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New Report Finds Mass. Has the Space to Meet its Clean Energy Goals While Protecting Nature

LINCOLN, MA—The current siting of large, ground-mount solar development poses a clear threat to vital forests and farmlands in Massachusetts. But developing more solar energy to meet clean energy goals doesn't have to come at the expense of these critical habitats, according to *Growing Solar, Protecting Nature*, a new report released by Mass Audubon and Harvard Forest.

By shifting from large-scale, ground-mount solar to solar projects on rooftops, parking lots, and already-developed lands, Massachusetts can meet its goal of reaching net-zero greenhouse gas emissions by 2050 while simultaneously protecting crucial forests and farmlands. The report supports some ground-mount solar but also highlights that projects are currently sited in a way that doesn't properly account for environmental impact. As a result, Massachusetts has lost more than 5,000 acres of forest and prime farmland since 2010.

"Massachusetts residents have clearly stated that they want more solar energy, but not at the expense of our forests and farmlands," said Mass Audubon President David O'Neill. "We don't need to choose between building the solar energy we need and protecting the nature we love. We can and must do both to solve the climate and biodiversity crises."

This report dovetails with Gov. Maura Healey's recent executive order to create biodiversity goals for Massachusetts—the first state in the nation to take such an action. With these goals and species protection in mind, it is imperative that we preserve as much forest as possible.

"Mass Audubon's *Growing Solar, Protecting Nature* provides a clear-eyed analysis of the impacts of the Commonwealth's solar policy to date and provides a roadmap for better aligning our goals of rapidly transitioning away from fossil fuels, protecting our forests that help to drawdown carbon, and protecting biodiversity," said Climate Chief Melissa Hoffer. "The joint crises of climate and biodiversity loss require fresh thinking and this report offers just that."

The report envisions three scenarios (Current Siting, Protecting Nature – Mid-Impact, Protecting Nature – Low-Impact) for future solar development in Massachusetts. Using geospatial and energy modeling to analyze how many acres of land would be economically attractive for solar development under each scenario, it projects the amount of energy produced, the costs to develop and produce that energy, the amount of land protected, and changes to carbon storage and sequestration.

Since 2010, more than 500 ground-mount solar projects have been developed, covering 8,000 acres, of which 60 percent has been forested. As a result, over 500,000 metric tons of carbon dioxide—the equivalent of annual emissions from 112,000 passenger cars – have been removed. By shifting from that current focus on ground-mount solar to the Protecting Nature – Mid-Impact scenario presented in the report, the state can still meet its clean energy goals without causing irreparable harm to forests and nature.

“We need to think not only about how many acres we’re using for solar development, but also which acres are being developed,” said Jonathan Thompson, Senior Ecologist at Harvard Forest and co-principal researcher on this study. “Our core forests are incredibly valuable for wildlife habitat, biodiversity, and carbon storage, and we must do everything we can to protect them from further fragmentation.”

Significantly, this study finds that the Protecting Nature – Mid-Impact scenario would be cheaper for society as a whole than our current pattern of solar development. While protecting farms and forests from development would make solar energy slightly more expensive, the value of preserving additional lands that remove carbon from our atmosphere would more than outweigh this cost increase. Natural and working lands also provide biodiversity, flood control, clean air and water, natural beauty, and recreation—all of which are extremely difficult to replace once land has been developed.

“One of the goals of this work is to broaden how we think about the costs and benefits of the clean energy transition and what we need to fight climate change,” said Mass Audubon’s Vice President for Policy and Advocacy Michelle Manion. “Our results are clear: when we place real value on nature’s contribution to the fight against climate change and protection of biodiversity, the path forward with the lowest costs is the one that solves for both clean energy and nature. And it’s right in front of us.”

“We appreciate Mass Audubon’s collaboration on our recent Technical Potential of Solar Study and its work on *Growing Solar, Protecting Nature*. Both studies found that Massachusetts has ample space and potential to reach our solar and decarbonization goals,” said Department of Energy Resources Commissioner Elizabeth Mahony. “We applaud the combined efforts to look at solar siting through different lenses to ensure Massachusetts invests in solar equitably while protecting our natural working lands and maximizing the use of the built environment.”

For Massachusetts to shift to a future in which both solar energy and nature thrive, the report offers several key policy recommendations. They include:

- Eliminating Solar Massachusetts Renewable Target (SMART) incentives for projects sited on core habitat and critical natural landscapes while increasing incentives for solar on rooftops and developed lands
- Investing in approaches that will reduce costs of rooftop and canopy solar projects
- Interconnecting solar with lowest impacts to nature first

- Supporting governmental, institutional, commercial, and industrial landowners in building solar near existing transmission infrastructure to reduce distribution costs
- Launching a statewide planning effort to integrate clean energy and transmission infrastructure into the process of land development
- Funding permanent protection of Massachusetts' highest-value natural and working lands

“Before we cut any more trees to build solar, Massachusetts needs to cover every parking lot, rooftop, and capped landfill with solar to protect the precious trees that absorb carbon dioxide and provide habitat to wildlife, as well as desperately needed cooling shade and flood protection,” said Phil Coupe, Co-founder of ReVision Energy. “Solar canopies on parking lots reduce urban heat, shelter drivers from the elements, and generate zero-emission solar electricity that can power electric vehicles and nearby buildings. *Growing Solar, Protecting Nature* is exactly what Massachusetts needs to ensure we are optimally siting solar arrays with minimal negative environmental impacts and that maximize clean energy benefits.”

“Given Massachusetts' dual goals of expanding solar energy and protecting our natural resources, this new science-based report provides a roadmap to ‘Get to Yes,’” said The Nature Conservancy's Director of Government Relations, Stephen Long. “The report's recommendations thread the needle, avoiding conflicts and identifying opportunities to address the challenges of both the climate change and biodiversity crises.”

The full report can be accessed by [clicking here](#).

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More About Mass Audubon

Mass Audubon is the largest nature-based conservation organization in New England. Founded in 1896 by two women who fought for the protection of birds, Mass Audubon carries on their legacy by focusing on the greatest challenges facing the environment today: the loss of biodiversity, inequitable access to nature, and climate change. With the help of our 160,000 members and supporters, we protect wildlife, conserve and restore resilient land, advocate for impactful environmental policies, offer nationally recognized education programs for adults and children, and provide endless opportunities to experience the outdoors at our wildlife sanctuaries. Explore, find inspiration, and take action at massaudubon.org.

More About The Harvard Forest

The Harvard Forest, founded in 1907 and located in Petersham, Mass., is Harvard University's outdoor laboratory and classroom for ecology and conservation, and a Long-Term Ecological Research (LTER) site funded by the National Science Foundation. Its 4,000-acre property is one of the oldest and most intensively studied research forests in the U.S. Harvard Forest research is central to models of global change and regularly informs state and federal policy on land use and management. Open to the public year-round, the site includes educational and research facilities, the Fisher Museum, and miles of recreational trails. Our educators host educational programs for thousands of K12 and university students each year and also work closely with the Nipmuc people to ensure that this land and its benefits are mutually accessible and sustaining. Learn more at harvardforest.fas.harvard.edu.