

BLUEWAVE

March 20, 2020

Docket Nos. QO19010068 and QO20020184 – In the Matter of a Solar Successor Incentive Program Pursuant to P.L. 2018, C.17

Dear President Fiordaliso, Commissioners and BPU Staff,

BlueWave Solar (BlueWave) is a community solar developer and services provider based in Boston, MA. We have developed 135 MW of community and public solar and are working on the forefront of dual-use development with New Jersey's farmers and landowners. We are excited to bring BlueWave's commitment to holistic development and community engagement to the residents, small businesses, public entities, municipalities, and farmers of New Jersey.

BlueWave is a member of the Coalition for Community Solar Access (CCSA) and is an active participant on the New Jersey Subcommittee. BlueWave wholeheartedly supports the comments filed by CCSA in this docket.¹ Additionally, we submit these supplemental comments outlining the opportunity New Jersey has in embracing dual-use solar projects. Specifically, our comments will be addressing "Topic 4: Solar Siting" as referenced in the BPU notice issued on February 28th, 2020. Specifically, BlueWave encourages adopting a dual-use solar adder or preferred factorization in the successor program.

BlueWave sincerely thanks the Board of Public Utilities Commission (BPU) for its collaboration in designing the Successor Program. We respectfully submit these comments for consideration by the BPU and look forward to working together to meet New Jersey's ambitious clean energy goals while at the same time prioritizing land preservation and farm viability.

New Jersey Can Simultaneously Meet its Clean Energy Goals and Protect Open Space and Farmland

As 21st century pressures put America's farmland and farmers under increasing strain, dual-use solar is emerging as a highest and best use option to help farmers diversify income, reduce development pressures and keep land in production while supporting

¹ Comments filed by the Coalition for Community Solar Access regarding Docket Nos. QO19010068 and QO20020184 – In the Matter of a Solar Successor Incentive Program Pursuant to P.L. 2018, C. 17.

ambitious state clean energy goals nationwide. It creates spillover benefits for the agricultural workforce while promoting rural economic development and climate change goals. In order to empower farmers to choose dual-use over standard solar, which would take their land out of agricultural production, dual-use will require special considerations such as siting, design, approval and administration, and financial incentives.

Dual-use is a large-scale, ground-mount solar development approach focused on promoting agriculture within an array through design, land management, and business strategies tailored for farming. Within a standard solar project, dual-use projects can mean sheep grazing over native pollinator fields or limited cultivation between adequately spaced rows. Dual-use agrivoltaics focuses on enabling sufficient sunlight and the cultivation of a wide variety of crops, including vegetables, cranberries, horticulture, and animals, by raising the panels to an adequate height and giving them appropriate orientation. In all cases, the land underneath the panels is kept in production, co-planned with farmers, and managed with a farming and farmland conservation ethos.

Well-established in Europe, dual-use policies exist in a dozen states across the U.S. and are strongly taking root in New England states. Massachusetts' SMART program provides an incentive for agrivoltaic canopies and pollinating vegetation; Rhode Island has tax incentives for dual-use; and Maine has stipulated in legislation that an incentive for dual-use may be made available. The National Renewable Energy Laboratory (NREL) has created a national dual-use research program (INSPIRE network) to encourage best practice development across the country.

Community Solar and Dual-Use Benefit New Jersey Ratepayers

In Section 2.3, specifically 2.3.1 and 2.3.3, of Governor Murphy's Energy Master Plan,² community solar is identified as a preferred project type in order to create equity in the clean energy transition. With this in mind, the need for large scale community solar will become apparent as the successor program design progresses. Community solar needs economies of scale for developers to facilitate these projects. If undeveloped land is needed for New Jersey to meet its clean energy goals, there must be careful consideration of where and how those projects are sited. Dual-use can alleviate concerns about solar siting while enabling the expansion of community solar benefits to the public.

Dual-use solar is an economic development tool for not just farmers, but for

² 2019 New Jersey Energy Master Plan Pathway to 2050, available at www.nj.gov/emp.

municipalities as well. Developers are committed to paying property taxes on behalf of the farmers or landowners for the life of the dual-use project. If the project is also built as a community solar project, towns often have the chance to be anchor customers and realize energy savings on behalf of their residents.

Dual-Use Can Increase Positive Ecological Outcomes for New Jersey

In many cases, dual-use solar can enhance land ecology through sustainable land management strategies rooted in philosophies that include but are not limited to: building healthy soils, promoting carbon sequestration, rotating crops, promoting cover crops, reducing tillage, facilitating sustainable grazing, enhancing species diversity, promoting water conservation, and improving upon input intensive industrial farming methods. These methods, otherwise known as regenerative farming, hold great promise for drawing CO₂ out of the atmosphere while building more resilient farms and rural communities.

According to a Rodale Institute review, regenerative agriculture systems (specifically, conventional crops and grazing) have the potential to sequester more than 100% of current CO₂ emissions globally, if these practices were adopted on a wide scale.³ With far reaching benefits including improved soil carbon stocks, decreased greenhouse gas emissions, equal or greater yields over conventional agriculture, improved water retention and plant nutrient uptake, and improved farm profitability, regenerative agriculture can play a major role in revitalizing farm communities, improving biodiversity, and enhancing the resiliency of ecosystem services across New Jersey.

Dual-Use for New Jersey – Policy Amendments

Current New Jersey law (e.g. Chapter 213; [Section C.4:1C-32.4](#)) allows for standard ground-mounted solar on preserved agricultural land, provided it is owned by the farmer, addresses on-site load, and sized at no more than 110% of the farm's prior year's load or 1% of the total farm acreage. It also allows farmland (both preserved and unpreserved), via Chapter 213 Section C.54:4-23.3c, to retain current use tax assessment eligibility when hosting solar on the basis that projects are confined to a maximum of 10 acres, and/or 2 MW. Anything exceeding these limits risks revocation of a farm's current use tax assessment.

While the New Jersey Farm Bureau has been supportive of the adoption of the current policies, few Farm Bureau members have taken advantage. For most developers, it is

³ "Rodale Institute: Regenerative Organic Agriculture and Climate Change – A Down-To-Earth Solution to Global Warming" (2014) - <https://rodaleinstitute.org/wp-content/uploads/rodale-white-paper.pdf>

not possible to develop scalable business models on farmer-owned projects of this limited size. Since 10 acres typically yields much less than 2 MW, projects are frequently prevented from reaching sizes that attract developer interest. In addition, it is not economically feasible to develop projects confined to 10 acres or a 2 MW cap because of high fixed costs, space constraints, and small comparative returns.

The average space needed for 1 MW of solar is between 6-8 acres, including not only the panel area, but space for safety regulations, fencing, and setbacks required by towns or landowners. For most farmers, it is not possible to individually finance the cost of developing and constructing a 1-2 MW project. In fact, many cannot manage an asset of such size and complexity without developer assistance. Because New Jersey's Community Solar Pilot Program does not prioritize solar projects sited on farmland in its scoring system, dual-use, agriculturally compatible solar is further discouraged in the marketplace.

Most importantly, the current policy essentially communicates to a farmer that it is acceptable to remove a small portion of farmland from production in order to achieve a limited energy production benefit. Since the benefit under current policy is so limited, that it is not being utilized. Instead, dual-use offers the opportunity to achieve the energy benefit (both environmental to the State as well as financial to the farmer) and simultaneously keep the land in productive agricultural use.

What Does a Strong Dual-Use Program Look Like?

If dual-use is built on farmland, the land must remain in agricultural production for the life of the project to receive any incentive or preferred status, as well as built and managed according to following recommended standards and guidelines:

1. Design and Siting Standards

Require designs co-planned with farmers that enable full equipment access and usability around panels and structures, along with enough row spacing and sunlight, via minimum height requirements and sun-access criteria. The Massachusetts SMART Program, through its Shading Analysis Tool,⁴ allows developers to prove designs that meet such criteria, while demonstrating the expected sunlight available per square foot for agricultural production. The tool is third-party validated and available for adoption by the state of New Jersey.

⁴ <https://massgov.github.io/DOER/doer.html>

2. Construction Standards

Implement the New York and Massachusetts guideline models for solar on farmland. These models address procedures that include maintaining topsoil, avoiding soil compaction, prohibiting undesirable imported material, ensuring construction best management practices, and encouraging diligent documentation of sub-surface infrastructure. Agencies should evaluate their current permitting and siting guidelines to allow for dual-use projects.

3. Decommissioning Considerations

Require adequate forms of surety (e.g. decommissioning bonds, letters of credit) in exchange for dual-use approval. This guarantees that projects are responsibly retired and decommissioned at the end of their useful lives and the land restored to its former state. Consider encouraging “end-of-life” conservation restrictions to ensure priority lands either remain as dual-use solar or revert to their original state.

4. Farm Plan Approval and On-Going Certification

Require a credible farm plan driven by collaboration with the farmer for approval of dual-use projects. The farm plan should be stamped by a professional with relevant credentials (e.g. NRCS Farm Planning certification), and describe the proposed agricultural activity, necessary equipment, project design details, farming infrastructure and logistics, shading analysis, irrigation and pest control measures, labor needs, and other areas of importance. New Jersey should consider requiring annual reporting on agricultural yield, and recertification every few years to ensure good standing, retainment of any adders, and to deter bad actors.

5. Third-Party Review and Program Administration

To avoid burdening state resources, partner with a qualified third-party certifier to assist with reviewing and approving projects, and to ensure on-going program integrity. The American Farmland Trust is one organization well-positioned to provide such services, as it is working towards a dual-use certification program.

6. Establish Working Group

Form a working group of stakeholders across government, policy, industry, education, and NGOs to assess program efficacy, recommend future guideline changes, and establish best-practices. This will ensure the program is working for the on-going benefit of New Jersey farmers, communities, and clean energy and climate goals.

What Developers Need in Order to Choose Dual-Use over Standard Solar

To entice dual-use development over standard solar, it must be viewed as the more economically attractive option by both the developer and the farmer (the landowner). Therefore, BlueWave encourages the BPU to adopt an adder or preferred factorization for dual-use in the successor program. Developers need an incentive for the following reasons:

Structural Financial Disadvantages of Dual-Use Compared to Standard Solar

1. Less Density

Enabling sufficient sunlight for crops will almost always result in less dense project designs (installed capacity per acre) than standard solar because of the need for wider row spacing and panel orientation. Less installed capacity per acre also means less lease revenue for the farmer and less power production for the developer, while certain significant fixed costs such as interconnection costs remain the same.

2. Higher Panels

Raising the low edge of panels high off the ground to allow people and equipment to freely maneuver will require additional steel as well as increased labor costs during installation.

3. Higher Operations & Maintenance (O&M) Costs and Insurance Premiums

Co-locating farming with large scale solar requires new strategies to operate and maintain projects, such as maintaining panels at an elevated height, monitoring a wide variety of factors, and insuring against a new set of risks. Similar to solar parking canopies, which the market once viewed as novel but now embraced, agrivoltaic canopies will mature along their own path and involve higher O&M and insurance premiums than standard solar at the onset.

Capital Improvements and Operational Support for the Farmer

Enticing and maintaining farmer interest is critical to the success of any dual-use program. In addition to providing space, dual-use can leverage financial incentives provided by the program as well as design and construction to enhance farm viability, help farmers expand production, and comply with relevant agricultural productivity requirements established by regulators. Investments in new farm infrastructure such as irrigation, fencing, water catchment, and livestock shelters can be integrated into a project construction process. Operational subsidies enabled by a financial incentive can unlock business models that ensure farmers get the support they need to continue

farming. This support might take the form of annual per acre payments, the hiring of farm managers tasked with providing technical assistance, subleases to other farmers, or any number of creative approaches that are not readily available to farmers.

Higher Risk and Complexity of a New Asset Class

In addition to its relative novelty, Dual-use has more nuance and moving parts than standard solar. This added complexity will garner more perceived risk from investors, potentially commanding higher returns to protect against perceived uncertainty. In Massachusetts, investors are turning the corner in being comfortable with dual-use and we expect as more states move along in their programs, this will change.

A Clean Energy Future for New Jersey

The BPU has a unique opportunity to underscore its support of farming and clean energy in one swift action by empowering dual-use in the Solar Successor Incentive Program. We urge you to empower farming communities and young farmers, in particular, with the tools to preserve agricultural production and farmland across New Jersey. BlueWave looks forward to future collaboration on this topic, and is available to answer any questions that you may have. Thank you for your consideration.

Sincerely,

Lucy Bullock-Sieger
Director of Civic Engagement