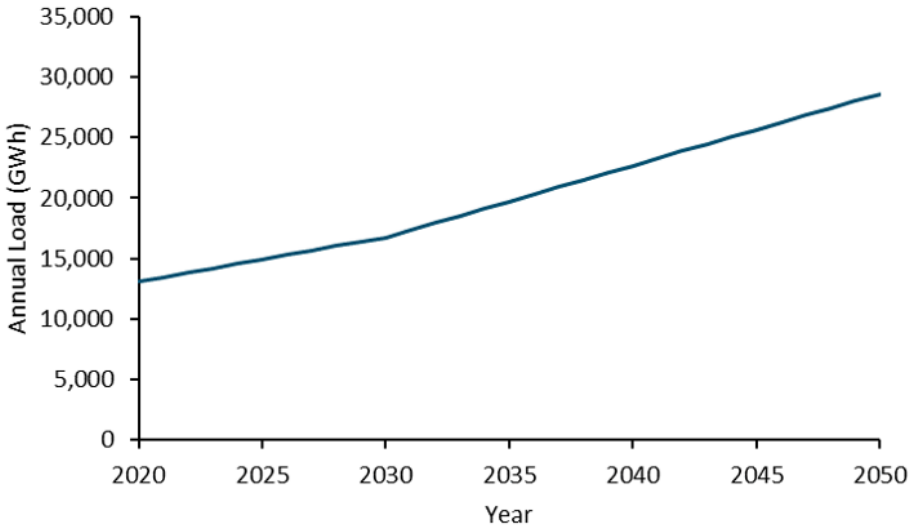
Maine energy policy context

Many of the strategies and actions identified in *Maine Won't Wait* to achieve Maine's ambitious economy-wide decarbonization objectives rely on two energy-related pillars: rapid electrification of emitting sectors of the economy, including transportation, buildings, industry, and power, often referred

[4] The Stakeholder Group was informed that on average one MW of ground-mounted solar requires approximately five acres of land, although multiple factors including site design, supporting infrastructure, topography and other technological and environmental characteristics may influence specific outcomes.

[5] Title 35-A MRS § 3474

to as "beneficial electrification;" and rapid transition to low-carbon emitting power generation, including solar. Achieving the beneficial electrification actions identified by *Maine Won't Wait* is expected to put Maine on a path to nearly double the amount of electricity needed in Maine by 2050, as illustrated in the figure below.[6]



Renewable portfolio standard

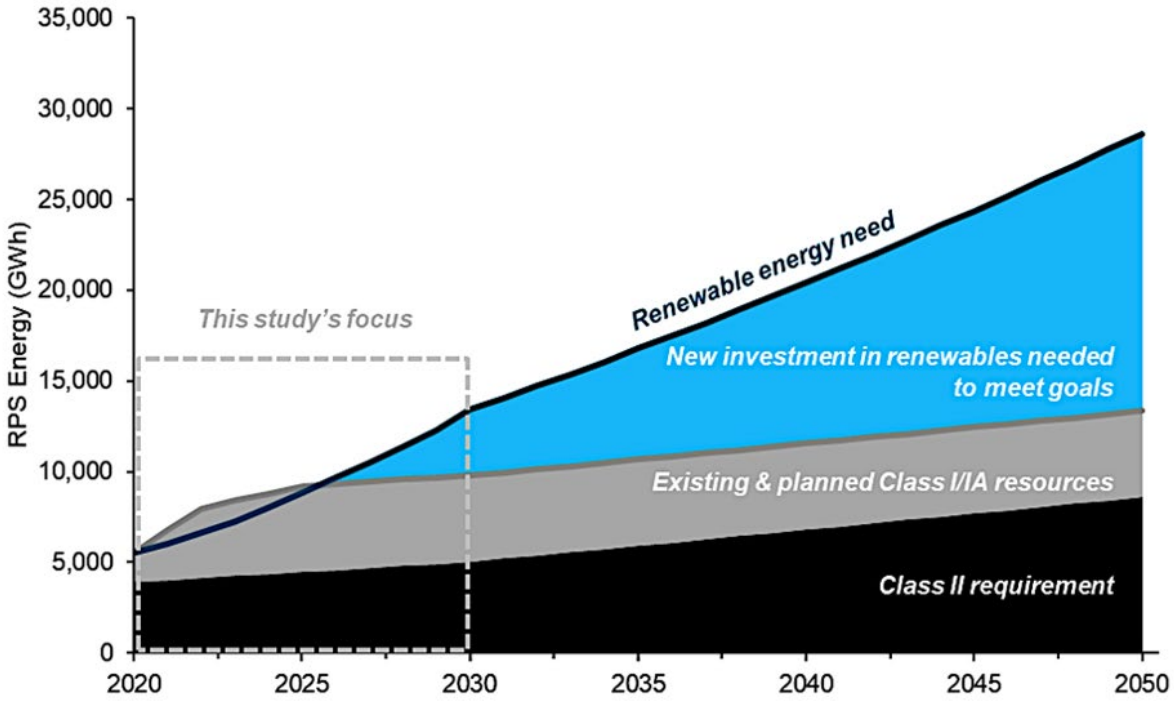
Maine's renewable portfolio standard (RPS) establishes the portion of electricity sold in the state that must be supplied by renewable energy resources. In June 2019, Governor Mills signed legislation that increased Maine's renewable portfolio standard (RPS) to 80% by 2030 and set a goal of 100% by 2050. In addition, the bill required the Maine Public Utilities Commission (PUC) to procure long-term contracts for new clean energy generation. In order to ensure this procurement created significant economic benefits for Maine, the procurement weighed bids with a 70% consideration towards benefits to ratepayers (i.e. price) and 30% towards proven benefits to the economy. Through two rounds of procurement announced in September 2020 and July 2021, the PUC selected a mix of qualified renewable resources including solar, wind, and biomass equivalent to 14% of the state's retail electric load in 2018. Solar resources made up the largest share of the procurement results, with term sheets awarded to twenty projects totaling 773 MW.

The same legislation also directed the GEO to conduct a renewable energy goals market assessment (REGMA) to assess options for how to meet the renewable transition in Maine over the next decade. The REGMA study was completed with stakeholder input and released in February 2021.[7] The REGMA analyzed six future scenarios to explore plausible renewable portfolios that would enable Maine to meet its 2030 RPS requirement. One key finding from the REGMA was that, based on existing and planned

[6] For details about the assumptions included in this load forecast, see Maine Renewable Energy Goals Market Assessment, section 3.3.1.1. https://www.maine.gov/energy/studies-reports-working-groups/current-studies-working-groups/renewable-energy-market-assessment

[7] https://www.maine.gov/energy/studies-reports-working-groups/current-studies-working-groups/renewable-energy-market-assessment

renewable resources assumed in the study (including approximately 1,200 MW of solar assumed to be built by 2026), Maine is on track to meet its RPS until 2026, but new resources will be needed to meet increasing goals thereafter. This increasing need is illustrated in the figure below, which compares the output of qualifying categories of existing and expected renewable resources to the overall renewable energy need, given both the increased share of renewable energy required by the RPS as well as expected load growth due to beneficial electrification primarily in the transportation and buildings sectors. ("This study's focus" refers to the ten-year time horizon that was the focus of the REGMA analysis.)



Net energy billing

Net energy billing (NEB) provides bill credits for excess generation from solar and other distributed renewable resources that is not consumed on site, but instead provided to the grid. "Distributed" resources are defined by statute as renewable energy generation facilities less than 5 MW in size.[8] NEB programs are available for residential, commercial, and industrial customers. These programs can provide energy savings by lowering overall utility bills and offer the opportunity to support renewable energy generation at a local level.

NEB participants may enroll solar generation they own themselves, such as rooftop panels, or may choose to join a solar array shared with other customers and located elsewhere in their utility's service territory. This arrangement is commonly referred to as "community solar." The NEB programs have stimulated substantial investment in distributed solar development, with 114 MW of solar already

[8] 35-A MRS §3481 (5).

operational as of October 2021 and more than 1,500 MW under development, although not all projects in development are expected to ultimately reach commercial operation.

In 2021 the Legislature enacted P.L. 2021 ch. 390, which established a goal of 750 megawatts (MW) of distributed generation under the NEB programs. The bill also set a limit on distributed generation resources between 2 and 5 MW eligible for enrollment in NEB and concludes the program for these resources on December 31, 2024. The law also directed the GEO to convene a stakeholder group to, in part, consider various distributed generation project programs to be implemented between 2024 and 2028.

Overview of Maine agriculture and solar development potential

Maine agriculture is a diverse industry with a $3.6 billion impact on the state's economy.[9] Maine is the largest producer of brown eggs and wild blueberries in the world. It ranks eighth in the country in production of potatoes and second for maple syrup. It ranks second in New England in milk and livestock production. The small, diversified farms across Maine supply markets with locally-grown fresh and frozen produce and meat, value-added products, and fiber products.

MAINE ECONOMIC IMPACTS

SECTOR	DIRECT SALES	ECONOMIC IMPACT	EMPLOYMENT
AGRICULTURAL PRODUCTION	$ Million	$ Million	Jobs
Grain and Oilseed Farming	26.3	50.6	579
Vegetable Farming	231.9	438.8	5,552
Fruit Farming	63.9	125.1	3,075
Greenhouse, Nursery and Floriculture Production	72.3	125.2	1,731
Other Crop Farming	42.0	80.7	2,253
Cattle Production	23.5	35.0	849
Dairy Cattle and Milk Production	154.5	265.1	2,063
Poultry and Egg Production	15.4	25.8	258
Other Livestock Production	16.5	24.6	666
PROCESSING			
Grain and Oilseed Processing	89.8	151.2	450
Frozen and Canned Food Manufacturing	635.6	1,027.3	4,409
Milk, Yogurt, Butter and Cheese Manufacturing	336.4	640.5	2,473
Other Dairy Processing	56.4	86.2	296
Animal Slaughtering and Processing	262.7	381.7	1,904
Wineries	22.8	37.9	196
Ag Input Manufacturing	65.4	106.2	309
TOTAL FOR AG INDUSTRY	2,115.4	3,601.9	27,063

Farm Credit East, "Northeast Economic Engine," 2020.

Maine agriculture serves a variety of markets. Larger farms provide crops to commodity markets and act as anchors for agricultural inputs, equipment, and services that impact and benefit all farms in the state. Products from these farms are often processed and sold out of state. The majority of Maine farms are small family farms that enhance community food security and provide open space which defines Maine's rural character.

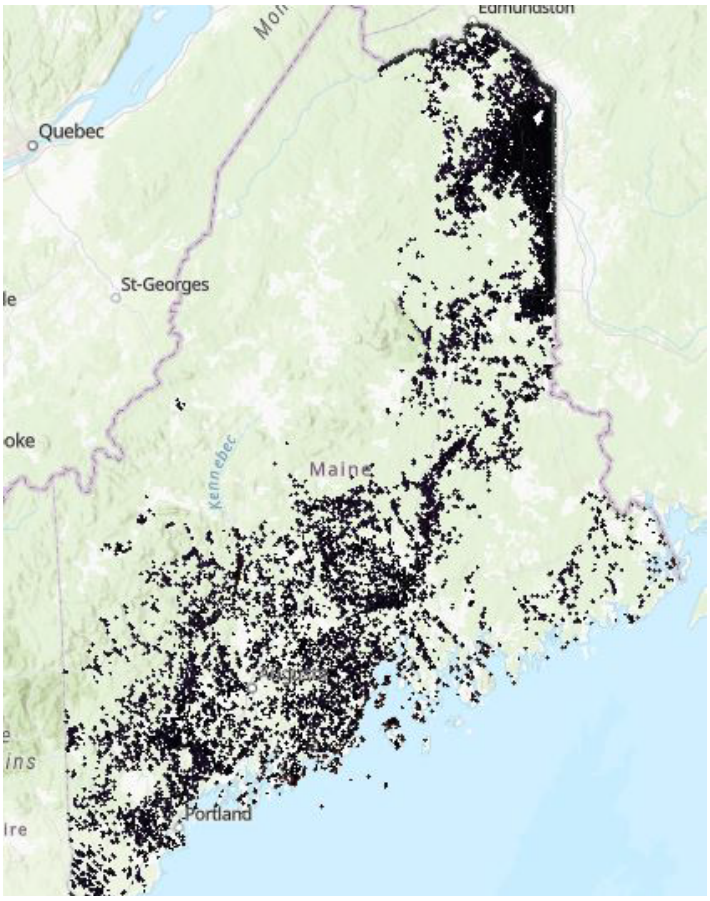
USDA-ERS Farm Classification System	ANNUAL FARM SALES	NUMBER OF FARMS	PERCENT OF FARMS	2017 MARKET VALUE	PERCENT OF SALES
Small family farms	**$ 0 - $ 99,999**	**6,884**	**90.6%**	**$ 71,031,000**	**10.5%**
Intermediate family farms	**$ 100,000 – $ 249,999**	**299**	**3.9%**	**$ 47,376,000**	**7.0%**

[9] Farm Credit East, Northeast Economic Engine, 2020

Large family farms	**$ 250,000 – $ 499,999**	**177**	**2.3%**	**$ 61,866,000**	**9.2%**
Very large family farms and nonfamily farms	**$ 500,000 – $ 5,000,000+**	**240**	**3.2%**	**$495,635,000**	**73.3%**

USDA-NASS, 2017 Census of Agriculture, Table 2 (2019)

Maine farmers are the stewards of 1,307,566 acres (~6%) of the state. This includes 472,508 acres of cropland, 685,529 acres of woodland, 62,369 acres of pasturelands, and 87,207 acres of other agricultural land[10] (). While the Stakeholder Group was specifically focused on solar development on active agricultural lands (and not forests or developed areas), woodlands are a significant component of most farms and may be impacted by solar projects on farms.



USDA-NRCS, Map of Prime Farmland and Statewide Significant Soils

In addition to active farming, the land provides the public benefits of open space, recreation, wildlife habitat, and natural resource preservation. Maine's "Current Use" taxation policy can provide tax relief to landowners for some of these public benefits which otherwise do not typically produce direct economic value to the landowner.

In 2017, 1,870 farm operations (25%) utilized leased lands involving 261,448 acres (20%).[11] Farmers on leased lands often cannot afford to purchase these lands and as a result are subject to land use decisions made by the property owners. Competition from development, including solar, is likely to reduce the availability and increase the cost of leased lands for agricultural use.

[10] USDA-NASS, 2017 State Profile, and 2017 Census of Agriculture, Table 8, 2019

[11] USDA-NASS, 2017 Census of Agriculture, Table 76, 2019

Soils data from the USDA Natural Resource Conservation Service indicate that 2,929,881 acres (14%) of Maine's land area are classified as prime farmland soils[12] (794,320 acres) or soils of statewide importance[13] (2,106,549 acres).

US Geological Survey Land Cover Database data indicate 2.5% (730,005 acres) of crop and pasture land is in active production. 73% of crops and pasture (529,241 ac) are grown on prime soils or soils of statewide importance.

More than half of Maine's prime farmland or statewide important soils are not currently being used for agricultural production. However, agricultural land use is dynamic and may shift to meet growing demand for local products and new market opportunities. Reclaiming reverted fields or woodlands can be cost-prohibitive for new or existing farming ventures.

Between 2012 and 2017, the number of reported farms in Maine declined by 7% and the total land ownership reported by agricultural producers decreased by 146,491 acres (10%).

	1997	2002	2007	2012	2017
Farms	**7,404**	**7,196**	**8,136**	**8,173**	**7,600**
Acres	**1,313,066**	**1,369,768**	**1,347,566**	**1,454,104**	**1,307,613**

USDA-NASS, 2017 Census of Agriculture, Table 1 (2019)

According to American Farmland Trust, Maine was one of the top five states with declines in farmland between 2012 and 2017. American Farmland Trust has estimated that approximately 1,200 acres of Maine farmland were lost to highly developed or low-density residential use each year from 2001 to 2016[14]. *Maine Won't Wait*, Maine's four-year climate action plan from the Maine Climate Council, calls for an increase in the amount of food consumed in Maine from state food producers from 10% to 30% by 2030 through local food system development, and an increase in the total acreage of conserved lands in the state to 30%.

Solar development is a potential means for income diversification and stability for farms, as well as increased economic viability for local communities. The Stakeholder Group heard from a Monmouth landowner that solar development on a portion of the family farm would allow for the long-term conservation of the larger overall farm property for agricultural production.

Many Maine farmers have been contacted about potential solar project development on their lands. DACF and Maine Audubon Society have been developing materials to assist agricultural landowners, communities, and developers with decisions about solar project opportunities, design, and best

[12] The National Soil Survey Handbook and 7 CFR 657 Prime and Unique Farmlands, defines Prime Farmland as follows: 'Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops, and is also available for these uses (the land could be in cropland, pastureland, rangeland, forest land or other lands, but not urban built-up land or water). It has the soil quality, growing season and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.'

[13] According to 7 CFR 657, Prime and Unique Farmlands is defined as follows: 'Criteria for defining and delineating this land are to be determined by the appropriate State agency or agencies. General additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods.'

[14] American Farmland Trust, Farms Under Threat, 2016

practices. The Department's Technical Guidance for Utility Scale Solar Installations and Development on Agricultural, Forested, and Natural Lands and its Guidance to Determining Prime Farmland Soils and Soils of Statewide Importance for Solar Projects may be found here: https://www.maine.gov/dacf/ard/resources/solar.shtml. Maine Audubon's Renewable Energy Siting Tool, its Model Site Plan Regulations and Conditional Use Permits, and other useful guidance can be found here: https://maineaudubon.org/advocacy/solar/.

Primary areas of Stakeholder Group research

Other states' solar and siting practices

Massachusetts

Photo credit: BlueWave Solar

Emily Cole, New England Deputy Director of American Farmland Trust, presented to the Stakeholder Group on June 24, 2021, regarding the Solar Massachusetts Renewable Target (SMART) program. In spring of 2017 the program announced an initial competitive procurement of 1,600 MW of solar. Proposed and completed projects from that initial procurement included significant solar development on farmland. As a result, changes were made to the land-use policies requiring any future solar projects proposed on farmland be dual-use. The changes also included a requirement that the value of agricultural production be documented with the University of Massachusetts Cooperative Extension. While the group saw merits in aspects of the SMART program that may be replicated in Maine, including the possibility of an increased payment for the energy from dual-use projects (an "adder") and the dual-use design guidelines, there was also a recognition that Maine is different from Massachusetts in a number of ways, including the ability to bear higher electricity costs, that should be considered if pursuing a similar program. For instance, solely allowing dual-use on farmland, as the SMART program does, would require significant study and stakeholder discussion to determine if this would work for Maine farmers and ratepayers. However, setting aside a specific MW of capacity within each procurement as a carve-out specifically for dual-use is something the State may want to review. Overall, there are program characteristics and lessons learned from the MA SMART program that can help inform solar discussions in Maine.

New Jersey

Ethan Winter, Northeast Solar Specialist for American Farmland Trust, presented to the Stakeholder Group on July 22, 2021, regarding New Jersey's landscape of farmland protection in relation to the state's solar legislation. Like Maine, New Jersey is facing farmland loss for a number of reasons; both states lost approximately 10% since the last ag census. However, in comparison, Maine is four times the size of New Jersey. New Jersey's solar market is much larger and more mature than Maine's and is set to grow substantially in the coming years. New Jersey's solar development goals are 5.2 GW by 2025, 17 GW by 2035 and 32 GW by 2050. Of New Jersey's 779,000 agricultural acres, all but 101,000 acres would be protected given their soil quality, farmland protection status or recognition at the county level as an agriculture development area (ADA).

New Jersey has created a 3-year Dual-Use Pilot Program to develop 200 MW of solar with projects not to exceed 50 acres. Projects must be sited on unprotected farmland, continue to be actively devoted to agricultural production and vetted through the NJ Department of Agriculture. The only installations allowed for dual-use on prime farmland soil are for research purposes with any public university in New Jersey. Enrolled land is permitted to be eligible for farmland assessment. This program can be extended and is authorized to become a permanent program with standards for dual-use including capacity limits, continued agricultural/horticultural use and decommissioning bonds. Details about the dual-use pilot program are currently being drafted through a stakeholder process, after which dual-use projects up to 10 MW can be built.

In addition, a utility scale solar bill was passed which codified the development of 3.75 GW of solar by 2026. These installations would include community solar projects, net metered projects, and procurement solicitations. The statute also establishes a limit of up to 8,000 acres of utility scale development on ADA land. Additional development on ADA sites beyond this acreage would require a waiver from the NJ Department of Agriculture. Details of these policies are currently being drafted through a stakeholder process, keeping solar development on pause for dual-use projects until more information is available.

Vermont

Genevieve Byrne, assistant professor and staff attorney at the Farm and Energy Initiative at the Vermont Law School, presented to the Stakeholder Group on July 22, 2021 and gave an overview of Vermont's Certificate of Public Good (CPG) regulatory process for solar projects. Vermont's Public Utilities Commission (PUC) issues Certificates of Public Good for roof-mounted arrays up to 500 kW and ground-mounted arrays up to 2.2 MW. Certification criteria and application complexity increase with array capacity. All roof-mounted systems up to 500 kW and smaller ground-mounted systems up to 15 kW are fast-tracked though a registration process. An application for ground-mounted systems up to 50 kW must be submitted with accompanying evidence of meeting compliance criteria. Anything above 50 kW undergoes a formal petition process with the PUC, which can allow for fast-tracking if projects are within size and scope limitations.

In relation to agricultural resources, the PUC must consider impacts to prime agricultural soils for all ground-mounted projects over 15 kW. For projects over 50 kW, Vermont's Agency of Food and Markets (AAFM) receives notification of the proposed project. AAFM has the right to appear at PUC hearings and is required to appear for systems over 500 kW that are located on agricultural soils. Conditions for the protection of agricultural soils may be included in the project's CPG.

The policy includes siting adjustors and rate adjustors. Siting adjustors initially included adders for the construction of smaller arrays under 16 kW and/or on preferred sites such as parking lots, brownfields, and landfills. Moving forward the program will continue with the existing subtractors which are applied only to projects 15 kW and larger not located on preferred sites.

Subtractors will be increasing to 5 cents/kwh for projects between 15-150 kW and 4 cents/kwh for larger projects. Rate adders for projects whose renewable energy credits (RECs) would be applied to

Vermont's renewable energy portfolio will no longer be continued. However, the subtractor for projects which keep their RECs will increase to 4 cents/kwh. Changes in the policy were a result of a variety of factors, including declining costs of solar technology and concerns about the compensation structure of net metering. Professor Byrne noted that Vermont's renewable energy requirements are largely achieved through imported hydroelectric generation and that there are concerns among some stakeholders in Vermont about the viability of that state's renewable energy goals due to difficulty accessing in-state energy or regional non-hydro energy sources.

Taxation laws in Vermont allow farms in the open space current use taxation program to have solar installations of 50 kw or less and up to 500 kW if they are deemed as a farm improvement, where 50% of the energy is used on the farm.

Maine's solar programs and results

Perspective and data from Maine Audubon

On June 3, 2021, Sarah Haggerty, Conservation Biologist and GIS Manager for Maine Audubon presented the Maine Renewable Energy Siting Tool. The GIS-tool aggregates Maine's mapped natural resources, developed/previously impacted land (such as landfills and Brownfields), as well as solar siting constraints (such as proximity to transmission lines) to aid in identifying areas with lower wildlife and habitat impacts.

Using this tool, Maine Audubon has mapped all 180 solar projects submitted to DEP for review, noting that there are many smaller projects not triggering a DEP review and that not all projects reviewed will be built. Of the 180 projects: 43% overlap at least in part high value plant and animal habitat and 49% overlap at least in part with large forest blocks. Fifty-eight percent overlap at least in part with large agricultural land (five acres of continuous crop land or 10 acres of pasture) and 89% overlap at least in part with high value agricultural blocks. More information was requested about the intersection of prime agricultural land versus agricultural land of statewide significance. Only 6% of the projects overlap at least in part with gravel pits and 3% with capped landfills. The utilization of these sites tend to be limited by the lack of transmission lines nearby.

Perspective from Maine Municipal Association

Rebecca Graham, Legislative Advocate with Maine Municipal Association (MMA), presented to the Stakeholder Group on August 24, 2021, covering multiple policy areas including agriculture, conservation, and forestry, and gave a presentation covering interests and concerns of solar development for municipalities. In Maine, most of the services municipalities provide are paid through property tax revenue. The current use tax programs utilized for agricultural production offer no state reimbursement to municipalities for the loss of tax revenues for sheltering this land use. Allowing agricultural land that has been altered by solar development to remain in these programs is of concern for municipal revenue streams. It is MMA's perspective that farmland developed for solar should be removed from current use tax programs.

Recent changes to energy laws have rapidly increased solar development in Maine. As a result, municipalities have had to vet a new industry and have often responded by creating ordinances and

assurances for decommissioning projects. Such work has fallen to volunteer boards that often lack the appropriate expertise and has caused concern for comprehensive land use planning. Further, many projects being proposed are just under the 20-acre threshold which eliminates the requirement of Site Law review by the State, although other oversight including stormwater permitting and Natural Resource Protection Act provisions may apply.

To support municipalities' desire for more solar, MMA suggests these measures: incentivize development in marginal and contaminated or unusable spaces first (such as PFAS-contaminated soils); incentivize more structurally challenging, built environment-focused projects (e.g., brownfields, gravel pits); fully fund the municipal reimbursement portion of the "current use" program; strengthen local planning capacity with solar-specific technical assistance; provide PUC, DEP and DACF with enforcement powers, and adequate staffing resources to oversee projects, reducing the burden on code enforcement; close loopholes that may allow land in one current use program to roll to another with no penalties for the purpose of solar farms; create a list of trusted development partners for any co-location project by establishing a robust licensing or certification program like shoreland zone-certified contractors; and revisit the farmland current use program with an eye towards greater accountability/penalties for productivity.

A discussion of the future obsolescence of projects brought up the value of project locations near grid infrastructure as being a driver to keep a site in future power production. Further, the lack of solar panel recycling facilities in Maine was noted, although some companies utilize recycling facilities in neighboring states. The Stakeholder Group ultimately arrived at a different conclusion than MMA with regard to the current use taxation program, as noted in Recommendation 3 on page 32.

Perspective from Nexamp

Palmer Moore, Vice President of Business Development at Nexamp, presented to the Stakeholder Group on August 24, 2021 with an overview of Nexamp's experience developing solar in states across the country and how policy has influenced its work. Nexamp is a solar development company based in Massachusetts with over 300 MW installed across ten states from Maine to California. While utilities nationwide are using new tools, equipment, and safety protocols to better manage interconnections, tracking interconnection is difficult as the roster of proposed projects lined up for interconnection is constantly changing. With so many projects in flux, interconnection costs that may include significant upgrades can swing from $5,000 to $5 million making development costs unpredictable. Local ordinances or moratoria can add to this uncertainty. Given the interest in solar development, land leases are becoming more competitive, further increasing project costs.

Nexamp has been exposed to a variety of policies focused on balancing the impact of solar development on agricultural land. In New York, the Department of Agriculture and Markets created a notice of intent process which incorporates a mitigation fee. The fee is determined by a calculation that incorporates a value to agricultural soil. These polices put the onus on the developers to verify the quality of the soil through site evaluation. According to Palmer, when such a policy is implemented, this approach is welcomed by developers as spatial soil data is lacking. Several other states have implemented the use of pollinator scorecards (see Siting Scorecards section below). In many cases these are voluntary, while in

others a minimum score is required to develop a project. Alternatively, an analysis as to why the location for the development was chosen by the farmer and developer may be presented to the permitting authority. Nexamp typically installs pollinator habitat as a best practice, implementing the National Wildlife Federation certification for habitat and ecological diversity. It also installs livestock fencing instead of chain link fences to create less industrial looking sites and to allow wildlife to pass through sites.

Perspective from BlueWave

Drew Pierson, Senior Director of Sustainability at BlueWave Solar discussed dual-use solar projects which focus on ecosystem services and holistic community development with the Stakeholder Group on October 21, 2021. He noted that Maine was unlikely to provide a rate-based incentive but could demonstrate how to have an effective voluntary market for dual-use projects. Planning dual-use requires convening all interest sectors, defining shared goals, and creating shared value. BlueWave's siting process involves farmland preservation, soil vitality, and flexibility in maintaining ongoing farming activities. The Massachusetts SMART Program is demonstrating that agrivoltaics can minimally impact soil and moderate microclimate to improve farm resilience. BlueWave's Rockport, Maine project is sited on wild blueberry fields and involves five years of crop trials by the University of Maine. BlueWave is developing an agrivoltaic project in Benton, Maine which will involve grazing sheep and providing five acres of land for fruit and vegetable crop trials. The group discussed current use taxation policy as an incentive for agrivoltaic projects.

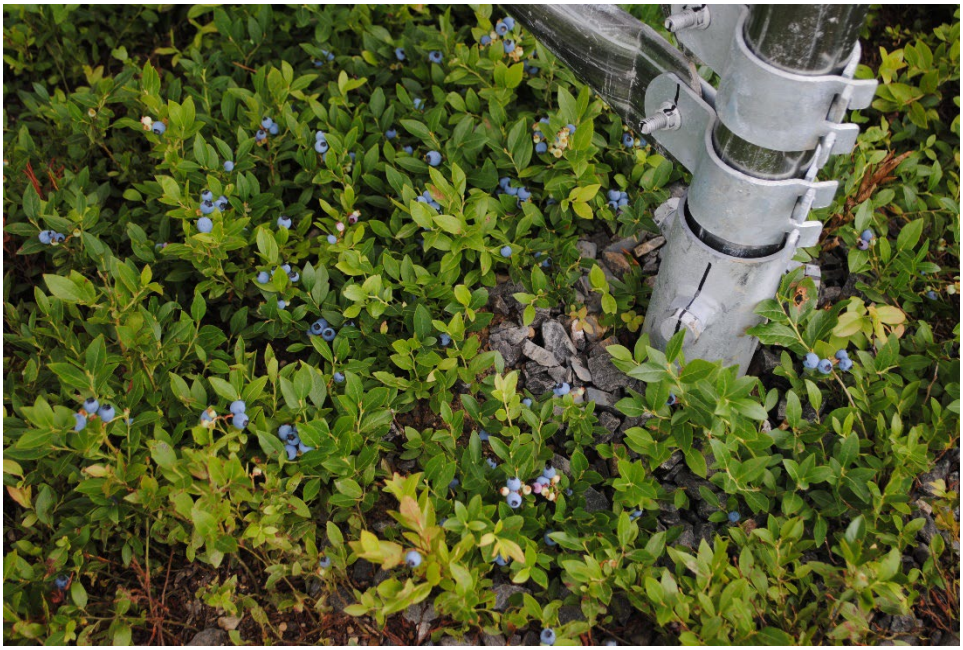


Photo credit: BlueWave Solar

Perspective from Clemedow Farm

Rick Dyer, a fourth-generation owner of Clemedow Farm in Monmouth, discussed the farm's consideration of solar energy development of some of its farm acreage as a means of conserving additional agricultural land use with the Stakeholder Group at its October 21, 2021, meeting. The project will utilize 45 acres of orchard, cornfield and forest out of the farm's 1,000 acres (the project sited at Clemedow Farm is shown on the cover page of this report). Local permitting has been challenging. He commented that most farmers might not have the time to analyze legal protections and tax implications

of solar projects on their land. The group discussed the decommissioning bonds required by state and local permitting authorities.

Other topics

Maine Department of Environmental Protection land use regulations

Nick Livesay and Jim Beyer from the Maine DEP presented to the Stakeholder Group on the statutory and regulatory programs that apply to solar projects on June 24, 2021. These include: Site Location of Development (SLODA, or Site Law),[15] the Natural Resource Protection Act (NRPA),[16] Stormwater Management Law,[17] and Decommissioning.[18]

Projects that occupy more than 20 acres trigger Site Law review. DEP is undertaking rulemaking to allow projects up to 50 acres in size that meet certain citing criteria to obtain a Permit by Rule (PBR), as opposed to going through the traditional permitting process. Through June 2021, DEP has seen between 20-30 projects in the 20-50 acre range. The goal of the PBR process is to make the permitting process more efficient and incentivize siting projects in areas with minimal potential environmental impact.

All projects one acre or greater fall under Stormwater Management Law. Maine has jurisdiction in this area of law where many other states rely on federal oversight. DEP is working with solar developers to pilot solar grazing at solar sites as a means for vegetative management. Those projects must follow best management practices that have been developed by DACF, Cooperative Extension, and USDA Natural Resource Conservation Service (NRCS) for solar grazing, which includes guidance on rotational grazing plans, soil considerations, and seed mixes. A new law on decommissioning will require projects three acres or larger to provide DEP a decommissioning plan and financial assurance for decommissioning.[19] The law offers additional protections for agricultural land requiring removal of inground components to depths of 48 inches.

Maine Revenue Services tax considerations

Peter Lacy, Director of the Property Tax Division of Maine Revenue Services, presented to the Stakeholder Group on July 22, 2021. In Maine property tax is assessed at its best and highest value use of the property. Land used for agriculture generally is not determined to be its best and highest value use, for example in most of Maine, land is more valuable as housing. To remedy this, the Farmland Tax Program exists to protect farmland from being converted into a higher value use.[20] However, fair market value can differ across Maine – for example, an acre of potato field in Aroostook County may be more valuable as farmland than as a one-acre home lot. This leads to geographic differences in farmland tax program enrollment across the state.

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[15] https://www.maine.gov/dep/land/sitelaw/index.html
[16] https://www.maine.gov/dep/land/nrpa/index.html
[17] https://www.maine.gov/dep/land/stormwater/index.html
[18] https://www.maine.gov/dep/land/solar-decommissioning/index.html
[19] The new law, P.L. 2021 ch. 151 (LD 802), is included in Appendix B.
[20] https://www.maine.gov/revenue/taxes/tax-relief-credits-programs/property-tax-relief-programs/land-use-programs

Farmland value has been established for six different types of farmland. However, municipal assessors have discretion when applying these values. Currently there are 134,000 acres enrolled in the program which requires farm income verification and minimum acreage requirements.

If land is converted to another use, like solar energy generation, the land is removed from the program and a tax penalty is assessed. Solar projects sited on farmland, including dual-use projects that ensure the land is continuously being used for agricultural purposes, trigger the land's removal from the farmland tax program, and the landowner is responsible for paying five years of back taxes.

Additionally, in 2019 the Legislature passed LD 1430, which creates an exemption for solar equipment if all energy generated is either used on the site where the project is located or is used to provide bill credits to utility customers (for example, through a community solar project). In this case the solar equipment would be tax exempt, and the town would be reimbursed by the state for 50% of the taxes lost on the equipment (but not the land).

Additional policy discussions

Pollinator Scorecard

The Stakeholder Group reviewed a compilation of pollinator scorecards from five states at its meeting September 23, 2021. Maine Audubon is working on Maine-specific guidance on native planting and vegetation management practices that support pollinators and other wildlife. This guidance could help inform a permit-by-rule process, a tariff concept, or other policy that encourages particular management or siting practices. The Stakeholder Group generally saw value in the scorecard concept, but did not pursue continued discussion in favor of other topics also under discussion at that time.[21]

Photo credit: ReVision Energy

In-lieu fee

The Stakeholder Group considered a range of policy options, many of which led to specific conclusions and/or recommendations summarized later in this report. Other policy tools that the group discussed but did not reach conclusions or decide to issue recommendations for included creation of a mitigation program or in-lieu fee model through which solar development would trigger compensation when it occurred on agricultural soils or other areas of interest. New York is currently developing an in-lieu fee program relative to solar development but the nascency of the effort did not provide particular guidance to the Stakeholder Group at this time. There was some interest in monitoring other examples, such as the program under

[21] Solar siting scorecard information and examples reviewed by the Stakeholder Group are available on pages 18-31 here: https://www.maine.gov/energy/sites/maine.gov.energy/files/inline-files/ASSG%20092321%20briefing%20materials.pdf

development in New York, for potential future exploration and analysis. However, there was also concern about this concept regarding potentially restrictive treatment of solar relative to other forms of development.

Conclusions and Recommendations

Conclusions

Definitions of dual-use and co-location

The group discussed and agreed to the following definitions for the terms "dual-use" and "co-location." These definitions distinguish between two related but separate concepts that the Stakeholder Group discussed extensively. These definitions could serve as a conceptual starting point for more refined definitions as needed to implement the Stakeholder Group's recommendations.

"Dual-use" projects involve the installation of solar photovoltaic panels on farmland in such a manner that primary agricultural activities (such as animal grazing and crop/vegetable production) are maintained simultaneously on the farmland. Dual-use array designs may (but are not required to) include increased panel height or expanded panel row spacing to improve compatibility with farming operations and crop production. To qualify as dual-use, the solar installation must:

1. retain or enhance the land's agricultural productivity, both short term and long term,
2. be built, maintained, and have provisions for decommissioning to protect the land's agricultural resources and utility, and
3. support the viability of a farming operation.

Photo credit: Crescent Run Farm

In contrast, "co-location" generally involves conventional ground-mounted solar installations (designs that have not been modified to increase flexibility and compatibility for agricultural use) that either host non-agricultural plantings with additional environmental benefits or involve siting a more conventional solar installation on a portion of farmland, while retaining other farmland for agricultural use.

Matrix of Agricultural Siting Considerations

Purpose

Maine agriculture is diverse, reflecting the variety of Maine's landscapes and the economic opportunities that they may present. Site planning for agricultural activities and solar development must reflect the unique circumstances of each location in terms of soils, topography, microclimate, and the goals of the landowner. Any rubric for approaching siting considerations should be understood as general guidance only. The ultimate planning and design for specific projects and activities should be based on the site-specific evaluation of environmental conditions and economic goals of the landowner.

The Stakeholder Group's goals were to identify potential solar site attributes, with as much specificity as possible. The below matrix enumerates siting and array options for consideration on agricultural lands, including options that allow farmland to remain in production.

The Stakeholder Group discussed solar array siting and farmland classifications to develop siting options that may be used to encourage maintenance of on-site agricultural production if a solar project is to be sited on that type of land. For example, when considering siting solar on actively farmed land or prime soils, dual-use solar is encouraged as an option for consideration but is not being proposed as the only option.

Photo credit: ReVision Energy

The following table is advisory to site owners and developers only and does not represent policy or rulemaking for use by regulators. It should not be interpreted as prohibitive of siting locations or mandating components of any regulatory agency's permitting decisions without further analysis and stakeholder input. However, this matrix may currently be used to inform decisions during project development, providing additional array options and siting locations of solar projects for consideration.

Parcel	**Farmland** **Meets definition of farmland established in Title 36, section 1102 subsection 41 and/or affidavit from farmer**			
	Actively farmed	*Other farmland*	*Inactive farmland*	*Woodlot on farms*
Prime soils Pursuant to Maine Instruction 430-3803	Encourage/incentivize dual-use Encourage/incentivize non-dual-use siting elsewhere	Encourage development	Encourage/incentivize dual-use	Encourage co-location
Soils of Statewide Importance Pursuant to Maine Instruction 430-3804	Encourage/incentivize dual-use Encourage/incentivize non-dual-use siting elsewhere	Encourage development	Encourage/incentivize dual-use	Encourage co-location
Marginal farmland Areas within farmland parcel not classified in the preceding categories	Encourage development	Encourage development	Encourage development	Encourage development
Non-agricultural land Encourage development on landfills, brownfields, rooftops, carports, gravel pits, mining sites, and other previously developed parcels.				

Definitions

For the purposes of this evaluation tool, definitions were derived from Maine law and the USDA National Agricultural Statistical Service's Census of Agriculture.

Actively farmed: land that generates a gross income of at least $2,000 per year from the sale of agricultural products in one of two or three of five previous calendar years.[22] This may include the following:

> **Harvested cropland:** This category includes land from which crops were harvested and hay was cut, land used to grow short rotation woody crops, Christmas trees, and land in orchards, groves, vineyards, berries, nurseries, and greenhouses.[23]
>
> **Permanent pasture and rangeland**, other than cropland and woodland pastured: This land use category encompasses grazable land that does not qualify as woodland pasture or cropland pasture. It may be irrigated or dry land.[24]

Inactive farmland: land that can include the following:

> **Other cropland:** land that includes all cropland other than harvested cropland or other pasture and grazing land that could have been used for crops without additional improvements. It includes cropland idle or used for cover crops or soil improvement, cropland on which all crops failed or were abandoned, and cropland in summer fallow.[25]
>
> **Other pasture and grazing land:** land that could have been used for crops without additional improvements. This category includes land used only for pasture or grazing that could have been used for crops without additional improvement.[26]

Other farmland: land that does not otherwise fall into the above farmland categories. This category includes land in house lots, barn lots, ponds, roads, ditches, wasteland, etc. It includes those acres in the farm operation not classified as cropland, pastureland, or woodland.[27]

Woodlot on farms: woodland that is part of a farm producer's total operation or woodland used for pasture or grazing.

Dual-use and co-location are defined earlier in this section.

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[22] Definition from Maine Title 36: http://legislature.maine.gov/statutes/36/title36sec1102.html
[23] Definition from the USDA Agricultural Census: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf
[24] Definition from the USDA Agricultural Census: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf
[25] Definition from the USDA Agricultural Census: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf
[26] Definition from the USDA Agricultural Census: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf
[27] Farm Credit East: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf

Recommendations

Based on its research, discussions, and additional input received from the public, the Stakeholder Group advances the following recommendations. Recommendations are numbered for reference only, and not to indicate prioritization of any given recommendation over any other.

Recommendation 1: Creation of a centralized clearinghouse of information

The Stakeholder Group recommends the creation of a publicly-accessible database of key characteristics, including spatial data, related to approved and constructed renewable energy project, including solar projects. The data should be submitted in a format and on a schedule determined by GEO by all interconnecting solar projects upon final site decision-making following approval of state and local permitting agencies. Where applicable, this information should be made publicly available in an appropriate format by GEO. This information can be used by DACF, other natural resource agencies, and the public, as needed, to identify potential trends. GEO may need additional resources or staff support to implement this recommendation.

Recommendation 2: Dual-use pilot program

The Stakeholder Group recommends establishment of a robust pilot program to support the growth of dual-use projects in Maine. The pilot would allow DACF to work with GEO, the PUC and other agencies to further explore the potential for dual-use in Maine. Projects meeting dual-use criteria should be supported with a financial incentive, location-based waiver, or other benefit as determined by the program. The pilot should also provide opportunities to conduct necessary research on compatible crops and other dual-use systems to determine best practices for dual-use within a defined timeframe or capacity limit. The Stakeholder Group recommends that the DACF and GEO develop the pilot program in collaboration with other state agencies and research institutions. The pilot program design should include innovation and data collection as priorities, encompass at least 20 MW of dual-use development, and outline the financial mechanisms necessary to appropriately support the pilot program and participants. The group recommends that this pilot program development be completed by October 2022 in time for potential enabling legislation and funding support in 2023.

Photo credit: ReVision Energy

Recommendation 3: Consideration of current use taxation

The Stakeholder Group recommends further consideration of treatment of land enrolled in the farmland current use taxation program when such land is housing a dual-use project. For example, such land could be treated as not subject to the withdrawal penalty if the farming operations continue to meet the farmland current use taxation requirements. Notwithstanding further consideration around current use taxation, the Stakeholder Group further recommends solar equipment located on land enrolled in the farmland current use taxation program that primarily serves the farm's electrical load be classified as agricultural infrastructure or equipment. The Stakeholder Group recommends that the Legislature consider advancing this recommendation as expeditiously as possible through coordinated efforts of the Legislature's Joint Standing Committee on Agriculture, Conservation and Forestry and Joint Standing Committee on Taxation.

Recommendation 4: Consideration of standards for dual-use and co-location in permit-by-rule review

The Stakeholder Group recommends that dual-use and/or co-location standards be considered for inclusion as permitting criteria in future development of permit-by-rule processes by the Department of Environmental Protection and other relevant permitting agencies.

Recommendation 5: Development of hosting capacity maps

The Stakeholder Group recommends development of detailed hosting capacity maps that include analysis from the utility perspective and that can help developers become more efficient at targeted site selection for all sizes of solar projects. Comprehensive data that indicates which areas of the grid have capacity for additional interconnections can minimize land use stress, including agricultural lands, in any one location. Comprehensively mapping and updating the grid could increase reliability, resiliency, and support bringing three-phase power to rural locations. The Stakeholder Group views the Distributed Generation Stakeholder Group established in 2021 by LD 936 and convened by GEO to be the appropriate venue for consideration of this recommendation.

Recommendation 6: Increased support for municipal planning capacity

The Stakeholder Group recommends more robust technical assistance capacity and/or financial support for planning be provided by natural resource agencies directly to municipalities, councils of governments, or other networks to help municipalities balance solar development. The Stakeholder Group views DACF and GEO as well-suited to provide such assistance and requests that the Legislature consider providing sufficient funding to establish and maintain new programmatic staff positions for this purpose in both DACF and GEO.

Recommendation 7: Consideration of program preference based on agricultural site characteristics

The Stakeholder Group recommends that future state-sponsored programs to support the development of solar resources through long-term contracts or other compensation mechanisms include consideration of agricultural siting characteristics consistent with the program's design. For example, if the Public Utilities Commission were directed to procure solar resources, evaluation and scoring of proposed projects' agricultural and natural resource impacts (with support from natural resource agencies) when selecting projects could be incorporated. Alternatively, if a tariff program were

developed, including an adder could be a significant market-based financial incentive to site dual-use solar.

The Stakeholder Group views the Distributed Generation Stakeholder Group established in 2021 by LD 936 and convened by the GEO as an appropriate venue for consideration of this recommendation, given its direction to consider mechanisms to limit siting impacts. The Agricultural Solar Stakeholder Group recommends that the Distributed Generation Stakeholder Group invite members of the Agricultural Solar Stakeholder Group to be a part of conversations specific to siting distributed generation projects, so that the Distributed Generation Stakeholder Group may benefit from the careful consideration already given to this topic.

Credit: ReVision Energy

Appendix A – LD 820 – Resolve, To Convene a Working Group To Develop Plans To Protect Maine's Agricultural Lands When Siting Solar Arrays

APPROVED
JUNE 8, 2021
BY GOVERNOR

CHAPTER
26
RESOLVES

STATE OF MAINE

IN THE YEAR OF OUR LORD

TWO THOUSAND TWENTY-ONE

S.P. 206 - L.D. 820

Resolve, To Convene a Working Group To Develop Plans To Protect Maine's Agricultural Lands When Siting Solar Arrays

Sec. 1. Department of Agriculture, Conservation and Forestry to convene working group. Resolved: That the Department of Agriculture, Conservation and Forestry shall convene a working group of stakeholders to develop plans and consider ways to discourage the use of land of higher agricultural value and encourage the use of more marginal agricultural lands when siting a solar array. The department shall submit its report and recommendations, including any suggested legislation, to the Joint Standing Committee on Agriculture, Conservation and Forestry; the Joint Standing Committee on Energy, Utilities and Technology; and the Joint Standing Committee on Environment and Natural Resources no later than January 14, 2022.

Appendix B – LD 802 – An Act To Ensure Decommissioning of Solar Energy Developments

APPROVED
JUNE 10, 2021
BY GOVERNOR

CHAPTER
151
PUBLIC LAW

STATE OF MAINE

IN THE YEAR OF OUR LORD

TWO THOUSAND TWENTY-ONE

S.P. 113 - L.D. 802

An Act To Ensure Decommissioning of Solar Energy Developments

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 35-A MRSA c. 34-D is enacted to read:

CHAPTER 34-D

SOLAR ENERGY DEVELOPMENT DECOMMISSIONING

§3491. Definitions

As used in this chapter, unless the context otherwise indicates, the following terms have the following meanings.

1. Decommissioning. "Decommissioning" means the physical removal of all components of a solar energy development, including but not limited to solar panels and associated anchoring systems and foundations to a depth of at least 24 inches or to the depth of bedrock, whichever is less, and other structures, buildings, roads, fences, cables, electrical components or associated facilities and foundations to a depth of at least 24 inches or to the depth of bedrock, whichever is less, to the extent the components of the development are not otherwise in or proposed to be placed in productive use or otherwise authorized to remain in place by the environmental permitting entity.

For any portion of a solar energy development located on land classified as farmland any time within 5 years preceding the start of construction of the development, "decommissioning" means the physical removal of all such components of the development to a depth of at least 48 inches or to the depth of bedrock, whichever is less, to the extent such components are not otherwise in or proposed to be placed in productive use or otherwise authorized to remain in place by the environmental permitting entity.

"Decommissioning" includes the grading to postconstruction grade and revegetation of all earth disturbed during construction and decommissioning, except for areas already restored.

2. Environmental permitting entity. "Environmental permitting entity" means:

A. The Department of Environmental Protection in the case of a solar energy development:

(1) Located wholly or partly outside of the unorganized and deorganized areas; or

(2) Subject to the department's jurisdiction pursuant to Title 38, chapter 3, subchapter 1, article 6; or

B. The Maine Land Use Planning Commission in the case of a solar energy development located wholly in the unorganized and deorganized areas and not subject to the jurisdiction of the Department of Environmental Protection pursuant to Title 38, chapter 3, subchapter 1, article 6.

3. Farmland. "Farmland" has the same meaning as in Title 36, section 1102, subsection 4.

4. Transfer of ownership. "Transfer of ownership" means a change in the legal entity that owns or operates a solar energy development. A sale or exchange of stock or membership interests or a merger is not a transfer of ownership as long as the legal entity that owns or operates the solar energy development remains the same.

5. Unorganized and deorganized areas. "Unorganized and deorganized areas" has the same meaning as in Title 12, section 682, subsection 1.

§3492. Prohibition

A person may not construct, cause to be constructed or operate a solar energy development with ground-mounted solar panels occupying 3 or more acres without first obtaining approval of a decommissioning plan from the environmental permitting entity under section 3495.

§3493. Transfer of ownership

Upon a transfer of ownership of a solar energy development subject to a decommissioning plan approved under section 3495, a person that transfers ownership of the development remains jointly and severally liable for implementation of the plan until the environmental permitting entity approves transfer of the decommissioning plan to the new owner or operator.

§3494. Decommissioning plan

A decommissioning plan must:

1. Decommissioning. Provide for the decommissioning of a solar energy development. For any portion of the development located on land classified as farmland any time within 5 years preceding the start of construction of the development, the plan must provide for the restoration of that farmland upon decommissioning sufficient to support resumption of farming or agricultural activities;

2. Grading and revegetation of earth. Provide for the grading and revegetation of all earth disturbed during construction and decommissioning, except for areas already restored; and

3. Financial capacity. Include demonstration of current and future financial capacity, which must be unaffected by the owner's or operator's future financial condition, to fully fund decommissioning in accordance with an approved decommissioning plan under this chapter.

§3495. Standards

An environmental permitting entity shall approve a decommissioning plan whenever it finds the following:

1. Successful decommissioning. The plan, if implemented, will result in successful decommissioning of the solar energy development, including the restoration of farmland sufficient to support resumption of farming or agricultural activities;

2. Financial assurance. The person identified in the plan as responsible for decommissioning demonstrates financial assurance, in the form of a performance bond, surety bond, irrevocable letter of credit or other form of financial assurance acceptable to the environmental permitting entity, for the total cost of decommissioning; and

3. Update. The plan requires the financial assurance be updated 15 years after approval of the plan and no less frequently than every 5 years thereafter. Updates to financial assurance required under this subsection must be submitted to the environmental permitting entity on or before December 31st of the year in which such updates are required.

§3496. Administration and enforcement; rulemaking

The Department of Environmental Protection shall administer and enforce this chapter with respect to the decommissioning of solar energy developments for which it is the environmental permitting entity, subject to the same powers and authorities granted to it pursuant to Title 38, chapter 2, including but not limited to the adoption of rules and the establishment of reasonable fees. The Maine Land Use Planning Commission shall administer and enforce this chapter with respect to the decommissioning of solar energy developments for which it is the environmental permitting entity, subject to the same powers and authorities granted to it pursuant to Title 12, chapter 206-A, including but not limited to the adoption of rules and the establishment of reasonable fees.

Rules adopted by the Department of Environmental Protection or by the Maine Land Use Planning Commission pursuant to this section are routine technical rules as defined in Title 5, chapter 375, subchapter 2-A.

Sec. 2. Application. This Act applies to a solar energy development on which construction begins on or after October 1, 2021 and to any other solar energy development that undergoes a transfer of ownership on or after October 1, 2021.