To: Kingston Zoning Working Group zoningworkinggroup@kingston-ny.gov

From: City of Kingston Conservation Advisory Council, Chair, Emilie Hauser

Copy: Bartek Starodaj, Suzanne Cahill.Climate Smart Kingston Commission, and Mayor Noble.

Date: November 5, 2025

Re: Larger-scale Renewable Energy Systems in the Form Based Code – Solar/Photovoltaics

The CAC is following up on our letter to the Kingston Zoning Working Group dated November 13, 2024, particularly about whether the Form-Based Code (FBC) adequately addresses Large-Scale Renewable Energy Systems. This letter only covers Large-Scale Solar/Photovoltaics, not Wind Turbines, Hydropower, Geothermal Heat Pumps, or Solar Water Heaters.

Background

Section 405.2 of the Form-Based Code defines both small-scale[1] and large-scale[2] renewable energy systems. The Form-Based Code Standards for small-scale systems are covered under Section 405.21 Supplemental Use Standards: 405.21 O. Section 405.21 O 1. (a) includes limits to small-scale ground-mounted solar energy systems (a photovoltaic system of electricity generating solar panels mounted on the ground) of a footprint not greater than 600sf.

Section 405.21 O 3. states "that all above ground Small-Scale Renewable Energy Systems equipment/components are subject to the setbacks of the underlying Transect Standards. Ground-mounted Small-Scale Renewable Energy Systems and their associated support systems (ex. guy line anchors) are subject to a 15' front setback, and a side and rear setback of 5'. "

Standards for large-scale systems are not provided under Section 405.21. The CAC recommends some specific standards for photovoltaic systems, in particular those that are ground mounted and larger than 600 sf.

[1] RENEWABLE ENERGY SYSTEM (SMALL-SCALE)
Renewable energy systems that have limited impacts on surrounding properties and uses, and are intended to supply renewable energy to an individual building, or contribute to block-scale resiliency efforts. See Sec 405.21.O.

[2] RENEWABLE ENERGY SYSTEM (LARGE-SCALE)
Renewable energy systems that exceed the limits for a small-scale renewable energy system established in Sec 405.21.O. Large-scale renewable energy systems may produce renewable energy for public or private entities.

NYSERDA defines Large-Scale Solar differently than the Form-Based Code, so it would be helpful to note this in the FBC update. The following definitions are from *Solar Basics and Frequently Asked Questions: Understanding the basics of solar energy technology* (2023) by NYSERDA accessed at: https://www.nyserda.ny.gov/All-Programs/Clean-Energy-Siting-Resources/Solar-Guidebook

> *Solar energy projects in New York State are divided into two general categories: large-scale renewables (LSR) and distributed energy resources (DER). LSR projects, also known as* "utility-scale solar," are typically larger than 5 MW $_{AC}$, and are built with the primary purpose of supplying wholesale electricity to the grid.
>
> *A DER project is typically 5 MW $_{AC}$ [5000 kW] or less and must have a customer(s), known as the "offtaker," to purchase the electricity. Most DER projects are community solar projects, residential/commercial rooftop solar projects, or small ground mounted solar.*

In May 2025, the City completed the *Municipal Renewable Energy Implementation Plan* (MREIP). This plan gives data on current solar installations and on future potential. Based on this MREIP we assume that all projects in Kingston will fit into the NYSERDA definition of distributed solar energy resources of 5000 KW or less. We can assume that no ground-mounted solar projects will exceed 5000 kW in Kingston. For example, according to the MREIP, the largest parking lot is about 3.3 acres, see duplicated MREIP Figure 15. A lot this size can only host a 600-kW array which is much smaller than NYSERDA's definition of large-scale renewable.

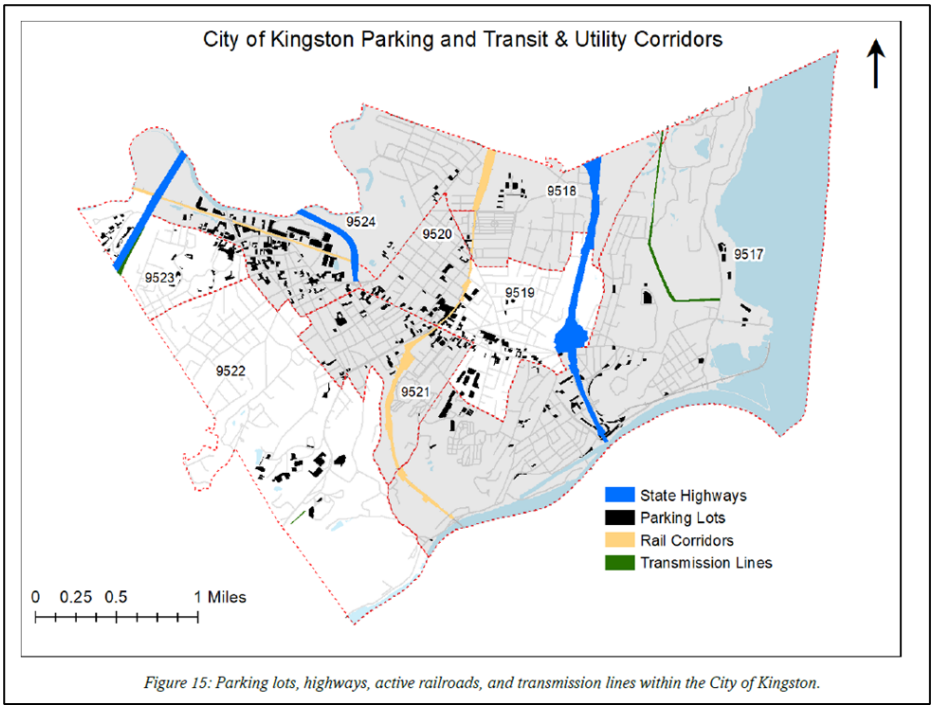

Figure 15: Parking lots, highways, active railroads, and transmission lines within the City of Kingston.

Recommendations

Note in the updated FBC the difference between the definitions for large-scale by NYSERDA and in the FBC.

No Action Needed: Rooftop solar, on both commercial and residential buildings, is adequately addressed in the FBC since the size is based on a footprint of up to 100% of the building.

Ground-mounted solar energy systems

No change from previous: Currently, small-scale ground-mounted solar energy systems (a photovoltaic system of electricity generating solar panels mounted on the ground) have a limitation under the FBC of a footprint not greater than 600sf. We believe this restriction was to provide a small amount of energy on a property where the adjacent building roof is shaded or has other limitations. Based on the 600sf limit, we still support the SolSmart Review that "if ground mounted solar PV systems are over pervious surfaces such as grass and native vegetation, then the system should be exempt from lot coverage and impervious surface requirements."

Define: The updated FBC should have distinguish between larger scale ground-mounted solar systems over impervious surface surfaces, including gravel or compacted lawn surfaces, and those over natural land surfaces.

Avoid natural land surfaces: The updated FBC should have wording to avoid ground-mounted solar energy systems on undeveloped lands (natural land surfaces), based on the Kingston Community Preservation Plan (see duplicated MREIP Figure 12), and the Administration's priority, "UNLESS the installation is done so that the practice can be a benefit BOTH for solar ecologically, such as the use of Agrivoltaics or other productive land uses." (see MREIP page 27).

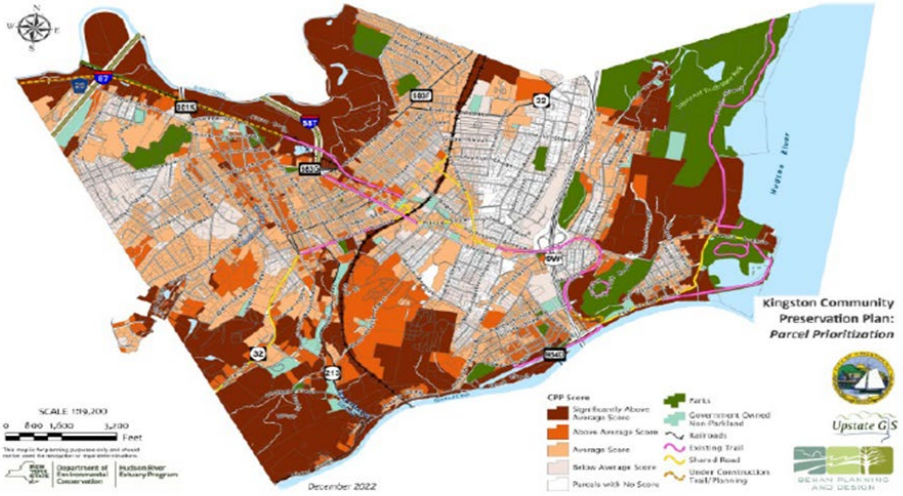

Figure 12: Kingston Community Preservation Plan Parcel Prioritization Map, December 2022.

Require shade structures: Larger scale ground-mounted solar (greater than 600sf or other area to be determined) over impervious surfaces should require the use of solar carports or other shade structures, so that they provide dual purposes. Surfaces of parking lots should follow standards in the FBC. Figure 15 of the MREIP shows locations of parking lots, with an estimated 251 acres of parking lots.

No recommendation: Currently, according to the MREIP, more research is needed to determine the feasibility of transportation and transmission corridors for solar energy systems. Therefore, the CAC makes no recommendations concerning these areas.

Thank you for your attention to these matters. Please let us know if you need more information.