

# BLUEWAVE

May 27, 2021

Board of Public Utilities  
44 South Clinton Avenue, 9th Floor  
P.O. Box 350  
Trenton, New Jersey 08625-0350

**Re: Docket No. QO20020184**

Dear Secretary Camacho-Welch,

Thank you for the opportunity to comment on the Solar Successor Straw Proposal in Docket QO20020184. We thank Staff for all the work they have put into designing a robust and equitable solar program thus far. We especially appreciate the level of stakeholder engagement and Staff transparency that has made the design of the Solar Successor Program a true collaborative process. BlueWave respectfully submits these comments in addition to answering several specific questions that Staff have raised. We would also like to support the comments put forth by the Coalition for Community Solar Access (CCSA) and the Solar Energy Industries Association (SEIA).

BlueWave appreciates that Staff have recognized dual-use in the Straw Proposal as an emerging technology. Dual-use is defined as the co-location of solar panels and continued agricultural production on the same parcel of land. It is encouraging that the Board of Public Utilities (Board, or BPU) is considering dual-use an important market segment that can be deployed through a pilot program. BlueWave supports the Board enabling at least 100MW per year in a three-year dual-use pilot program before transitioning into a permanent program.

Recognizing that dual-use is a new technology in New Jersey, BlueWave offers the following framework to ensure its success. To us, success means fortifying local farmers across the state; increasing food, energy, and economic security as residents recover from the COVID-19 pandemic; and building cost-effective clean energy called for under the Energy Master Plan. Our recommendations outline the bounds within which dual-use can succeed while also ensuring compliance under the Board's cost limitations and policy goals.

**Dual-Use Activates and Preserves Farmland Through Clean Energy**

Dual-use can be the economic jump-start that New Jersey residents need as we regain strength after the COVID-19 pandemic. In the case of small farms that provide our much-needed food supply and protect our best farmland, dual-use can be a targeted recovery tool in the face of conversion to housing tracts or other irreversible forms of development. Dual-use projects do not

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take land out of production, and often provide an infusion of revenue for farmers to expand or diversify their operations. BlueWave works with farmers who have been able to reactivate previously fallow land with dual-use and bring it back into active agricultural production, often adding new varieties into their suite of crops. Dual-use projects can provide family farmers with enough certainty and stability to pass land onto the next generation, or lease land under dual-use arrays to new farmers entering the field. Stable solar revenue from dual-use can be an incubator for new and innovative farming business models, as well as provide cash flows for long-term equipment and operations upgrades.

Dual-use's economic impact reaches far beyond the fence line, however. Municipalities receive property taxes directly from developers throughout the life of dual-use projects. Projects that double as community solar can provide electric savings to local customers such as municipalities, schools, public works, small businesses, residents, and nonprofits. These customers, by participating in the community solar project, are helping to support the development of clean energy as well as the fortification of their agricultural economy. As the climate continues to change, it is crucially important that we keep local sources of food in business. New Jerseyans are proud of their farms for good reason, and we should be utilizing every tool to protect and empower them in the face of uncertainties to come.

In addition, dual-use can serve as a conservation and enhancement tool for the land itself. By preventing conversion to irreversible forms of development, dual-use is preserving the prime farmland and soils that protect us from climate change and adverse weather events. Dual-use can improve land ecology through sustainable land management strategies aligned with principles of regenerative agriculture such as building healthy soils, rotating crops, promoting cover crops, reducing tillage, facilitating sustainable grazing, enhancing species diversity, promoting water conservation, and improving upon input intensive industrial farming methods. Combined, these strategies draw carbon dioxide out of the atmosphere while building more resilient farms, ecosystems, and rural communities.

## **Dual-Use Pilot Program Projects Should Be Included in the Administratively Set Incentive Program**

Staff have structured an administratively set incentive program to predictably compensate projects based on attributes such as size and location. These attributes are compensated accordingly based on the Board's policy goals as well as the market costs associated with each attribute. Staff have, for example, indicated that it will be crucial for the Solar Successor Program to deploy low-income community solar as well as encourage development on preferred sites.

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Conversely, Staff have also structured a competitive solicitation to award larger scale projects capacity in the program. These grid supply projects are incentivized to drive costs as low as possible in order to compete, while other project attributes are largely standardized. Competitive procurements can be successful in the case that Staff laid out, however, BlueWave does not anticipate a dual-use program reaching the Board's stated policy goals under a competitive solicitation structure.

It is not appropriate to compensate dual-use through a competitive solicitation because it is a new technology within New Jersey's incentive program, and costs specific to the state are not yet well-defined. Competitive solicitations work well when projects can be executed at "least cost," meaning that there are no incremental costs for preferred project attributes. Developers bidding dual-use projects into a competitive solicitation would be forced to adopt this "least cost" approach, and would be unwilling to incur the added costs associated with making dual-use work. Functionally, the Board would likely see applications for projects that implement lower cost pollinators or grazing schemes rather than true agrivoltaics where row crops are grown underneath and among the panels. Alternatively, by establishing a predictable incentive for dual-use projects through the administratively set incentive program, the Board will provide developers and farmers with the certainty needed to invest in robust agrivoltaic farm plans and project designs. The Board will also have the opportunity to adjust an administratively set incentive based on market conditions and data collected as part of the pilot program.

In addition, dual-use projects can, and often are, co-designed with community solar. In order to allow one project to achieve multiple preferred policy outcomes, these segments should be compensated through the same structure within the administratively set portion of the Successor Program. Since Staff have proposed a specific budget for dual-use under the competitive solicitation, BlueWave suggests re-allocating this budget under the administratively set incentive portion, based on Staff's targeted capacity amount for a dual-use pilot program.

## **The Board Should Create a Dual-Use Adder to Enable a Single Project to Fulfill Multiple Policy Goals.**

BlueWave believes that the Board should differentiate incentives by project attributes with adders that accurately account for the costs associated with different designs that meet different policy goals (Question 35). We only address the administratively set incentive program here as it is within our area of expertise, applied specifically to both dual-use and community solar. Adders would not create unnecessary complexity within the Solar Successor Program, rather, adders would provide more precise compensation and allow stakeholders to follow and adjust to market signals and trends as the program rolls out (Question 36).

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Dual-use projects should receive an adder that covers the additional cost of developing and maintaining simultaneous agricultural and solar production. Creating a dual-use adder that can be layered on top of different types of base incentives will allow for dual-use projects to be both community solar and grid supply. The adder can function on top of any given project's base incentive to cover the marginal cost of maintaining compliance with dual-use standards. BlueWave envisions the dual-use adder, as with all adders under the administratively set incentive program, to overlap as needed to compensate projects for fulfilling multiple policy goals with the specific, incremental costs of each attribute.

## **The Dual-Use Adder Should be Designed to Cover the Additional Costs Associated with Designing, Constructing, and Operating a Dual-Use Project**

BlueWave has provided a confidential appendix detailing the incremental costs that come along with dual-use. Here, we detail general categories of cost to assist Staff in their understanding about dual-use development, construction, and long-term management.

- *EPC*: Raising the panels up to nine feet (as opposed to three or four feet for standard solar) costs more, but allows for continued agricultural production underneath and among panels and rows. During construction of a dual-use array, we see significant increases in EPC costs to use scissor lifts when mounting and connecting panels, drive posts deeper into the ground (to support higher panel height), and compensate workers accordingly for longer construction duration and higher insurance premiums.
- *Solar O&M*: Increased operation and management costs throughout the life of the project support the adaptation from a standard solar project to a dual-use project. Additional O&M costs accommodate the added equipment, training, insurance premiums, and monitoring needed for farmers to continue cultivating crops on-site.
- *Farm Asset Management*: Costs throughout the life of the project support routine site access, modified cultivation activities to maintain active agricultural production, and insurance premiums for farm equipment operating under and around panels.
- *Risk Premium*: Investors need to be convinced that added risk, from unique design specifications to the added complexity of managing an active farm within an array, will be compensated fairly throughout the life of the project. Farmers need outside investment to modify their practices, manufacture special equipment, and diversify their production. We anticipate these risk premiums will decrease over time as costs for dual-use specifically in New Jersey are better understood.

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- *Farm Production Subsidy*: Substantial portions of a dual-use adder will be passed along to the farmer to alleviate their financial stress and barriers to entry. For example, it costs thousands of dollars upfront to produce one acre of a given crop. It would be difficult for a farmer who already operates under extremely tight margins to pay more to produce the same number of crops under a dual-use array without additional financial compensation. Since lease rates alone cannot make up the difference in added costs to the farmer, a dual-use adder will help farmers defray production cost increases that would otherwise discourage them from participating.

BlueWave has modeled the level of a dual-use adder using the incremental costs of dual-use described above, based on our experiences in other markets, and accounting for dual-use's classification as a pilot program within the Solar Successor. The proposed adder levels are adjusted to deploy both small and large dual-use projects, understanding the major differences in economies of scale between each. BlueWave proposes a \$55/MWh adder for dual-use projects below 3MWdc, and a \$45/MWh adder for dual-use projects between 3-10MWdc.

Staff has specifically asked whether there is a market for dual-use projects under 2MW (Question 17). While dual-use projects can certainly be designed within the range of 1-10MW, based on the land and needs of the individual farmer, smaller dual-use projects do not enjoy the economies of scale that larger dual-use projects benefit from. However, smaller-scale projects are typically most appropriate for small acreage farms that tend to be at higher risk for conversion to permanent development. Dual-use can be an important tool for keeping small farms in active production but, due to the lack of economies of scale, these projects require a higher incentive. A farm that could accommodate a small dual-use project could alternatively be sold for much higher margins to a medium housing development, making the comparative compensation to a landowner higher for smaller projects.

In order to prevent this kind of irreversible conversion, dual-use can be used as an emergency intervention that gives small acreage farmers the capital they need to continue farming. These small family farms are the lifeblood of New Jersey, and deserve the chance to expand, diversify, and thrive with dual-use. BlueWave has proposed a size-differentiated adder to account for the proportionally larger increases in cost (real estate expenses, construction costs, overhead, and start-up costs to establish farm plans) for smaller dual-use projects. It is important for the Board to provide predictable and stable incentives for all sizes of dual-use projects that accurately compensate both farmers and developers for incremental costs associated with this project type.

BlueWave reiterates the industry's position that the base incentives detailed in the Solar Successor Straw Proposal remain a concern, even if dual-use projects receive adequate incremental compensation. BlueWave supports CCSA's incentive recommendations meant to

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improve the underlying viability of all administratively set categories, and looks forward to continued discussion to ensure that successful projects are deployed across all sectors.

The financial impact of a dual-use adder will be limited by the target size of a pilot program. BlueWave encourages the Board to anticipate a capacity target within which dual-use projects can be deployed to produce data, and supports a capacity target of at least 100MW per year during the pilot program. After the capacity target is reached, we can more accurately examine the cost of dual-use in New Jersey and adjust the program accordingly. In addition, BlueWave is actively participating in legislative efforts that will provide more guidance around the size and limitations of a dual-use pilot program, and thanks Staff for their attention to that process. We look forward to continued iterations and stakeholder proceedings in which the details of New Jersey's dual-use program can be determined.

## **A Multi-Agency Stakeholder Group Can Determine Dual-Use Standards, Data Collection, and Compliance Mechanisms.**

The most important function of a dual-use program is to empower farmers while allowing them enough flexibility to farm their land as they wish. A well-designed program that considers feedback from farmers and other stakeholders will result in a diverse group of projects being proposed that incorporate both grazing and row crop production. This has certainly been our experience in the Massachusetts SMART program for dual-use projects – thanks to program administrators prioritizing continued agricultural production over rigid specifications. BlueWave supports clear and robust standards for projects to qualify in a dual-use program, rather than prescriptive restrictions that may limit farmer flexibility (Question 19).

We believe that it will take a multi-agency effort, along with engaged stakeholders, to come up with construction and operation standards that make dual-use work. It also provides assurance that the Board is incentivizing true agrivoltaics that are designed intentionally and collaboratively with the farmer. For example, these standards can include establishing a third party construction monitor. BlueWave has been instrumental in developing similar standards in other states that protect soils and make sure any disturbed ground is returned to its place during construction of the array.

In order to ensure the success of a dual-use pilot, developers need to buy in to the body of data that can be produced. The first projects that get built should be required to report on metrics like soil health, water retention, crop productivity, and crop diversity. These metrics can assure the Board that dual-use is working as intended and that both farmers and crops are benefitting from the technology. If certain parts of the program are not working, the stakeholder group under the Board's guidance can make data-driven decisions to adjust as needed.

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While BlueWave recommends clear and firm standards to govern a dual-use pilot program, we believe there should also be a clear line of sight for farmers to remain in compliance and a cure period for when operations do not go as expected (Question 20). BlueWave strongly discourages the Board from adopting a dual-use framework around “reasonable loss” of agricultural productivity, given that productivity in any given year can be impacted by any number of factors independent of the dual-use array (for example, unusual drought conditions or a farmer’s decision to rotate crops and leave certain areas fallow). If a farm is found to be in noncompliance with dual-use standards, we recommend the Board establish a clear plan with deadlines for the farmer to come back into compliance. If developers and farmers cannot meet the requirements during the cure period, all parties understand the adder is at risk of being revoked.

Most importantly, BlueWave recommends that the project siting requirements be defined to allow dual-use on prime agricultural soil and soils of statewide importance (Question 40). Within a pilot program, all dual-use projects will undergo a review and approval process to ensure they comply with program rules and standards, including construction and operational standards for projects located on prime agricultural soils and soils of statewide importance. Prime soils are often located in open farm fields, whereas lower quality soils are often found in the forested areas of a farm. Prohibiting dual-use projects from being built on prime soils could have the unintended consequence of driving development to unproductive areas of the farm, resulting in unnecessary tree clearing and a decrease in crop diversity and vitality.

While we believe that dual-use’s impact as an economic lifeline for farmers – keeping farms in business – outweighs unproven, potential risks to land and soil, it is important to couch our considerations in the context of current land uses throughout New Jersey. For example, a dual-use pilot program of 300 MW would cover approximately 1,500 acres of unpreserved farmland. This represents 0.2% of New Jersey’s total farmland and 0.3% of the state’s unpreserved farmland.<sup>1</sup>

## **Dual-Use Projects Should be a Preferred Siting Category within the Community Solar Permanent Program**

BlueWave recommends that dual-use be considered on a level playing field with other preferred project types within the Community Solar Pilot Program and Permanent Program. Establishing dual-use as preferred siting will ensure that dual-use projects are competitive enough to receive capacity awards and meet the policy goals of the Board. Dual-use, as with all preferred project attributes, provides specific benefits that can be layered on top of various other project designs.

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<sup>1</sup> Calculations based on data from the [New Jersey Department of Agriculture 2019 Annual Report & Agricultural Statistics](#): The state’s total farmland acres is 734,000 acres. 235,229 acres are preserved farmland.

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The Board can enable each project to meet multiple policy goals, including that of preserving prime agricultural soil and soils of statewide importance, by defining dual-use as preferred siting.

## **The Community Solar Permanent Program Should Be Available On a First-Come, First-Served Basis with High Barriers to Entry That Ensure Policy Goals Are Met**

BlueWave reiterates CCSA's position that the Community Solar Permanent Program should be available on a first-come, first-served basis (Question 39). Programs structured in this way have been successful in other markets – allowing the most mature projects to reserve capacity as they meet key development milestones and demonstrate achievement of preferred attributes.

BlueWave supports the specific program rules, project milestones, and maturity requirements as detailed in CCSA's comments.

Recognizing that the Board may choose to continue with the ranking system, BlueWave reiterates that dual-use should get the highest possible points for siting. This will ensure dual-use projects that meet other policy goals and maturity requirements are competitive enough to be awarded capacity under this program structure. However, if the Board adopts recommendations to implement a first-come, first-served system, BlueWave agrees that projects should be required to meet a high barrier to entry in order to apply. To ensure dual-use projects can participate under this program structure, dual-use should be designated as preferred siting. It follows that only projects with designated preferred siting be allowed to apply and reserve capacity within a first-come, first-served program design.

## **The Board Has Taken Key Steps Towards Unleashing the Benefits of Dual-Use, and We Look Forward to the Program's Success**

BlueWave thanks the Board and Staff for their continued work and engagement on all aspects of the Solar Successor Program Straw Proposal. New Jersey has become a leader in clean energy deployment thanks to ambitious goals and unwavering support at the BPU. We look forward to continuing partnership with Staff and other stakeholders to ensure that the program is a success. By enabling and encouraging dual-use projects in New Jersey, we can continue our leadership while empowering farmers and protecting farmland across the state. We are excited to be a part of New Jersey's clean energy transition and thank you for your consideration of these comments.

Signed,

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