2025 Solar Canopy Working Group Supplemental Report

Massachusetts Solar Canopy Working Group

Facilitated by the Department of Energy Resources

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Executive Summary

The Massachusetts Solar Canopy Working Group convened in March 2025 under *An Act Promoting A Clean Energy Grid, Advancing Equity and Protecting Ratepayers* ("The 2024 Climate Act") to develop recommendations to encourage the construction and operation of solar power canopies across the Commonwealth. These structures – typically installed over parking lots, transit hubs, and other developed spaces – can generate clean electricity, reduce greenhouse gas emissions, and provide valuable co-benefits such as shading, snow and rain protection, and integration with electric vehicle (EV) charging and energy storage.

Over the course of four public meetings and additional stakeholder outreach, the Working Group examined financial, technical, and regulatory challenges, and studied successful canopy projects in Massachusetts and beyond. This report discusses the group's findings, partially illustrated through two case studies, and provides detailed recommendations to further unlock the potential of solar canopies to help meet the state's climate goals.

Background

The 2024 Climate Act directed the Department of Energy Resources (DOER) to establish the Solar Canopy Working Group to "develop recommendations for regulatory and legislative changes that may be necessary to encourage the construction and operation of solar power generating canopies." The Act called for recommendations that contribute to greenhouse gas emission limits set under Chapter 21N of the General Laws and support canopy development in a cost-effective way.

The statute required the group's report to be submitted by June 31, 2025. On June 30, DOER provided the Legislature with an initial report outlining the Working Group's substantial progress, its broad engagement with stakeholders, and its plan to deliver a final supplemental report later in the year. That initial report highlighted early findings, including that recent updates to the Solar Massachusetts Renewable Target (SMART) program already address several key barriers by improving eligibility, flexibility, and compensation for canopy projects. The group committed to finalizing further policy and program recommendations in three main categories: financial assistance, permitting and interconnection improvements, and additional supports.

In 2023, DOER published a *Massachusetts Technical Potential of Solar* study that identified a total technical capacity of 14 GW_{AC} of solar canopy projects across the Commonwealth. As of March 2025, DOER approved or qualified 228 solar canopy projects in the SMART program, accounting for 105.3 MW_{AC} in total capacity[1].

Membership

The 2024 Climate Act established Working Group membership and included representatives from state government, industry sectors, organized labor, utilities, environmental organizations, and subject-matter experts.

[1] Solar Massachusetts Renewable Target Qualified Units List, https://www.mass.gov/doc/smart-qualified-units-list

Role	Appointee
DOER Commissioner Designee (Chair)	**Cobi Frongillo**, Deputy Director, Renewable & Alternative Energy, DOER
Commercial Real Estate Sector	**Matthew Connolly**, Co-Chair, Environment and Energy, Nutter
Residential Real Estate Sector	**Sonia Patano**, Senior Vice President, Property Management, GID
Organized Labor Industry	**Kevin Brousseau**, Secretary-Treasurer, Massachusetts AFL-CIO
Solar Energy Industry	**Valessa Souter-Kline**, Northeast Regional Director, Solar Energy Industries Association
Environmental Group	**Amy Boyd Rabin**, Vice President, Policy & Regulatory Affairs, Environmental League of Massachusetts
Construction Industry	**Gregory Beeman**, President, Associated Builders and Contractors of Massachusetts
Electric Utility	**Brian Rice**, Director, Customer Solar Programs, Eversource Energy
Local Government	**Mike Ossing**, Chair, Energy and Environment Policy Committee, Massachusetts Municipal Association
Expert in Energy Siting	**Jessica Robertson**, Director, Policy and Business Development, New England, New Leaf
Expert in Solar & Energy Efficiency	**Heather Takle**, President & CEO, PowerOptions

Public Meetings & Outreach

The Solar Canopy Working Group met four times between March and June 2025 in a hybrid format open to the public. Each meeting built upon the last, moving from background and context to specific project examples and draft recommendations.

Kickoff – March 28, 2025

The brief kickoff meeting introduced the Working Group members, reviewed the statutory charge, and confirmed the meeting schedule and scope of work. Members

discussed the state's climate goals, the role of solar canopies in meeting them, and the need to balance cost-effectiveness with public benefit. DOER staff presented a high-level overview of current state policies affecting canopy development.

Meeting #1 – April 18, 2025

This session provided a deeper dive into current incentive structures and barriers to canopy deployment. DOER presented on the SMART program, including incentive adders for canopy projects and proposed updates under development. The group also heard from DOER's Leading by Example team on their experience assisting the deployment of solar canopy projects on state-owned sites, including one sited at Framingham State University. A representative from Solect Energy outlined common challenges faced by canopy developers, including interconnection delays, high upfront costs, and local permitting hurdles. The group discussed how these barriers affect financing and project timelines.

Meeting #2 – April 25, 2025

The second full meeting highlighted innovative solar canopy designs and applications. DOER shared examples of non-traditional canopy configurations, such as those integrated into public plazas and bus stops. The group identified strengths, weaknesses, opportunities, and threats within the Commonwealth's solar canopy landscape. Members discussed how standardizing design and safety guidelines could reduce costs and improve permitting outcomes. Technical experts spoke about the role of storage and EV charging in increasing project value, while municipal representatives shared canopy development experiences in their communities.

Meeting #3 – May 9, 2025

This meeting centered on examining real-world case studies. Officials from the Town of Lexington and the Town of Maynard presented on their municipal canopy projects, detailing site selection, financing approaches, procurement strategies, and public engagement. Both projects experienced interconnection challenges, which sparked discussion about flexible interconnection standards and more predictable utility timelines. The group also reviewed research, including a Yale University study on Connecticut's canopy potential and a *Wired* article on distributed solar trends. Members noted the importance of aligning state incentives with actual economic conditions to ensure project viability.

Meeting #4 – June 5, 2025

The final meeting focused on refining draft recommendations. DOER staff walked members through a working draft, with structured discussion on financial assistance mechanisms, permitting and interconnection improvements, and additional supports.

Public comment was invited; remarks included support for canopy adoption from environmental advocates and suggestions for ensuring equitable access to benefits across the Commonwealth. Members agreed on the need for clear guidance, municipal technical assistance, and proactive public outreach to build awareness of canopy benefits.

Additional Outreach

In addition to these public meetings, the Chair and DOER staff, including from the newly established Clean Energy Siting & Permitting Division, conducted targeted outreach to ensure all relevant perspectives were considered despite the tight statutory timeline. This included additional research and conversations with:

- Senator Joanne Comerford and Representative Natalie Blais, sponsors of the original legislative language creating the Working Group;
- Advocacy organizations, such as Elders Climate Action and Climate Action Now;
- Researchers from Yale University and the University of Massachusetts;
- Staff from the University of Massachusetts, the Massachusetts Department of Transportation, the Metropolitan Area Planning Council (MAPC), and the Franklin Regional Council of Governments.

Feedback from these stakeholders informed the group's deliberations and helped ensure the recommendations addressed a broad range of technical, economic, and community considerations.

Case Studies

Framingham State University Solar Canopy Project

Framingham State University recently completed the installation of a 720-kW solar canopy over their Salem End parking lot, a $3 million project supported by a $436,000 Leading by Example grant. Developed through a public–private partnership, the canopy provides covered parking for students, faculty, and visitors, along with four EV charging stations, pre-wiring for ten more, and battery storage.

The system is paired with roughly 750 kWh of battery storage, enabling it to produce about 800,000 kWh of electricity each year while providing backup power during outages. In addition to lowering greenhouse gas emissions, the project is expected to save the university approximately $300,000 over its 20-year life. Its completion reflects a multi-year effort involving campus leadership, state officials, and local partners to integrate renewable energy into a heavily used campus space without disrupting daily operations.

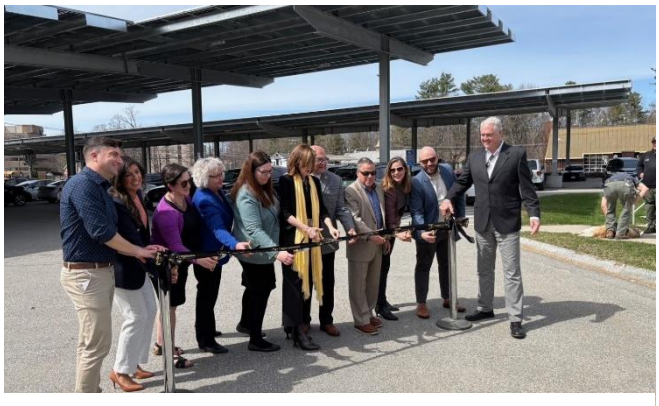

Figure 1. FSU Celebrates New Solar Canopy with State and Local Officials

Lexington Police Station Solar Canopy Project

Lexington recently approved the installation of a solar canopy over part of its new police station's parking area. The project, funded through municipal bonds, is designed to resemble a 19th-century train station to meet Historic District Commission requirements.

Figure 2. Lexington Canopy Street View Rendering

The system is paired with 750 kWh of battery storage to help the station meet its goal of net-zero operation by enabling peak demand reduction, backup power, and fast charging for the anticipated all-electric police vehicle fleet. The project will receive state incentives across the SMART, Connected Solutions, Clean Peak Standard, and Alternative Portfolio Standard programs. Despite difficult design constraints and with stakeholder coordination, the project is currently projected to generate millions in positive cash flow over its 30-year lifespan, with an estimated payback period of 10 years.

Findings and Recommendations

While recent updates to the SMART program address some of the largest barriers to cost-effective canopy development, the Working Group identified additional steps to

fully unlock the potential of these projects. Recommendations are grouped into three categories.

Financial Assistance

- Support **SMART program revisions**, including the proposed annual reassessment of base compensation and adder incentive levels based on real-time economic trends. Ensure unique canopy types are eligible for SMART incentive adders. Consider providing earlier incentive rate locks for public entity projects. Consider improving the compensation structure for standalone projects that captures the full value of solar canopy projects not serving on-site load.
- Create a competitive grant program for **innovative small-scale solar canopy projects**, including bus shelters, gazebos, and solar trees. Consider making relevant technical assistance or engineering studies eligible for funding for government entities. Consider providing preference to projects that use registered apprenticeship programs and/or pay prevailing wages.
- Establish a **state revolving loan fund** to provide municipalities and other government entities (including Councils of Governments) with assistance for up-front development and capital expenses incurred during the development of solar canopy projects.
- Support the ongoing statewide development of storage and electric vehicle **time-of-use rates** and tariff schedules to sufficiently compensate the grid benefits of peak demand reduction and fairly compensate for the grid impacts of charging and discharging. Consider additional opportunities to compensate standalone solar plus storage projects for their peak demand reduction to a local area, including incorporating such projects into statewide integrated resource planning.
- Exempt solar canopy projects from the individual and aggregate **net metering capacity limits** for public facilities.
- Enact rules for an Electric Distribution Company (EDC) to **share the capital costs** with and across developers of replacing service equipment (including transformers), when an upgrade is needed to enable a beneficial distributed energy resource project, if said equipment is under a minimum remaining useful life.
- Develop a grant program to assist in the **funding of technical feasibility**, review of easement and access rights, and utility interconnection studies for qualified solar canopy applications.

Permitting and Interconnection Improvements

- Update the **model local solar bylaw** to include solar canopy projects and conduct municipal outreach to facilitate its adoption. Consider including an expedited permitting process for solar canopy projects sited on previously developed land and determined by the local building commissioner to not negatively impact drainage, traffic flow, or sight lines. Minimum setback requirements for solar canopy projects should be established that are less than those for large, ground-mounted solar projects. Consider, in the Green Communities program or forthcoming Siting & Permitting regulations, incentivizing or otherwise rewarding municipalities that adopt said model bylaw.
- Develop **state-recommended standards** for height, materials, electrical installation, and other safety concerns of solar canopy projects.
- Charge the **Interconnection Implementation Review Group**[2] with developing a consensus for statewide Flexible Interconnection standards.
- Encourage EDCs to create a **standard Grant of Easement** template, in instances of project overlap with utility infrastructure, to provide landowners with financeable site control while minimizing the likelihood of future excavation.
- Authorize **longer SMART application timelines** and standard good cause extensions for public entity projects.
- Enact rules for the EDCs to **extend interconnection application timelines** and provide standard extensions for cause – including but not limited to complications to site access, supply chain, and local permitting – for canopy projects.

Additional Supports

- Consider a statewide **mandate that a solar canopy feasibility study be conducted**, with reasonable exceptions, prior to new construction of parking lots of a minimum size.

[2] The Interconnection Implementation Review Group (IIRG) was established by the Department of Public Utilities (DPU) through order 19-55-F on June 6, 2023. The IIRG's scope is limited to Distributed Generation (DG) interconnection in Massachusetts and processes overseen by the DPU.

- Consider an amendment to the specialized opt-in stretch building code to include **solar canopy-readiness for new construction** of parking lots of a minimum size.
- Consider, if determined to be cost-effective, a **statewide procurement** of solar canopy projects over private parking lots of a minimum size, as opted into by the private landowners. Projects should align with Executive Orders 638 and 641, the 2024 Climate Act, and the 2018 Commonwealth Apprenticeship Expansion Strategic Plan. Consider providing preference for vendors that use registered apprenticeship programs.
- Conduct a study, in collaboration with an academic research partner (e.g. University of Massachusetts' Clean Energy Extension), on the **indirect impacts** of solar canopy projects including to the urban heat island effect, fleet maintenance, embodied carbon, and water evaporation.
- Produce an **addendum report to the Technical Potential of Solar Study** to specifically identify and quantify the potential for solar canopies over parking lots across the Commonwealth.
- Publicize solar canopy **success stories**, especially projects conducted by municipalities.
- Create a **guide for developing solar canopy projects**, with particular explanation of how to develop canopy-based microgrids with storage and electric vehicle charging infrastructure. Include a directory of existing projects to date. Support and participate in MAPC's forthcoming development of a solar canopy resource guide.
- Offer **technical assistance** for designing and developing solar canopy microgrids, with storage and electric vehicle charging infrastructure.
- Support **MassDOT's feasibility study** to procure solar within their right-of-way, including but not limited to solar canopies over highways, medians, and rest area parking lots. Fund feasible and cost-effective projects in a timely manner.

Conclusion

The Solar Canopy Working Group's recommendations are designed to remove barriers and accelerate the adoption of solar canopies in Massachusetts. By focusing on financial incentives, technical assistance, streamlined permitting, improved

interconnection processes, and additional support measures, the Commonwealth can unlock the full potential of these projects.

Solar canopies turn existing developed areas into clean energy assets; helping Massachusetts meet its climate targets, strengthening the electric grid, and creating visible, tangible examples of the clean energy transition in communities across the state.