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Guidance on Agriculture and Solar Energy Under the Wetlands Protection Act and the Solar Massachusetts Renewable Target (SMART) Program

Purpose:

The purpose of this document is to provide regulatory guidance to the Cape Cod Cranberry Growers Association (CCCGA), conservation commissions, cranberry bog farmers and commercial solar power development companies regarding the applicability of the Wetlands Protection Act (Act) and its implementing regulations to the installation of solar panels at cranberry growing facilities.

As part of a growing interest in the development of renewable energy generation structures on agricultural land, an increasing number of proposed projects include the installation of solar arrays over cultivated areas in a manner that is compatible with on-going agriculture practices. These so-called Dual Use Solar projects have also been incorporated into the Massachusetts Department of Energy Resources (DOER) Solar Massachusetts Renewable Target (SMART) program. The SMART program provides financial incentives to farmers for the development of new solar photovoltaic energy sources.

In addition, the DOER guidelines provide for Best Management Practices (BMPs) for dual-use system designs to include: (1) limiting the capacity (rated electricity production) of the system to no more than 2 MW; (2) a requirement that the lower edge of the panel be at least 8 feet above the ground for a fixed tilt panel system, or 10 feet at horizontal position for tracking systems; (3) designs so that the maximum sunlight reduction due to shading from the panels on any square foot of land under the dual-use system may be no more than 50%; (4) a system designed to optimize a balance between electrical generation and agricultural production; and (5) continuous agricultural production over the 20-year SMART program period.

Issue:

What Wetland Protection Act permitting/regulatory pathway should be utilized for the new Dual Use agriculture-solar photovoltaic energy projects in cranberry bogs?

Analysis:

Dual Use solar panel installation in cranberry bogs involves the placement of structures within regulated wetland resource areas on pier-supported or helical screw supported structures with associated shading of wetland plants and stormwater runoff which constitute wetland alterations pursuant to the regulatory definition of “Alter”¹. As such, Dual Use solar panel projects alter wetland resource areas and must be reviewed by conservation commissions and MassDEP through the filing of a Notice of Intent (NOI) to ensure compliance with all applicable resource area performance standards including Bordering Vegetated Wetlands (BVW) performance standards at 310 CMR 10.55(4)².

Any project review should include the underlying nature and characteristics of the site. In particular, the characteristics present in a commercial cranberry bog should be the subject of review under 310 CMR 10.55(4). Such a review would include, but is not restricted to, the unique nature of cranberry bogs, as distinguished from natural BVW habitat (e.g. the flat and low growth nature of bogs, free of tall wetland species, the artificial manipulation of groundwater and surface water within the bogs by water control structures, the thickly vegetated monoculture resistant to erosion, the periodic application of sand to the bogs, and the myriad of other exempt agricultural activities that occur in such bogs, resulting in bog alterations on a routine basis).

If such a project would “alter” a cranberry bog, an additional assessment should be made, pursuant to 310 CMR 10.55(4)(a), to determine whether the project will “destroy or impair” any portion of the bog’s ability to “contribute” to the BVW presumptive interests of significance to public or private water supply, ground water supply, flood control, storm damage prevention, pollution prevention, protection of fisheries and wildlife habitat.

Since historic and current manipulation of the hydrology of cranberry bogs is often significant, any alteration resulting from installation of a commercial solar array upon protection of public and private water supply, protection of groundwater supply, flood control, or storm damage prevention should be evaluated for whether it will impair the ability of such bogs to “contribute” to these interests.

¹ “Alter means to change the condition of any Area Subject to Protection under M.G.L. c. 131, § 40. Examples of alterations include, but are not limited to, the following: (a) the changing of pre-existing drainage characteristics, flushing characteristics, salinity distribution, sedimentation patterns, flow patterns and flood retention areas; (b) the lowering of the water level or water table; (c) the destruction of vegetation; (d) the changing of water temperature, biochemical oxygen demand (BOD), and other physical, biological or chemical characteristics of the receiving water.”, 310 CMR 10.04 - Alter

² The BVW performance standards provide where the a proposed activity involves the removing, filling, dredging or altering of BVW, any proposed work in a BVW shall not destroy or otherwise impair any portion of said area.

Also, given the customary and necessary agricultural practices associated with the use of sanding, fertilizers, herbicides, pesticides, and other substances upon the surface of such bogs, any alteration resulting from installation of a commercial solar array upon the statutory interest of prevention of pollution should be evaluated for whether it will impair the ability of such bogs to “contribute” to this interest.³

Additionally, as agriculturally exempt practices in commercial cranberry bogs include intentional efforts to restrict hydrophytes to a single species, the harvest of fruit production for commercial sale, and the near continual and often significant disturbance to such bogs, any alteration resulting from installation of a commercial solar array upon protection of fisheries and protection of wildlife habitat should be evaluated for whether it will impair the ability of such bogs to “contribute” to these interests.⁴

If such agriculture-solar projects are deemed to not impair the ability of bogs to contribute to the interest of the Act, projects may be permitted in Orders of Conditions, provided their installation meets all the aforementioned BMPs (i.e. height, shading, and helical screw anchoring, etc); each project would need to be evaluated in the context of the specific physical characteristics at the proposed project site. No project may be permitted which will have any adverse effect on specified habitats sites of rare vertebrate or invertebrate species as determined in accordance with the procedures identified in 310 CMR 10.59. Further, project proposals deemed to not destroy or otherwise impair the Bordering Vegetated Wetland of the bog are not restricted to impacts of 5,000 square feet and thus do not require “replacement areas” (mitigation or wetland replication).

Conclusion:

In sum, “alterations” that do not “destroy or otherwise impair” BVW and meet the performance standards for other applicable resource areas may be permitted in an Order of Conditions.⁵ Orders can be further conditioned with BMP design elements previously discussed to insure that no impairment occurs. By focusing on how cranberry bogs, as managed agricultural resources, are unique from other wetlands, it is reasonable to conclude in most instances that although solar installations in the cultivated cranberry bog setting will alter that particular wetland, the alteration will not adversely affect the interests of the Act, taking into account the unique characteristics and customary management practices of the cranberry bogs.

³ In instances when bog hydrology is associated with cold water fisheries, additional consideration should be given to the interest of prevention of pollution resulting from thermal changes in runoff from solar panels.

⁴ DEP has determined that Dual Use solar arrays do not constitute normal maintenance or normal improvement of land in agricultural use because the activities are not directly related to the production or raising of the agricultural commodity of cranberries. As such, these projects are not exempt from wetland regulation as Land in Agricultural Use per 310 CMR 10.04 Agriculture.

⁵ DEP is evaluating the possible amendment to the 2017 DEP Wetland Solar Policy to clarify these review standards.