Town of Shutesbury Planning Board
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Special Permit Site Visit Report

Site: Nextera Energy, Inc. ground-mount solar energy facility, 130 Pratt Corner Road, Shutesbury, MA (permitted as the Wheelock Solar Project).

Purpose: Inspection and assessment of compliance with Special Permits PB-SP-6/5/15 and PB-SP-19.02.

Date and Time: August 8, 2024, 10:30am to 12:30pm.

Planning Board Representatives: Deacon Bonnar, Michael DeChiara, Keith Hastie, Robert Raymond, Tom Siefert, and Jeff Weston.

Nextera Energy Representative: Joel Walker.

Weather: Mostly cloudy with temperatures in the low to mid 70ºs (F). Relevant to our observations of erosion, stormwater management infrastructure, and vegetation discussed below, data from the National Weather Service indicate that in the two months preceding this site visit, Amherst, MA received about two inches more rainfall and was about 2.5°(F) warmer than the historical average (see table below; data from https://www.weather.gov/wrh/Climate?wfo=box, accessed August 14, 2024).

	Total Precip (in)			Avg Temp (°F)	
	June	July	Total	June	July
1991-2000	4.5	4.1	8.6	66.5	71.7
2024	4.4	6.1	10.5	69.0	74.2

Site Description: The project is a 6MW$_{(DC)}$ ground-mount photovoltaic ("solar") facility constructed in 2017/2018. In 2020, 2MW (4MWh) of lithium-ion battery capacity was added. The total area of the project is about 32 acres within an approximately 1,400-acre block of land bordered by Pratt Corner Road, Leverett Road, West Pelham Road, and Sand Hill Road (designated Solar Installation District 3 under the 2022 solar bylaw) (**Figure 1**).

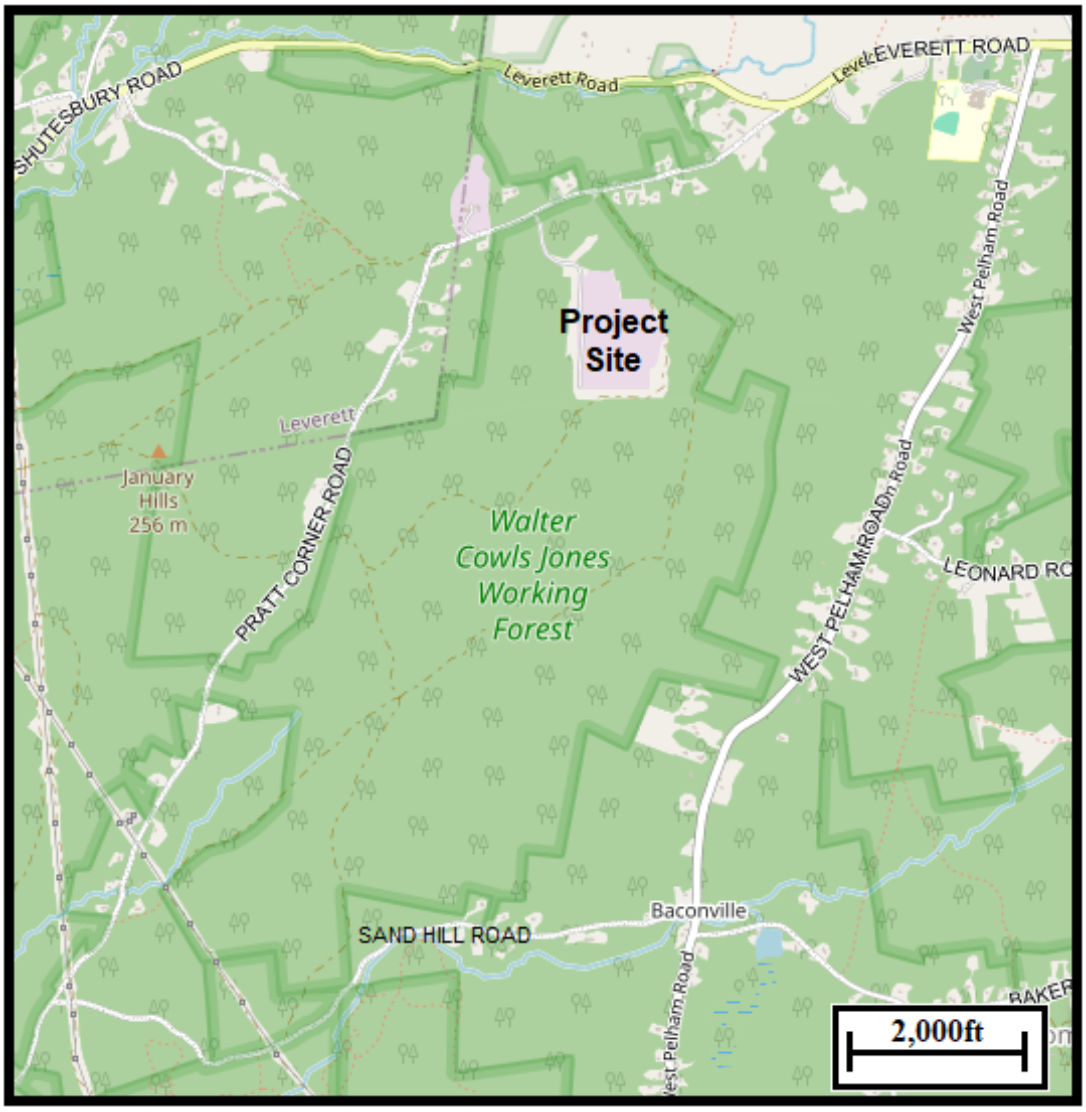

Figure 1. Location of the Nextera Energy, Inc Shutesbury solar facility (Project Site) (MassMapper OpenStreetMap, accessed August 13, 2024).

Figure 2. Aerial photograph of the Nextera Energy, Inc Shutesbury solar facility. Numbers in red correspond to the locations and photographs discussed below (MassGIS 2023 imagery, accessed August 13, 2024).

Location 1.

The dirt/gravel access drive between Pratt Corner Road and the perimeter fence entrance gate appeared to be in relatively good repair, although there was minor tire rutting at a low section and some vegetation beginning to encroach into the drive. No significant erosion was apparent and the drive is clear for vehicle access (Special Permit Operation Conditions, Items 10 and 12). DeChiara noted the importance of maintaining the drive in passable condition to ensure access for emergency vehicles (Special Permit Criteria Section B, Item 3).

Location 2.

The stormwater detention basin on the north side of the facility appeared pond-like, with standing water throughout. Siefert questioned whether this indicates a need for additional maintenance (Special Permit Operation Conditions, Item 12). Walker explained that the basin had been deepened several feet in response to earlier concerns from the Conservation Commission (DeFant 2021) and was sufficient to accommodate runoff from the facility.

Location 3.

Dense herbaceous vegetation covered the ground around and between the rows of solar arrays (Special Permit Operation Conditions, Item 11). Woody vegetation was growing below many arrays and in places up through gaps between individual solar panels. Walker reported the company mows between and around the arrays in the fall and that no herbicides have been used at the site (Special Permit Operation Conditions, Item 8). He explained that the company's priority is to keep vegetation cut back where it limits access to equipment, but stated that it is difficult to use mowers directly below the arrays because of the type of racking system used. He stated that shading effects from the protruding vegetation caused 1 to 2 percent loss of panel efficiency but was not a significant concern.

Location 3 (looking east). Herbaceous ground cover surrounding the solar arrays and electrical equipment.

Location 3 (looking east). Herbaceous ground cover and woody vegetation growing up between solar panels.

Location 3 (looking south). Service drive, western fence line, herbaceous ground cover, and western edge of arrays.

Location 4.

Significant vegetation was growing along the perimeter fencing at the western edge of the facility (Special Permit Operation Conditions, Item 12). The western stormwater detention pond was observed from the gravel service drive. It was vegetated and no standing water was apparent.

Hastie observed coyote scat on the service road near this point.

Location 4 (looking north). Service drive, western fence line, herbaceous ground cover, and western edge of arrays. The western stormwater detention pond (not visible) is located on the opposite side of the fence (left side of the photo).

Location 5.

This is the northern lithium-ion battery pad (six individual battery cabinets), associated electrical equipment, and remote-monitoring communication equipment. Walker discussed basic system operation and Nextera's ability to remotely monitor and control the facility.

Siefert noted shallow water flowing from east to west over the service road, suggesting a culvert or other management action might be needed here.

Weston noted low vegetation growing near the battery pad and in close proximity of the re-vegetated "slope protection area" that runs in a NE direction through the facility. He expressed concern that lithium-ion battery fires are difficult to control and that in the event of a battery fire the nearby vegetation would likely catch fire and spread to the slope protection area and surrounding forest.

Location 5 (looking east). Northern lithium-ion battery pad showing the proximity of low vegetation to the battery cabinets and taller woody vegetation in the slope protection area in the background.

Location 5. Inside of a lithium-ion battery cabinet showing eight individual battery modules.

Location 6.

This is the southern lithium-ion battery pad (six individual battery cabinets) and associated electrical equipment.

Weston again pointed out the potential for a battery fire to spread to the nearby vegetation and surrounding forest.

Siefert noted a pile of scrap wood and other debris along the perimeter fence.

Location 6 (looking east). Southern lithium-ion battery pad showing the proximity of low vegetation around the battery cabinets.

Location 6 (looking to the southwest). End of the service drive and back gate. Wood and other debris was observed in the vegetation on the right side of the photo.

Location 7.

The group walked along the southern fence line to the southeast corner of the facility, continued north to the eighth row of solar arrays, then walked west between the eighth and ninth rows of arrays. The herbaceous vegetation appeared diverse and several areas between the arrays appeared to have wetland characteristics (eg. spongy ground, standing water).

Hastie observed weathered moose scat along the southern fence line (curiously inside the perimeter fence).

Location 7 (looking east).

Location 7 (looking west).

References

DeFant, M. 2021. Shutesbury Conservation Commission site visit summary for the Wheelock Tract solar project 8/25/21. Town of Shutesbury, MA.

Woodward, S. and M. Quintana. 2024. 2023 Shutesbury Annual Operating Report. Nextera Energy, Inc.