Clean Energy Extension

A Wildlife-Friendly Certification Program for Solar PV Facilities in Massachusetts

Utility-scale solar photovoltaic (PV) facilities provide an important source of renewable electricity generation, but development of these facilities can also raise concerns about environmental impacts. In Massachusetts, the growth of solar PV capacity has led to concerns about conversion of land from open space to solar energy facilities, and the degradation or elimination of native grassland, shrubland, and forest habitats. One approach other states have taken to moderate the impacts of solar PV expansion is to encourage the management of vegetation under and around solar PV arrays to support native flowering plants and associated pollinator species. This has been accomplished through the development of pollinator-friendly solar PV certification programs.

In Massachusetts, UMass Clean Energy Extension is spearheading development of a Wildlife-Friendly Certification Program for solar PV facilities within the state. We have convened a group of experts in the fields of pollinator biology and agriculture, completed a white paper, and created a webpage on the subject. We have also created a set of draft certification criteria based on designation criteria used in other states, as well as input from pollinator and wildlife biologists and solar developers. Our draft designation is arranged in a LEED-style framework, with Certified, Silver, and Gold ratings that have specified criteria for establishment, maintenance, monitoring, and reporting. Our next step will be to organize a Review Board of experts and stakeholders, including members with experience in apiary science, pollinator biology, agriculture, wildlife regulation, regional planning, renewable energy policy, and solar PV development. This group will finalize the initial certification criteria for 2019, and review any projects applying for certification in the first year of the program.

Pollinator-friendly planting guides are available from a number of sources, and pollinator-friendly solar PV certification programs have been established in a number of states, but these programs are all relatively new. At this point in time, there are few data available regarding metrics of success of these programs, including the number of solar PV facility developers that choose to participate, how long it takes to establish native plantings, and how successfully established plantings meet evaluation criteria as outlined in certification scorecards. In addition, there is little knowledge regarding the extent to which these habitats offer significant benefits to pollinators, other wildlife species, or proximate agricultural and native ecosystems. We have little understanding of how species are using land under and around existing solar arrays, the extent to which the practices outlined in certification criteria increase pollinator use of these spaces, and whether use by pollinators is limited to generalists, or whether plantings can be established to encourage colonization of sites by specialist pollinators.

To this end, our goal is to incorporate a significant research component into the Wildlife-Friendly Certification Program currently under development. This research will serve to inform improvements to the program and certification criteria, and to add rigorous scientific understanding to the national literature in this area. We will establish collaborations among solar developers, botanists, and wildlife researchers, working together to understand how to successfully establish native plantings under solar arrays, how to mimic native grassland and shrubland ecosystems to the degree possible, and how to maximize the benefits of these sites to pollinators and native wildlife. We have identified several solar developers working within the state of Massachusetts who are interested to incorporate wildlife-friendly plantings as part of new solar array development. Integrating research activities and monitoring at these sites to determine the success of specific plantings will be dependent upon securing research funds. UMass Clean Energy Extension is currently exploring funding opportunities to launch the certification program and a rigorous research agenda.