

Final Draft Report of the Agricultural Solar Stakeholder Group

1
2
3
4



6
7
8
9
10
11
12

Credit: ReVision Energy.

December 12, 2021

1	Table of Contents	
2	List of acronyms and terms.....	3
3	Executive Summary.....	4
4	Stakeholder Group Purpose.....	5
5	Maine Won’t Wait.....	5
6	L.D. 820	6
7	Purpose of this report	6
8	Stakeholder Group Membership	7
9	Co-Chairs	7
10	Stakeholders	7
11	Staff	7
12	Facilitator	7
13	Stakeholder Group Process.....	8
14	Meetings	8
15	Consensus	8
16	Public engagement	8
17	Background overview of Maine solar energy policy and industry landscape	9
18	Maine energy policy context.....	9
19	Net energy billing.....	11
20	Background overview of Maine agriculture and solar development potential.....	13
21	Primary areas of Stakeholder Group research.....	16
22	Other states’ solar and siting practices.....	16
23	Maine’s solar programs and results.....	18
24	Other topics	21
25	Conclusions and Recommendations.....	23
26	Conclusions	23
27	Recommendations	27
28	Appendix A – LD 820 – Resolve, To Convene a Working Group To Develop Plans To Protect Maine's	
29	Agricultural Lands When Siting Solar Arrays.....	30
30	Appendix B – LD 802 – An Act To Ensure Decommissioning of Solar Energy Developments.....	32
31		

1 List of acronyms and terms

2 Unless noted or context indicates otherwise, the following acronyms and terms have these meanings
 3 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
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

4

1 Executive Summary

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

9 This report is the product of the Agricultural Solar Stakeholder Group, a diverse group of stakeholders
10 convened by the Department of Agriculture, Conservation and Forestry and the Governor's Energy
11 Office to discuss, review, and consider potential avenues that may adequately protect important
12 agricultural land while helping to reach solar generation goals. The subject matter of this report is
13 complex and multi-faceted. Over the course of seven months, the Stakeholder Group strove to hear all
14 opinions, consider varying viewpoints, and work to gain consensus where possible on important
15 recommendations. It is the intention of the Stakeholder Group that this report catalyze action by
16 providing recommendations the Group views as important steps to build on existing progress, advancing
17 opportunities for protecting prime farmland and soils of statewide importance while also supporting
18 solar development, and providing information and resources to inform practitioners and decisionmakers
19 on the ground.

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

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

34

1 Stakeholder Group Purpose

2 Prime farmland, and soils of statewide importance¹ that are used or could be used as farmland in the
3 future, are finite and critical natural resources for Maine's agricultural productivity, biodiversity, and
4 food security. At the same time, solar energy development is key to achieving Maine's renewable energy
5 goals, reducing greenhouse gas emissions, and growing Maine's clean energy sector.

6 To ensure responsible siting of solar energy on agricultural lands, the Governor's Energy Office (GEO)
7 and the Maine Department of Agriculture, Conservation and Forestry (DACF) (jointly “the Agencies”)
8 convened the Agricultural Solar Stakeholder Group (the “Stakeholder Group”) to make policy
9 recommendations to balance the need to protect Maine's current and future farmland with the need to
10 develop sources of renewable solar energy. The Stakeholder Group focused its research and
11 recommendations on the intersection of agricultural lands and solar, informed in part by L.D. 820, while
12 occasional discussion of other land uses and characteristics occurred incidentally. In addition, while
13 much of Maine's prime and statewide important agricultural soils are currently occupied by forests, the
14 Stakeholder Group did not focus on working forests in its deliberations or in this report.

15 Maine Won't Wait

16 The Agricultural Solar Stakeholder Group was recommended by *Maine Won't Wait*, Maine's four-year
17 climate action plan from the Maine Climate Council, in recognition that we value both agricultural
18 production and the opportunity to expand renewable energy generation, and that thoughtful
19 consideration of land use decisions and incentives should be explored more thoroughly.² *Maine Won't*
20 *Wait*, released in December 2020, identifies data-driven strategies and recommendations to reduce
21 Maine's greenhouse gas emissions, as required by law, to 45% below 1990 levels by 2030 and 80% by
22 2050.

23 Strategy E from *Maine Won't Wait* is to “protect Maine's environment and working lands and waters,”
24 As part of this strategy, the plan calls for “develop[ing] policies by 2022 to ensure renewable energy
25 project siting is streamlined and transparent while seeking to minimize impacts on natural and working
26 lands and engaging key stakeholders.” Strategy D from *Maine Won't Wait* is to “grow Maine's clean-
27 energy economy and protect our natural-resource industries,” including by “increas[ing] the amount of
28 food consumed in Maine from state food producers from 10% to 20% by 2025 and 30% by 2030 through
29 local food system development.” Finally, Strategy C from *Maine Won't Wait* is to “reduce carbon
30 emissions in Maine's energy and industrial sectors through clean-energy innovation,” including by
31 “achiev[ing] by 2030 an electricity grid where 80% of Maine's usage comes from renewable generation.”

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

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

5 L.D. 820

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

15 Purpose of this report

16 This report summarizes
17 information provided to the
18 Stakeholder Group and discussed
19 at the group's meetings. It
20 outlines conclusions made by the
21 Stakeholder Group based on that
22 information as well as on the
23 expertise and experience of group
24 members and information
25 provided through comments from
26 interested members of the public.
27 Finally, based on the conclusions,
28 this report advances
29 recommendations made by the
30 Stakeholder Group to the
31 Department of Agriculture,
32 Conservation and Forestry and
33 the Governor's Energy Office
34 some of which are relevant to LD
35 820.



Photo credit: ReVision Energy

1 **Stakeholder Group Membership**

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

8
9 **Co-Chairs**

10 Celina Cunningham, Governor’s Energy Office
11 Nancy McBrady, Department of Agriculture, Conservation and Forestry

12
13 **Stakeholders**

14 Nick Armentrout, Spring Creek Farm
15 Emily Cole, American Farmland Trust
16 Heather Donahue, Balfour Farm
17 Ellen Griswold, Maine Farmland Trust
18 Eliza Donoghue, Maine Audubon
19 Kaitlin Hollinger, BlueWave Solar
20 Matt Kearns, Longroad Energy
21 Fortunat Mueller, ReVision Energy
22 George O’Keefe, Town of Rumford
23 Jeremy Payne, Maine Renewable Energy Association
24 Andy Smith, The Milkhouse
25 Julie Ann Smith, Maine Farm Bureau
26 Patrick Wynne, City of Hallowell

27
28 **Staff**

29 Tom Gordon, Department of
30 Agriculture, Conservation and
31 Forestry
32 Yvette Meunier, Department of
33 Agriculture, Conservation and
34 Forestry
35 Ethan Tremblay, Governor’s
36 Energy Office

37
38 **Facilitator**

39 Jo D. Saffair



Photo credit: ReVision Energy

1 Stakeholder Group Process

2 Meetings

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

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

14 Consensus

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

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

26 Decision-making: Decisions by the Stakeholder Group are advisory and represent recommendations to
27 the Department of Agriculture, Conservation and Forestry and the Governor’s Energy Office. The
28 Stakeholder Group sought to make decisions by consensus.

29 Public engagement

30 Meetings of the Stakeholder Group were open to attendance by the public. Each meeting reserved time
31 on the agenda for the public to comment on any aspect of the Stakeholder Group’s work. In addition,
32 written comments were provided periodically through the Stakeholder Group staff and facilitator. This
33 report was provided in draft form to the Stakeholder Group and interested parties as well as posted
34 publicly by the agencies on November 12 for public comment. All comments received were summarized
35 and provided to the Stakeholder Group to inform the final version of the report.

³ All meeting recordings are available on YouTube here:

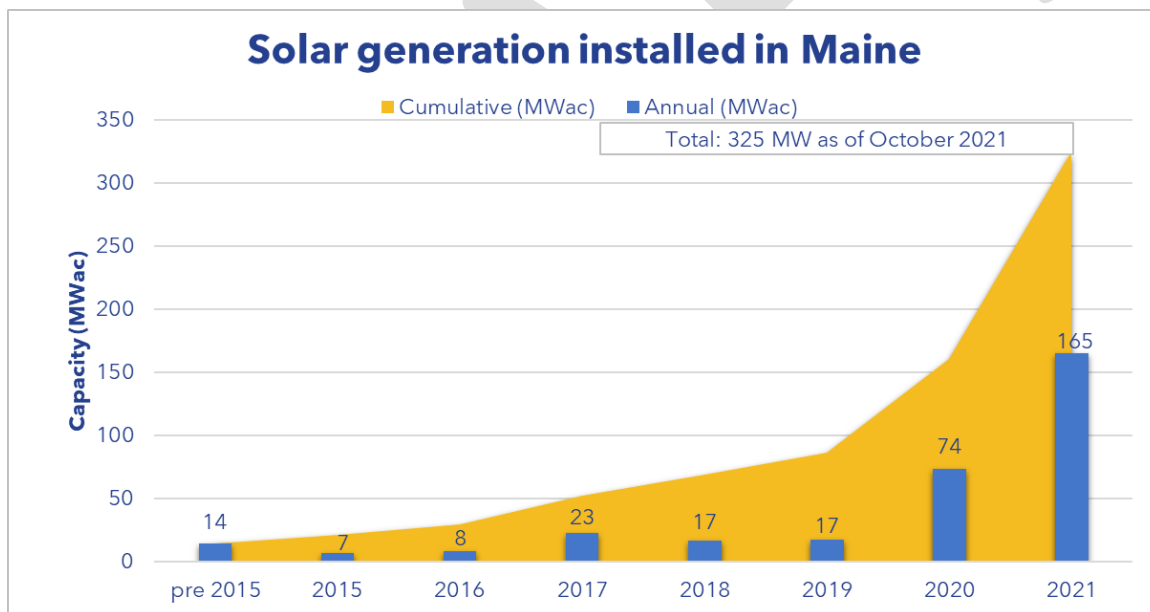
<https://www.youtube.com/playlist?list=PLHmFAUsYQixbA6L0Dr0XaEbVezxsTzDi0>

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>

1 Background overview of Maine solar energy policy and industry landscape

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

7 Solar photovoltaic (PV) panels can be installed in arrays ranging from small, residential rooftop
8 installations that power a home to an array covering many acres⁴ that can power entire towns –
9 thousands of homes, businesses, schools, and other buildings. Maine has established in law a specific
10 goal of “ensuring that solar electricity generation, along with electricity generation from other
11 renewable energy technologies, meaningfully contributes to the generation capacity of the State.”⁵
12 Recent policy changes have accelerated the deployment of solar in the state; as illustrated in the figure
13 below, less than 30 MW of solar was operational in 2016 – an amount that has since increased more
14 than tenfold.



16 Source: Governor's Energy Office

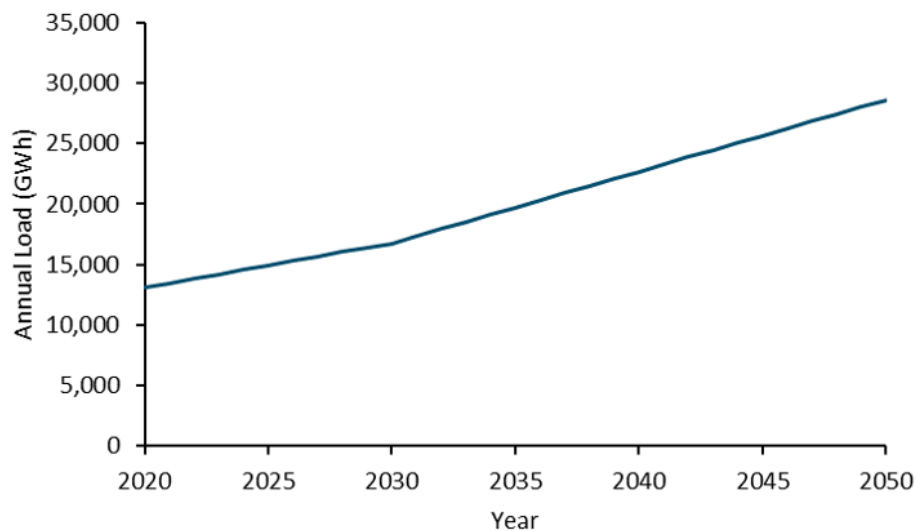
17 Maine energy policy context

18 Many of the strategies and actions identified in *Maine Won't Wait* to achieve Maine’s ambitious
19 economy-wide decarbonization objectives rely on two energy-related pillars: rapid electrification of
20 emitting sectors of the economy, including transportation, buildings, industry, and power, often referred
21 to as “beneficial electrification;” and rapid transition to low-carbon emitting power generation, including

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](#)

1 solar. Achieving the beneficial electrification actions identified by *Maine Won't Wait* is expected to
2 nearly double the amount of electricity needed in Maine by 2050, as illustrated in the figure below.⁶



4 *Renewable portfolio standard*

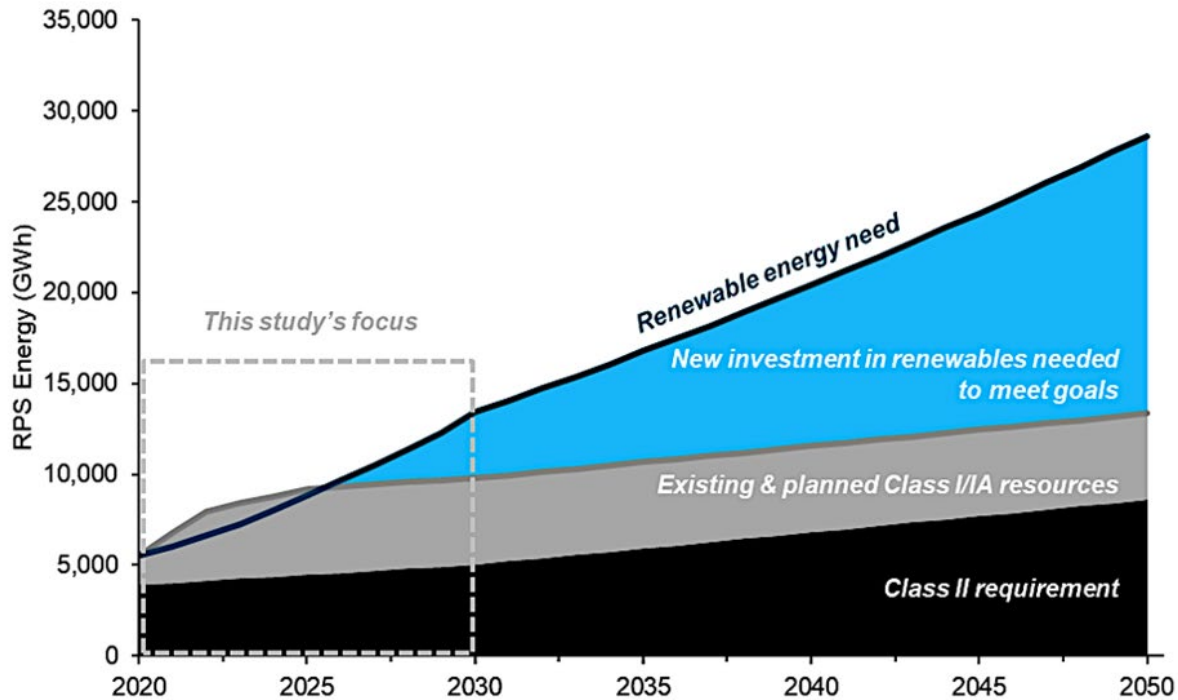
5 Maine’s renewable portfolio standard (RPS) establishes the portion of electricity sold in the state that
6 must be supplied by renewable energy resources. In June 2019, Governor Mills signed legislation that
7 increased Maine’s renewable portfolio standard (RPS) to 80% by 2030 and set a goal of 100%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

16 The same legislation also directed the GEO to conduct a renewable energy goals market assessment
17 (REGMA) to assess options for how to meet the renewable transition in Maine over the next decade.
18 The REGMA study was completed with stakeholder input and released in February 2021.⁷ The REGMA
19 analyzed six future scenarios to explore plausible renewable portfolios that would enable Maine to meet
20 its 2030 RPS requirement. One key finding from the REGMA was that, based on existing and planned
21 renewable resources assumed in the study (including approximately 1,200 MW of solar assumed to be
22 built by 2026), Maine is on track to meet its RPS until 2026, but new resources will be needed to meet

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>

1 increasing goals thereafter. This increasing need is illustrated in the figure below, which compares the
2 output of qualifying categories of existing and expected renewable resources to the overall renewable
3 energy need, given both the increased share of renewable energy required by the RPS as well as
4 expected load growth due to beneficial electrification primarily in the transportation and buildings
5 sectors. (“This study’s focus” refers to the ten-year time horizon that was the focus of the REGMA
6 analysis.)



8 Net energy billing

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

15 NEB participants may enroll solar generation they own themselves, such as rooftop panels, or may
16 choose to join a solar array shared with other customers and located elsewhere in their utility’s service
17 territory. This arrangement is commonly referred to as “community solar.” The NEB programs have
18 stimulated substantial investment in distributed solar development, with 114 MW of solar already
19 operational as of October 2021 and more than 1,500 MW under development, although not all projects
20 in development are expected to ultimately reach commercial operation.

⁸ 35-A MRS §3481 (5).

1 In 2021 the Legislature enacted P.L. 2021 ch. 390, which established a goal of 750 megawatts (MW) of
2 distributed generation under the NEB programs. The bill also set a limit on distributed generation
3 resources between 2 and 5 MW eligible for enrollment in NEB and concludes the program for these
4 resources on December 31, 2024. The law also directed the GEO to convene a stakeholder group to, in
5 part, consider various distributed generation project programs to be implemented between 2024 and
6 2028.

DRAFT

1 **Background overview of Maine agriculture and solar development potential**

2 Maine agriculture is a diverse industry with a \$3.6 billion impact on the state’s economy (Farm Credit East,
 3 2020). Maine is the largest producer of brown eggs and wild blueberries in the world. It ranks eighth in
 4 the country in production of potatoes and second for maple syrup. It ranks second in New England in
 5 milk and livestock production. The small, diversified farms across Maine supply niche markets with
 6 organic produce and meat, value-added products as well as fiber products.

MAINE ECONOMIC IMPACTS

SECTOR	DIRECT SALES	ECONOMIC IMPACT	EMPLOYMENT
	\$ Million	\$ Million	Jobs
AGRICULTURAL PRODUCTION			
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

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

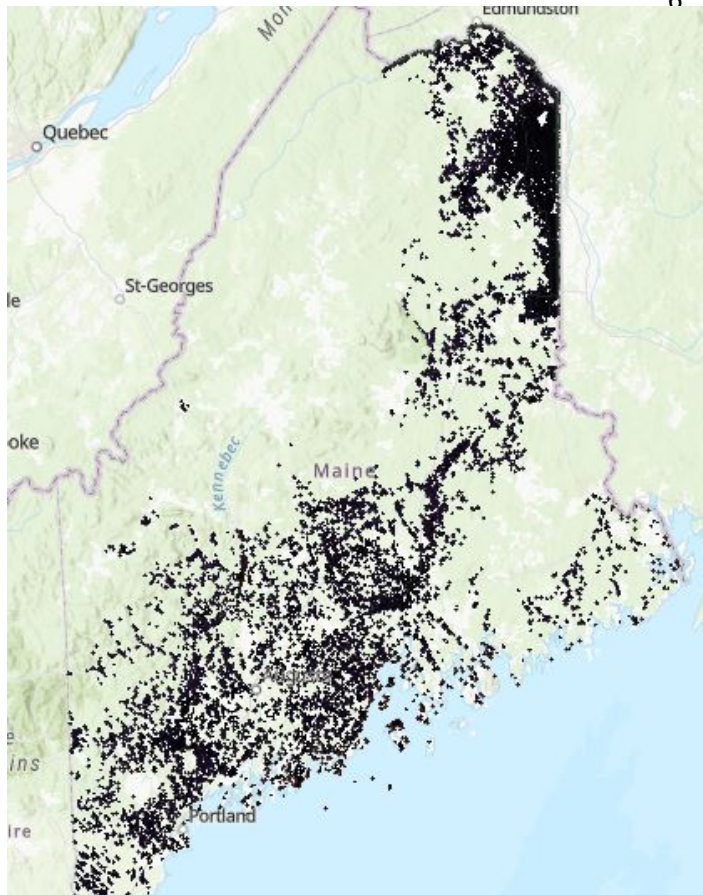
9
 10 Maine agriculture serves a variety of markets. Larger farms provide crops to commodity markets and act
 11 as anchors for agricultural inputs, equipment, and services that impact and benefit all farms in the state.
 12 Products from these farms are often processed and sold out of state. The majority of Maine farms are
 13 small family farms that enhance community food security and provide open space which defines
 14 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%
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 (USDA-NASS, 2017 State Profile, and 2017 Census of Agriculture, Table 8).



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

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.

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%) (USDA-NASS, 2017 Table 76). 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.

33

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 soils⁹ (794,320 acres) or soils of statewide importance¹⁰ (2,106,549 acres).

⁹ 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.’

¹⁰ 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.’

1
2 US Geological Survey Land Cover Database data indicate 2.5% (730,005 acres) of crop and pasture land
3 is in active production. 73% of crops and pasture (529,241 ac) are grown on prime soils or soils of
4 statewide importance.

5
6 More than half of Maine’s prime farmland or statewide important soils are not currently being used for
7 agricultural production. However, agricultural land use is dynamic and may shift to meet growing
8 demand for local products and new market opportunities. Reclaiming reverted fields or woodlands can
9 be cost-prohibitive for new or existing farming ventures.

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

13

	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

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

15
16 According to American Farmland Trust, Maine was one of the top five states with declines in farmland
17 between 2012 and 2017. American Farmland Trust has estimated that approximately 1,200 acres of
18 Maine farmland were lost to highly developed or low-density residential use each year from 2001 to
19 2016 (AFT, Farms Under Threat, 2016). *Maine Won't Wait*, Maine's four-year climate action plan from the Maine
20 Climate Council, calls for an increase in the amount of food consumed in Maine from state food
21 producers from 10% to 30% by 2030 through local food system development.

22
23 Solar development is a potential means for income diversification and stability for farms, as well as
24 increased economic viability for local communities. The Stakeholder Group heard from a Monmouth
25 landowner that solar development on a portion of the family farm would allow for the long-term
26 conservation of the larger overall farm property for agricultural production.

27
28 Many Maine farmers have been contacted about potential solar project development on their lands.
29 DACF and Maine Audubon Society have been developing materials to assist agricultural landowners,
30 communities, and developers with decisions about solar project opportunities, design, and best
31 practices. The Department’s Technical Guidance for Utility Scale Solar Installations and Development on
32 Agricultural, Forested, and Natural Lands and its Guidance to Determining Prime Farmland Soils and
33 Soils of Statewide Importance for Solar Projects may be found here:

34 <https://www.maine.gov/dacf/ard/resources/solar.shtml>. Maine Audubon’s Renewable Energy Siting
35 Tool, its Model Site Plan Regulations and Conditional Use Permits, and other useful guidance can be
36 found here: <https://maineaudubon.org/advocacy/solar/>.

1 Primary areas of Stakeholder Group research

2 Other states’ solar and siting practices

3 *Massachusetts*

4 Emily Cole, New England
5 Deputy Director of American
6 Farmland Trust, presented to
7 the Stakeholder Group on June
8 24, 2021, regarding the Solar
9 Massachusetts Renewable
10 Target (SMART) program. In
11 spring of 2017 the program
12 announced an initial
13 competitive procurement of
14 1,600 MW of solar. Proposed
15 and completed projects from
16 that initial procurement
17 included significant solar
18 development on farmland. As



Photo credit: BlueWave Solar

19 a result, changes were made to
20 the land-use policies requiring any future solar projects proposed on farmland be dual-use. The changes
21 also included a requirement that the value of agricultural production be documented with the University
22 of Massachusetts Cooperative Extension. While the group saw merits in aspects of the SMART program
23 that may be replicated in Maine, including the possibility of an increased payment for the energy from
24 dual-use projects (an “adder”) and the dual-use design guidelines, there was also a recognition that
25 Maine is different from Massachusetts in a number of ways, including the ability to bear higher
26 electricity costs, that should be considered if pursuing a similar program. For instance, solely allowing
27 dual-use on farmland, as the SMART program does, would require significant study and stakeholder
28 discussion to determine if this would work for Maine farmers and ratepayers. However, setting aside a
29 specific MW of capacity within each procurement as a carve-out specifically for dual-use is something
30 the State may want to review. Overall, there are program characteristics and lessons learned from the
31 MA SMART program that can help inform solar discussions in Maine.

32 *New Jersey*

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

1 New Jersey has created a 3-year Dual-Use Pilot Program to develop 200 MW of solar with projects not
2 to exceed 50 acres. Projects must be sited on unprotected farmland, continue to be actively devoted to
3 agricultural production and vetted through the NJ Department of Agriculture. The only installations
4 allowed for dual-use on prime farmland soil are for research purposes with any public university in New
5 Jersey. Enrolled land is permitted to be eligible for farmland assessment. This program can be extended
6 and is authorized to become a permanent program with standards for dual-use including capacity limits,
7 continued agricultural/horticultural use and decommissioning bonds. Details about the dual-use pilot
8 program are currently being drafted through a stakeholder process, after which dual-use projects up to
9 10 MW can be built.

10 In addition, a utility scale solar bill was passed which codified the development of 3.75 GW of solar by
11 2026. These installations would include community solar projects, net metered projects, and
12 procurement solicitations. The statute also establishes a limit of up to 8,000 acres of utility scale
13 development on ADA land. Additional development on ADA sites beyond this acreage would require a
14 waiver from the NJ Department of Agriculture. Details of these policies are currently being drafted
15 through a stakeholder process, keeping solar development on pause for dual-use projects until more
16 information is available.

17 *Vermont*

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

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

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

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

1 Vermont’s renewable energy portfolio will no longer be continued. However, subcontractor for projects
2 which keep their RECs will increase to 4 cents/kwh. Changes in the policy were a result of a variety of
3 factors, including the cost and pace of solar development.

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

7 *Maine’s solar programs and results*

8 *Perspective and data from Maine Audubon*

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

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

22 *Perspective from Maine Municipal Association*

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

32 Recent changes to energy laws have rapidly increased solar development in Maine. As a result,
33 municipalities have had to vet a new industry and have often responded by creating ordinances and
34 assurances for decommissioning projects. Such work has fallen to volunteer boards that often lack the
35 appropriate expertise and has caused concern for comprehensive land use planning. Further, many
36 projects being proposed are just under the 20-acre threshold which eliminates the requirement of Site
37 Law review by the State, although other oversight including stormwater permitting and Natural
38 Resource Protection Act provisions may apply.

1 To support municipalities' desire for more solar, MMA suggests these measures:

- 2 • Incentivize development in marginal and contaminated or unusable spaces first (such as PFAS-
3 contaminated soils).
- 4 • Incentivize more structurally challenging, built environment-focused projects (e.g., Brownfields,
5 gravel pits).
- 6 • Fully fund the municipal reimbursement portion of the “current use” program.
- 7 • Strengthen local planning capacity with solar-specific technical assistance.
- 8 • Provide PUC, DEP and DACF with enforcement powers, and adequate staffing resources to
9 oversee projects, reducing the burden on code enforcement.
- 10 • Close loopholes that may allow land in one current use program to roll to another with no
11 penalties for the purpose of solar farms.
- 12 • Create a list of trusted development partners for any co-location project by establishing a robust
13 licensing or certification program like shoreland zone-certified contractors.
- 14 • Revisit the farmland current use program with an eye towards greater accountability/penalties
15 for productivity.

16 A discussion of the future obsolescence of projects brought up the value of project locations near grid
17 infrastructure as being a driver to keep a site in future power production. Further, the lack of solar panel
18 recycling facilities in Maine was noted, although some companies utilize recycling facilities in
19 neighboring states.

20 *Perspective from Nexamp*

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

31 Nexamp has been exposed to a variety of policies focused on balancing the impact of solar development
32 on agricultural land. In New York, the Department of Agriculture and Markets created a notice of intent
33 process which incorporates a mitigation fee. The fee is determined by a calculation that incorporates a
34 value to agricultural soil. These policies put the onus on the developers to verify the quality of the soil
35 through site evaluation. According to Palmer, when such a policy is implemented, this approach is
36 welcomed by developers as spatial soil data is lacking. Several other states have implemented the use of
37 pollinator scorecards (see Siting Scorecards section below). In many cases these are voluntary, while in
38 others a minimum score is required to develop a project. Alternatively, an analysis as to why the
39 location for the development was chosen by the farmer and developer may be presented to the

1 permitting authority. Nexamp typically installs pollinator habitat as a best practice, implementing the
2 National Wildlife Federation certification for habitat and ecological diversity. It also installs livestock
3 fencing instead of chain link fences to create less industrial looking sites and to allow wildlife to pass
4 through sites.

5 *Perspective from BlueWave*

6 Drew Pierson, Senior Director of Sustainability at BlueWave Solar discussed dual-use solar projects
7 which focus on ecosystem services and holistic community development with the Stakeholder Group on
8 October 21, 2021. He noted that Maine was unlikely to provide a rate-based incentive but could
9 demonstrate how to have an effective voluntary market for dual-use projects. Planning dual-use
10 requires convening all interest sectors, defining shared goals, and creating shared value. BlueWave’s
11 siting process involves farmland preservation, soil vitality, and flexibility in maintaining ongoing farming
12 activities. The Massachusetts SMART Program is demonstrating that agrivoltaics can minimally impact
13 soil and moderate microclimate to improve farm resilience. BlueWave’s Rockport, Maine project is sited



Photo credit: BlueWave Solar

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.

31

32 *Perspective from Clemedow Farm*

33 Rick Dyer, a fourth-generation owner of Clemedow Farm in Monmouth, discussed the farm’s
34 consideration of solar energy development of some of its farm acreage as a means of conserving
35 additional agricultural land use with the Stakeholder Group at its October 21, 2021, meeting. The project
36 will utilize 45 acres of orchard, cornfield and forest out of the farm’s 1,000 acres. Local permitting has
37 been challenging. He commented that most farmers might not have the time to analyze legal
38 protections and tax implications of solar projects on their land. The group discussed the
39 decommissioning bonds required by state and local permitting authorities.

1 Other topics

2 *Maine Department of Environmental Protection land use regulations*

3 Nick Livesay and Jim Beyer from the Maine Department of Environmental Protection (DEP) presented to
4 the Stakeholder Group on the statutory and regulatory programs that apply to solar projects on June 24,
5 2021. These include: Site Location of Development (SLODA, or Site Law),¹¹ the Natural Resource
6 Protection Act (NRPA),¹² Stormwater Management Law,¹³ and Decommissioning.¹⁴

7 Projects that occupy more than 20 acres trigger Site Law review. DEP is undertaking rulemaking to allow
8 projects up to 50 acres in size that meet certain citing criteria to obtain a Permit by Rule (PBR), as
9 opposed to going through the traditional permitting process. Through June 2021, DEP has seen between
10 20-30 projects in the 20-50 acre range. The goal of the PBR process is to make the permitting process
11 more efficient and incentivize siting projects in areas with minimal potential environmental impact.

12 All projects one acre or greater fall under Stormwater Management Law. Maine has jurisdiction in this
13 area of law where many other states rely on federal oversight. DEP is working with solar developers to
14 pilot solar grazing at solar sites as a means for vegetative management. Those projects must follow best
15 management practices that have been developed by DACF, Cooperative Extension, and USDA Natural
16 Resource Conservation Service (NRCS) for solar grazing, which includes guidance on rotational grazing
17 plans, soil considerations, and seed mixes. A new law on decommissioning will require projects three
18 acres or larger to provide DEP a decommissioning plan and financial assurance for decommissioning.¹⁵
19 The law offers additional protections for agricultural land requiring removal of inground components to
20 depths of 48 inches.

21 *Maine Revenue Services tax considerations*

22 Peter Lacy, Director of the Property Tax Division of Maine Revenue Services, presented to the
23 Stakeholder Group on July 22, 2021. In Maine property tax is assessed at its best and highest value use
24 of the property. Land used for agriculture generally is not determined to be its best and highest value
25 use, for example in most of Maine, land is more valuable as housing. To remedy this, the Farmland Tax
26 Program exists to protect farmland from being converted into a higher value use.¹⁶ However, fair market
27 value can differ across Maine – for example, an acre of potato field in Aroostook County may be more
28 valuable as farmland than as a one-acre home lot. This leads to geographic differences in farmland tax
29 program enrollment across the state.

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

¹¹ <https://www.maine.gov/dep/land/sitelaw/index.html>

¹² <https://www.maine.gov/dep/land/nrpa/index.html>

¹³ <https://www.maine.gov/dep/land/stormwater/index.html>

¹⁴ <https://www.maine.gov/dep/land/solar-decommissioning/index.html>

¹⁵ The new law, P.L. 2021 ch. 151 (LD 802), is included in Appendix B.

¹⁶ <https://www.maine.gov/revenue/taxes/tax-relief-credits-programs/property-tax-relief-programs/land-use-programs>

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

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

10 *Additional policy discussions*

11 *Pollinator Scorecard*

12 The Stakeholder Group reviewed a compilation of
13 pollinator scorecards from five states at its meeting
14 September 23, 2021. Maine Audubon is working on Maine-
15 specific guidance on native planting and vegetation
16 management practices that support pollinators and other
17 wildlife. This guidance could help inform a permit-by-rule
18 process, a tariff concept, or other policy that encourages
19 particular management or siting practices. The Stakeholder
20 Group generally saw value in the scorecard concept, but
21 did not pursue continued discussion in favor of other topics
22 also under discussion at that time.¹⁷



Photo credit: ReVision Energy

23 *In-lieu fee*

24 The Stakeholder Group considered a range of policy
25 options, many of which led to specific conclusions and/or
26 recommendations summarized later in this report. Other
27 policy tools that the group discussed but did not reach
28 conclusions or decide to issue recommendations for
29 included creation of a mitigation program or in-lieu fee
30 model through which solar development would trigger compensation when it occurred on agricultural
31 soils or other areas of interest. New York is currently developing an in-lieu fee program relative to solar
32 development but the nascency of the effort did not provide particular guidance to the Stakeholder
33 Group at this time. There was some interest in monitoring other examples, such as the program under
34 development in New York, for potential future exploration and analysis. However, there was also
35 concern about this concept regarding potentially restrictive treatment of solar relative to other forms of
36 development.

¹⁷ 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>

1 Conclusions and Recommendations

2 Conclusions

3 *Definitions of dual-use and co-location*

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

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

- 19 1. retain or enhance the land’s
20 agricultural productivity, both short
21 term and long term,
- 22 2. be built, maintained, and have
23 provisions for decommissioning to
24 protect the land’s agricultural
25 resources and utility, and
- 26 3. support the viability of a farming
27 operation.



Photo credit: Crescent Run Farm

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

32 *Matrix of Agricultural Siting Considerations*

33 Purpose

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

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

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



9 *Photo credit: ReVision Energy*

10

1 The following table is advisory to site owners and developers only and does not represent policy or
 2 rulemaking for use by regulators. It should not be interpreted as prohibitive of siting locations or
 3 mandating components of any regulatory agency’s permitting decisions without further analysis and
 4 stakeholder input. However, this matrix may currently be used to inform decisions during project
 5 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			
	<i>Actively farmed</i>	<i>Other farmland</i>	<i>Inactive farmland</i>	<i>Woodlot on farms</i>
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.				

6

7 [Definitions](#)

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

1 **Actively farmed:** land that generates a gross income of at least \$2,000 per year from the sale of
2 agricultural products in one of two or three of five previous calendar years.¹⁸ This may include the
3 following:

4 **Harvested cropland:** This category includes land from which crops were harvested and hay was
5 cut, land used to grow short rotation woody crops, Christmas trees, and land in orchards,
6 groves, vineyards, berries, nurseries, and greenhouses.¹⁹

7 **Permanent pasture and rangeland,** other than cropland and woodland pastured: This land use
8 category encompasses grazable land that does not qualify as woodland pasture or cropland
9 pasture. It may be irrigated or dry land.²⁰

10 **Inactive farmland:** land that can include the following:

11 **Other cropland:** land that includes all cropland other than harvested cropland or other pasture
12 and grazing land that could have been used for crops without additional improvements. It
13 includes cropland idle or used for cover crops or soil improvement, cropland on which all crops
14 failed or were abandoned, and cropland in summer fallow.²¹

15 **Other pasture and grazing land:** land that could have been used for crops without additional
16 improvements. This category includes land used only for pasture or grazing that could have
17 been used for crops without additional improvement.²²

18 **Other farmland:** land that does not otherwise fall into the above farmland categories. This category
19 includes land in house lots, barn lots, ponds, roads, ditches, wasteland, etc. It includes those acres in the
20 farm operation not classified as cropland, pastureland, or woodland.²³

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

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

¹⁸ Definition from Maine Title 36: <http://legislature.maine.gov/statutes/36/title36sec1102.html>

¹⁹ Definition from the USDA Agricultural Census:

https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf

²⁰ Definition from the USDA Agricultural Census:

https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf

²¹ Definition from the USDA Agricultural Census:

https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf

²² Definition from the USDA Agricultural Census:

https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf

²³ Definition from the USDA Agricultural Census:

https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf

1 **Recommendations**

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

5 *Recommendation 1: Creation of a centralized clearinghouse of information*

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

14 *Recommendation 2: Dual-use pilot program*

15 The Stakeholder Group recommends establishment of a robust pilot program to support the growth of
16 dual-use projects in Maine. The pilot would allow DACF to work with GEO, the PUC and other agencies
17 to further explore the potential for dual-use in Maine, possibly using New Jersey’s dual-use program as a
18 model. Projects meeting dual-use criteria should be supported with a financial incentive, location-based
19 waiver, or other benefit as determined by the program. The pilot should also provide opportunities to
20 conduct necessary research on compatible crops and other dual-use systems to determine best
21 practices for dual-use within a defined timeframe or capacity limit. The Stakeholder Group recommends
22 that the DACF and GEO develop the pilot program in collaboration with other state agencies and
23 research institutions. The

24 pilot program design
25 should include innovation
26 and data collection as
27 priorities, encompass at
28 least 20 MW of dual-use
29 development, and outline
30 the financial mechanisms
31 necessary to appropriately
32 support the pilot program
33 and participants. The
34 group recommends that
35 this pilot program
36 development be
37 completed by October
38 2022 in time for potential
39 enabling legislation and
40 funding support in 2023.



Photo credit: ReVision Energy

1 *Recommendation 3: Consideration of current use taxation*

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

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

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

16 *Recommendation 5: Development of hosting capacity maps*

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

25 *Recommendation 6: Increased support for municipal planning capacity*

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

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

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

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

3 The Stakeholder Group views the Distributed Generation Stakeholder Group established in 2021 by LD
4 936 and convened by the GEO as an appropriate venue for consideration of this recommendation, given
5 its direction to consider mechanisms to limit siting impacts. The Agricultural Solar Stakeholder Group
6 recommends that the Distributed Generation Stakeholder Group invite members of the Agricultural
7 Solar Stakeholder Group to be a part of conversations specific to siting distributed generation projects,
8 so that the Distributed Generation Stakeholder Group may benefit from the careful consideration
9 already given to this topic.

DRAFT

- 1 Appendix A – LD 820 – Resolve, To Convene a Working Group To Develop Plans To
- 2 Protect Maine's Agricultural Lands When Siting Solar Arrays
- 3

DRAFT

DRAFT

- 1 Appendix B – LD 802 – An Act To Ensure Decommissioning of Solar Energy
- 2 Developments
- 3

DRAFT